

Facilitating the horticulture development of the Bowen and Gumlu region

Denise Kreymborg
Bowen District Growers Assn Inc.

Project Number: HG08020

HG08020

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Final Report

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Purpose of the project: *Facilitating the horticulture development of Bowen & Gumlu through assisting growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them, as well as provide opportunities to improve on-farm practices and management systems, and the development of and collaboration on projects and initiatives to support efforts to build a strong, sustainable and united industry in the region.*

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Disclaimer

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Table of Contents

Summary	4
Introduction	6
Method and Activities.....	7
Project Evaluation	18
Management Committee Report: HAL Project HG08020	19
Industry Development <i>Case Study 1</i>	22
Industry Development <i>Case Study 2</i>	24
SURVEY ANALYSIS REPORT.....	26
Overview of the Industry Development Needs Assessment	30
Cost Benefit Analysis.....	35
Implications.....	38
How might industry benefit from these insights?	38
How can the planning of future initiatives or events use the feedback and evaluation on this project?.	39
Industry challenges and opportunities, strengths and weaknesses	40
Recommendations	44
Acknowledgements.....	45
Appendices.....	49
Appendix 1. Industry Development Needs Assessment	50
Appendix 2. Whitsunday Coles Pitch	51
Appendix 3. Strategic Marketing Plan.....	52
Appendix 4. Food Connect Final Report	53
Appendix 5. Agribusiness Education and Training Audit	54
Appendix 6. Workforce Development Strategy & Position Description	55
Appendix 7. Newsletters.....	56
Appendix 8. Articles and Publications.....	57
Appendix 9. Proposed Bowen Gumlu Growers Association graphic design of new logo	58
Appendix 10. Letters of Recommendation & Support.....	59
Appendix 11. Up to date Bowen Gumlu Growers Association Strategic Plan	60

Summary

This project funded an Industry Development Officer (IDO) full-time as a continuation of the previous Industry Development project (HG04016). The project is facilitating the horticulture development of the Bowen and Gumlu region.

The role of the IDO is to provide a vital link between industry, government and growers, facilitate access to information, research and development outcomes, training opportunities, and provide support to growers by taking a strategic approach towards resolving industry issues.

Within the first six months of the project an Industry Development Needs Assessment (IDNA) was undertaken to review the project and refocus where needed. The IDNA delivered a set of key performance indicators to support a more structured approach to the IDO work plans and activities. The IDNA also provided a clear direction for delivering industry development to support growers and industry in becoming sustainable long term.

These were: growers attending workshops/training sessions on improved on-farm practices, growers being involved in the Reef Rescue Plan which aims to improve farm management systems, growers accessing information flow on R & D outcomes, Pest & Disease issues, IPM, Farm Management Systems and more, one cohesive association managing key issues in the region and effectively supporting the industry, and growers taking part in industry development activities. These outcomes were achieved over the course of the project.

The IDNA also identified a need for projects to support industry development and through the IDO project a number of initiatives and projects have been facilitated to deliver outcomes for industry. These were in the areas of value adding and diversification, skills and workforce development, market development, supply chain development and education and training.

The horticulture industry will benefit from this project:

- a more collaborative approach to managing industry priorities, issues and areas of need
- information and communication flow between growers, government and industry
- grower engagement in industry advisory groups, committees, initiatives and in key priority areas
- a more targeted strategic approach to project development across productivity and value adding, supply chain and markets, climate change, biosecurity, innovation skills, technology and natural resource management.
- growers implementing research outcomes, initiatives and programs that benefit the overall sustainability of their business enterprises and the industry long term

Key recommendations from this project are:

- Continued funding of the Industry Development Program in the this region to continue the projects and initiatives established and provide vital support to industry and growers

- Further recognition of the key priorities for the industry and the allocation of funding for resources and extension to facilitate support for the industry
- Further support is needed for industry state-wide and nationally for projects and initiatives across priority areas



Introduction

Horticulture is the largest economic driver in the Whitsunday region (Bowen, Gumlu, Collinsville, Proserpine and Airlie Beach) underpinning the sustainability of the local community. Crops produced in the region are tomatoes, capsicum, sweet corn, beans, cucumber, melons, pumpkins, eggplant, citrus, mangoes, zucchini, chilli, squashes, passionfruit, Lychees and Coffee.

It is estimated that the region is the largest winter vegetable growing region in Australia but remains geographically isolated from major centres. This project aimed to continue addressing the issues of geographic isolation creating issues for grower's sustainability and the lack of collaboration and unity between growers in dealing with industry issues.

Since the introduction of the Industry Development Officer more growers in the Bowen and Gumlu region are working towards a more strategic approach to a more united industry. However, it was important to maintain and build on the foundation of improved communication and information flow as growers and industry still found it difficult to work together for a more sustainable future.

The current project proposed an Industry Development Needs Assessment (IDNA) to review the current project and refocus it if needed. The IDNA established that the overall Industry development need and aim for **HG08020** Bowen and Gumlu - Industry Development Officer which followed on from HG04016 and MT07056 was Facilitating the horticulture development of Bowen & Gumlu to *'Assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and support efforts to build a strong and united industry in the region'*

The IDNA showed there is still a strong need for the Industry Development Officer project with industry identifying key priorities through the Industry Characteristics Questionnaire. Through the IDNA process there were areas of the Industry Development Project that needed refocus. There was also a need for the IDO to facilitate key projects, initiatives and programs to deliver results in key priority areas.

Through the Industry Development Project and incorporating the IDNA, the IDO has facilitated a number of key projects, initiatives and programs to support growers in the key areas identified. These key projects, initiatives and programs are in the following priority areas;

- Improve supply chain regionally
- Marketing Strategies for local branding
- Diversification, value adding and processing opportunities
- Pest & Disease incursion and management
- Market Access
- Skills and workforce development
- Career pathways in horticulture
- Improve on farm delivery systems for legislative requirements, workplace health & safety, industrial relations issues
- Improvement in farm management systems and efficiencies

The industry in this region continues to benefit from the industry development program and as seen in the cost benefit analysis continues to increase productivity across the region.



Method and Activities

The project involved the continued employment of an Industry Development Officer (IDO) full-time to facilitate the development of the horticulture industry in the Bowen and Gumlu region.

The direction and priorities of the project were set by the management committee. This committee comprised of the Bowen Gumlu Growers Association Inc (BDGA) executives (Carl Walker, Jamie Jurgens, Leanne Born and Dale Williams) consultation from other growers and industry representatives. The project activities including outputs and outcomes that were set during the application phase of the project with an Industry Development Needs Assessment taking place during the first six months of the project enabling the Management Committee to set a more targeted direction for the project and industry as well as set new Key Performance Indicators (KPI) for the IDO .

Under the supervision of the management committee, the IDO used a variety of strategies to address a wide range of issues. Some of these included information delivery by means of workshops, field days, meetings, one on one consultation, mail outs and fax outs. Some of the activities undertaken did not necessarily contribute directly towards achieving the original milestones however delivered outcomes based on the key priorities established through the IDNA process. It was also necessary to continue to build and sustain relationships and to keep a good rapport with growers, industry and government. Without good relationships in place any progress toward milestones would have been difficult.

The strategies used by the IDO and the Management Committee are based on milestone work plans and can be broadly grouped as in the milestone reports as follows:

Activity IDNA Completed (see Appendix 1)

Output Key Performance Indicators in place, new work plan in place, modifications made to project delivery

Outcomes As a result there was improved direction and more targeted outcomes delivered

Key Performance Indicators/Actions

IDO provided a broad spectrum of communication, information flow and industry development activities/roles including:

1. assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and
2. provide growers in Bowen & Gumlu region with a number of workshops/training/seminar sessions to deliver information in areas of need for the industry
3. access to education programs that include business management and farm management courses
4. communication to/for the industry on various regional/national issues

5. act as the first point of contact/information base for grower information needs
6. industry development initiatives eg market access, branding, improved environmental management
7. industry newsletter, industry wide communications (good press), general publications(fact sheets etc), website management
8. skills development (IDO and growers) opportunities
9. support efforts to build a strong and united industry in the region
10. build on and create networks and relationships through the industry

Refocused IDNA outcomes required by completion of project or ongoing project

- By 2011 an estimated 75% of growers in Bowen & Gumlu region will have attended the workshops/training sessions listed below and or undertaken improved on-farm practices
- By 2011 all growers in the Bowen & Gumlu region will have had the opportunity be a part of the Reef Rescue Plan which aims to improve FMS and improved water quality practices on-farm in order to reduce runoff to the Great Barrier Reef
- By 2011 all growers will have access to information flow through the IDO program delivering information on R & D outcomes, Pest & Disease issues, IPM, Farm Management Systems
- By 2011 there will be one cohesive association managing key issues in the Bowen and Gumlu region
- By 2011 an estimated 80% of growers in the region will have taken part in industry development activities
- By 2011 there will be one, all inclusive well-functioning local producer organisation capable of effectively supporting the regions fruit and vegetable industry through a range of avenues

The IDNA showed a need for more projects in the areas of:

- Improve Supply Chain re Local Produce to Local Food Service sector
- Expand Export Markets
- Improve 'consistency of quality' of products supplied out of this region
- Explore the supply chain and areas that need improvement
- Strategic Planning and Marketing of local produce, value adding and processing opportunities
- Pest & Disease incursions/management/IPM systems and implementations
- Improve skilled workforce and/or recognise skilled work on farm
- A plan and program for career pathways in horticulture
- Improve on farm delivery systems for legislative requirements, workplace health & safety, industrial relations issues
- Improvement in farm management systems and efficiencies and the inclusion of improved environmentally friendly practices in farm management systems
- Marketing and Promotion of fresh produce to consumers
- Industry Sustainability and Profitability long term

Activity: The IDO will attend a number of industry conferences, workshops, seminars, forums and meetings to provide information flow on industry issues that affect not only the Bowen & Gumlu region but the State and Australia wide, building industry networks that provide vital industry direction and support for growers and their needs

Output: IDO Attended and/or facilitated meetings/seminars/forums/conferences with the following industry bodies and representatives, government departments and representatives, associated other industry bodies and agencies and other key stakeholders:

<p>Department of Employment and Economic Development and Innovation</p> <ul style="list-style-type: none"> - Minister Hon Tim Mulherin <p>Representatives in these areas</p> <ul style="list-style-type: none"> - Plant Industries & Food - Agri-Science - Regional Development - Agribusiness Skills and Extension Strategies - Food and Supply Chains - R & D - Economic Development - Infrastructure & Planning - Agriculture, Food & Tourism - Manufacturing and Industry <p>Plant Health Australia</p>	<p>Department of Employment and Economic Development and Innovation</p> <p>Biosecurity Queensland</p> <ul style="list-style-type: none"> - Mark Panitz - Cameron Tree - Peter Leach - Rex Williams - Gary Artlett - Bibi Homasian - Rhiannon Evans - Michelle Janes <p>DAFF/AQIS</p> <ul style="list-style-type: none"> - Phillip Glyde - Cathy Hewlett - Lucy Palmer - Kaaren Latham - Ryan Genero - Nathan Johnson <p>Plant Export Operations Horticulture Export</p> <p>PSIC Secretariat Office of the Chief Plant Health Officer</p>	<p>Natural Resources and Water</p> <ul style="list-style-type: none"> - Rob Cocco - Chris Meak - Bob Shepherd - SunWater representatives <p>NQ Dry Tropics</p> <ul style="list-style-type: none"> - Linda Hygate - Peter Arthopher - Diana O'Donnell - Brett King - Mark Tartteln - Peter Gibson <p>Department of Education and Training</p> <ul style="list-style-type: none"> - Training Queensland - Leanne Pascoe <p>Rural Skills Australia</p> <ul style="list-style-type: none"> - Bob Ward
<p>APVMA</p> <ul style="list-style-type: none"> - Raj Bhula - Jason Lutz - Alan Norden <p>Qld Ag Vet Chemical Coordinator</p>	<p>Australian Agricultural College Corporation</p> <p>Tafe Queensland</p> <p>Barrier Reef Institute of Tafe</p>	<p>AUSVEG</p> <p>Growcom</p> <p>Vegetables WA</p> <p>Vegetable Growers</p>

<p>Ag Vet Reform Group</p> <p>Horticulture Australia</p> <ul style="list-style-type: none"> - Selwyn Snell - David Moore - Richard Stephens - Kevin Brodnaruk <p>CSIRO</p>	<p>Other Registered Training Organisations</p> <p>Department of Immigration</p> <ul style="list-style-type: none"> - Glenda Hutch - Stephen Mclean <p>Trade Queensland</p> <ul style="list-style-type: none"> - Trade Start - Investment Attraction 	<p>Association of Victoria Bundaberg Fruit & Vegetable Growers Assoc</p> <p>Mango Association</p> <p>Melon Association</p> <p>Mareeba District Fruit and Vegetable Growers Assoc.</p>
<p>Brisbane Produce Markets</p> <ul style="list-style-type: none"> - Andrew Young - Vanessa Kennedy <p>Brismark</p> <ul style="list-style-type: none"> - Ian Main <p>Australian Chamber</p>	<p>Whitsunday Regional Council</p> <p>Enterprise Whitsundays</p> <p>Bowen Collinsville Enterprise</p> <p>Regional Economic Development Corporation</p> <p>Mackay Whitsunday</p>	<p>Innovveg</p> <p>Freshlogic</p> <p>Brand Story</p> <p>Dianne Fullelove & Associates</p>
<p>Health Promotion Connections</p> <p>Queensland Health</p> <p>Employment and Indigenous Initiatives</p> <p>Great Barrier Reef Marine Park Authority</p> <ul style="list-style-type: none"> - Reef Guardian Program in Schools and in horticulture 	<p>Employment Agencies</p> <ul style="list-style-type: none"> - NEATO - CHR - BEST Employment <p>Queensland Apprenticeship Services</p>	<p>Agri Food Skills Australia</p> <p>Australian Apprenticeships</p> <p>Department of Education, Employment and Workplace Relations</p>

The IDO has built strong networks and relationships with many of the above mentioned organisations over the past three years and continues to build on these networks to deliver collaborative projects, programs and initiatives for the long term sustainability of the industry.

Conferences attended annually:

AUSVEG – National Vegetable Convention

- The IDO also presented at the 2009 Vegetable Convention on
 - the Vegetable Industry Strategic Leadership Course
 - the VIDP communication strategy tender

Produce Marketing Association, Fresh Connections National Conference

Fine Food Australia Convention

The IDO is also a member of a number of committees and working groups:

- National Horticulture Industry Advisory Group (People Development and Leadership)
- State Government Hort2020 Regulation and Legislation Working Group
- State Government Hort2020 Workforce and Skills Development Working Group
- Horticulture Reef Rescue Advisory Group
- Education & Training Advisory Group Bowen
- Reef Guardian Program Steering Committee for Cane, Horticulture and Grazing
- Made in the Whitsunday, Grown in the Whitsunday Management Committee
- Whitsunday Food Circle Food Connect working group
- Director of Enterprise Whitsunday
- Queensland Food Alliance

Training

The IDO completed

- the Vegetable Industry Strategic Leadership Course in 2009
- the Business Management Certificate IV in 2011

The IDO also attends numerous relevant workshops, forums, seminars and field days to stay abreast of industry related knowledge.

Outcomes: As a result of the attended meetings/forums/conferences/seminars the IDO delivered information to/for industry & growers in a number of key areas.

Next Steps: IDO to continue to attend all appropriate conference/seminars/meeting/forums in order to deliver information flow

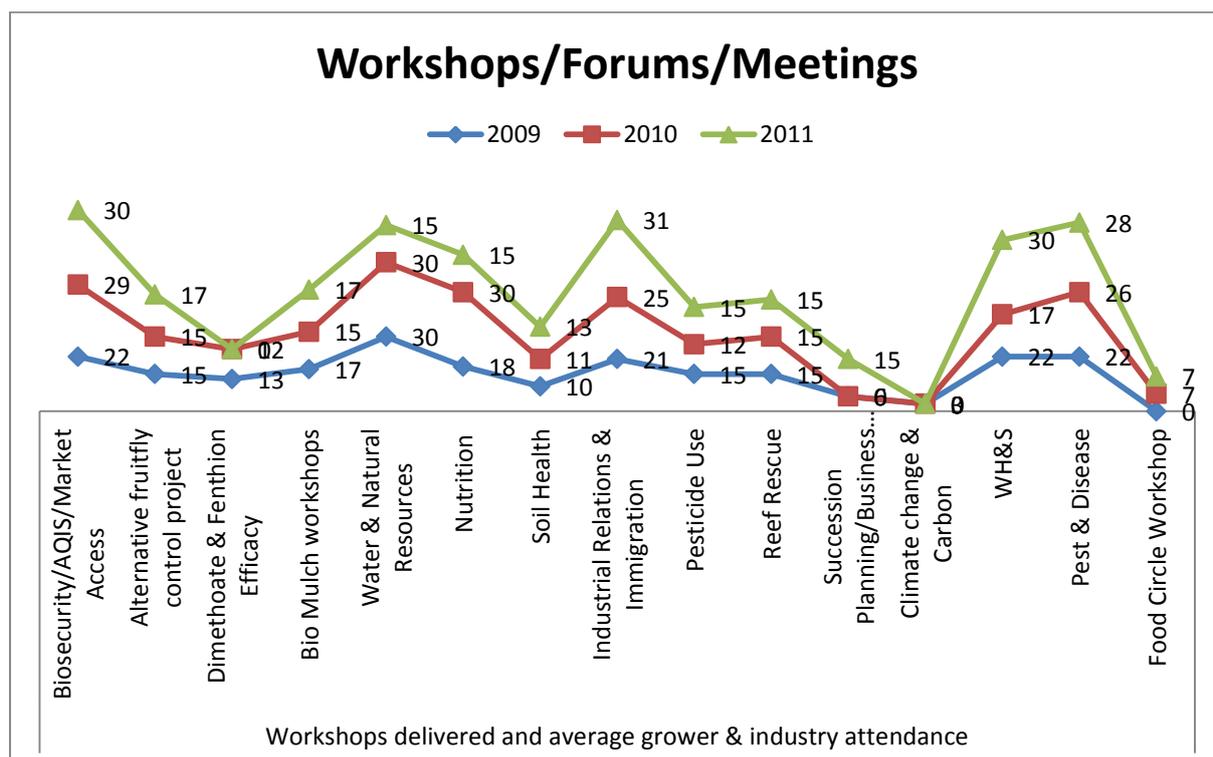
Activity Deliver, Facilitate and Coordinate Workshops, Seminars, Training & Forums

The following workshops/forums/meetings were facilitated by the IDO during the project.

- | | | |
|----------------------------------|--|----------------------------------|
| ▪ Biosecurity/AQIS/Market Access | ▪ Alternative Fruitfly Control | ▪ Dimethoate & Fenthion Efficacy |
| ▪ Biodegradable Mulch Film | ▪ Water & Natural Resources | ▪ Nutrition |
| ▪ Soil Health | ▪ Industrial Relations & Immigration & Visa's | ▪ Pesticide Use |
| ▪ Reef Rescue | ▪ Succession Planning/Leadership/Business Management | ▪ Climate Change & Carbon |
| ▪ Workplace Health & Safety | ▪ Pest & Disease Management | ▪ Food Circle/Food |

Next Steps: Workshops and training will continue to be delivered that service the needs of the industry.

The graph shows the number of workshops/forums/meetings facilitated and the attendance by growers and related industry.



Output: The average attendance at workshops/forums/meetings has increased from year to year. The average attendance was as follows:

2009	2010	2011
16	18	19

Outcomes: as a result of the workshops/seminars/training to date, over 75% of growers have received information on improved farm management systems with most having started to implement new processes and/or modify current practices as part of a strategic approach to systems changes in many aspects of their farm management. Growers have also implemented improved business management systems and received training in areas of needs i.e. Workplace health & Safety, Chemicals, Fire Extinguisher etc

All growers in the Bowen Gumlu region have had the opportunity to take part in the Reef Rescue initiative with facilitated support through the IDO program across the region. This initiative will continue for the next year and a half and will continue to support growers in

implementing improved farm management systems and reduce runoff to the Great Barrier Reef.

Growers who have received funding through the Reef Rescue initiative are encouraged to attend training in the areas of nutrient, soil, pesticide and irrigation management to reinforce onsite training and improve their skills in these specific areas.



Activity: Information & Communication Flow - communication to/for the industry on various regional/national issues

Output: One on one meetings/consultations with growers and industry, Mail outs, Fax outs, Email Outs

- Industry, government and grower meetings attended on a regular basis in order to gain information to deliver to growers and industry (as above)
- Subscription to industry newsletters mailed/emailed out to growers

Outcomes: As a result of this type of information flow and communication the IDO is the first point of contact as an information base for industry and growers

Next Steps: Continue activities as on the work plan

Activity: The IDO will initiate collaborative projects and or develop projects to support the horticulture industry locally and nationally

Output: Management of key areas of need within the industry regionally and support growers in becoming more sustainable.

Outcomes: as a result of this activity to date, growers are now involved in a local branding initiative, traineeship program and industry tours. Growers and industry are committed to being a part of many projects across industry for a more sustainable future. Grower's involvement and support in research projects shows a commitment to improve on farm practices for a more sustainable future.

Key initiatives facilitated and collaborated on are:

- Made in the Whitsundays and Grown in the Whitsunday branding
- Applied for funding to deliver a Strategic Marketing Plan across Agri-Tourism for the horticulture industry (application approval pending)

- Food Connect
- Agribusiness Education & Training Audit (Mackay, Whitsunday and Isaac regions)
- Bowen Gumlu Horticulture Workforce Development Strategy (incorporating Traineeships and Apprenticeship program, Horticulture Industry Tours for year 9 & 10 students, career pathways program, and a position description for an Industry Based Workforce Co-ordinator)



The workforce development strategy and other initiatives listed above can be used as a template for other regions to develop programs and initiatives specific to their needs.

(Please see Appendix – 2. Whitsunday Branding successful ‘Coles’ pitch 3. Strategic Marketing Plan proposal for funding 4. Food Connect Final Report 5, Agribusiness Education & Training Audit 6. Bowen Gumlu Horticulture Workforce Development Strategy and Position Description for an Industry Based Workforce Co-ordinator)

The IDO is also a key contributor and collaborator on the following projects:

- Alternative Fruit Fly Management and Market Access Project for Capsicum and Tomato
- Alternative Fruit Fly Management and Market Access Project for Eggplant
- Dimethoate and Fenthion Efficacy Trials
- Development of a test to quantify irradiation damage in fruit flies
- MT09068 - Comparison of biodegradable mulch products to polyethylene in irrigated vegetable, tomato and melon crops
- VG09038 - Vegetable soil health systems for overcoming limitations causing soil borne diseases
- VG09041 - Environmental effects of vegetable production on ‘sensitive’ waterways
- Controlled traffic farming for production efficiencies and soil health in tropical vegetables
- Water for Bowen project
- Inductions and Passport Pilot Program across Bundaberg and Bowen

Next Steps: continue to deliver projects and outcomes for the sustainability of the industry long term and a more cohesive industry

Activity: Industry newsletter, industry wide communications (good press), general publications (fact sheets etc), website management

Output: BDGA Newsletter distribution (this publication includes a collection of articles from other publications and articles written by the IDO), Regular good news article in Fresh Source, Good Fruit & Vegetables, Local (Bowen Independent) Newspaper, ABC radio – 95% of feedback on good news stories and the newsletter is positive (these types of communication are on a by monthly to monthly recurrence)

Outcomes: As a result of these types of communication there is good information flow between the growers, industry and the local community

See Appendix 7 & 8 (Examples of Newsletters, Articles for Fresh Source & Regional Newspaper Publication)

Next Steps: Continue to delivery on action/activity on a regular basis

Over the past year the region suffered from a sabotage on the industry in the peak of the season affecting over 30 growers and poisoning over 7 million seedlings. The sabotage had an impact on the price of fresh produce and the consumer opinion of fresh produce out of the region. The IDO was the key contact/representative for the industry and media locally, state-wide, nationally and internationally. The IDO fielded well over 150 interviews and supported the on-going investigation into the incident. The IDO also supported growers in accessing new seedlings and funding to continue growing.

The region also suffered two cyclones, one of which was the largest this generation and generations before have ever seen. The IDO supported growers in the clean-up effort and in accessing support from government to continue farming. The IDO was once again the key industry contact/representative fielding interviews and providing updates for industry, government and media.

On these occasions the IDO showed leadership and professionalism in support of the growers and industry and in response to questions and enquires.

Activity: Improved grower collaboration and input into industry and government initiatives

Output: Two well-functioning local producer groups or one united growers association

Outcomes: The IDO has facilitated the amalgamation of the Bowen District Growers Association Inc and the Gumlu Local Producers Association Inc to officially form Bowen Gumlu



Growers Association. The IDO is facilitating the launch of a new logo and website for the new growers association and the industry. See Appendix 9 (Graphic design of new logo)

The IDO has also facilitated the collaborative relationships with

- Bundaberg Fruit and Vegetable Growers Association and the Mareeba District Fruit and Vegetable Growers Association.
- AUSVEG and Growcom facilitating initiatives/programs/projects within the Bowen Gumlu region to support growers and industry.

The IDO has facilitated grower involvement in

- the National tomato discussions and committee that have now broken down
- the Australian Melon Association levy consultation process which was not successful
- Government dialogue for action forums over the past three years
- Government Steering Committees
- the Horticulture 2020 Alliance for Action
- the Strategic Investment Plan
- positions on advisory boards

Grower input into government and industry priority strategic planning has increased over the past three years.

Next Steps: Continue to develop strong relationships and collaborative partnerships across industry for a more sustainable future for the industry and encourage grower input into industry initiatives and in strategies to support the industry.

Project Evaluation

The evaluation includes the following:

- a management committee review of the project performance
- two case studies describing grower benefit
- an independent analysis including an industry survey
- an overview of the Industry Development Needs Assessment carried out and the initiatives developed as a result
- a basic cost benefit analysis
- letters of recommendation or support from industry and associated representatives – see Appendix 10 (Letters of recommendation)
- Up to date Bowen Gumlu Growers Association Strategic Plan – see Appendix 11



Management Committee Report: HAL Project HG08020



The Management Committee has reviewed the project performance and outcomes, and would like to make the following comments:

- The profile of the Bowen Gumlu Growers Association and the overall horticulture industry has been raised both within the region and nationally through the Industry Development Officer representing our organisation, the industry and growers at key industry events, eg National Vegetable Industry Conferences & Conventions, Produce Marketing Association Fresh Connection Conferences, Fruit Fly Forums, Systems Approach Forums, Automation and Mechanisation Forums, Fine Food Australia, Regional Development Australia Forums, Economic Development Forums and more.
- The Strategic Action Plan hoped to achieve greater cohesion between Growers within the region, particularly between Bowen and Gumlu. This has certainly been achieved as the Gumlu Association has now joined the Bowen Gumlu Growers Association. This has effected a name change for the organisation. We are now known as the Bowen Gumlu Growers Association. This highlights the work provided by the IDO in aiming to provide more cohesion within our industry, and that the Gumlu Growers are supporting the initiatives of our project.
- The Industry Development Needs Assessment has identified the need for more projects in the areas of expanding export markets, exploring the supply chain and identifying areas that need improvement, identifying value adding and processing opportunities, improving skilled workforce, planning a program for career pathways in horticulture, improvement in farm management systems and efficiencies and the inclusion of improved environmentally friendly practices in farm management systems, industry sustainability and profitability long term. The IDO has initiated projects and programs in these key areas that will flow into the next 3 year project. Some of these projects include:
 - the development of a skills and workforce development strategy for the region which will deliver benefits at a local, state and national level

- the delivery of the Reef Rescue Initiative and Reef Guardian program to growers in the region
 - growers attending Business Management training and receiving a Certificate IV in Business Management
 - the establishment of a local supply chain between growers, restaurants and hotels direct and through a newly established farmers market in the coming year
 - development of a strategic marketing plan across agri-tourism to support growers in developing value add and diversification opportunities
 - the development of basic export strategies moving forward for the region and more.
- The Newsletter produced by the IDO is informative and contains relevant information to assist Growers. It is also a vehicle for reporting back to industry the outcomes/issues facing the region, and providing reports on conferences etc.
 - Workshops and training sessions have been well attended and received by Growers in the region
 - Many Growers have accessed Reef Rescue Funding to implement improved farm management systems across soil, nutrient, pesticide and irrigation management facilitated by the IDO.
 - Latest Legislation, Regulation and Policy updates have been communicated to industry across the region as needed.
 - In recognition of the potential labour shortage in the region, the IDO has developed a skills and workforce development strategy in consultation with industry and government which incorporates programs and initiatives around traineeships and apprenticeships in horticulture, career pathways, school based curriculum activities, industry tours for students, parents, teachers and the local community, creating a webpage to promote the industry and career opportunities as well as knowledge sharing, induction programs for all workforce and training and up-skilling support for growers and industry.
 - Market Access issues have dominated the region for the last 5 years, with the review, suspension and loss of key market access crop protectants such as Dimethoate and Fenthion for use on many commodities. The IDO was and still is heavily involved in attending all workshops and forums dealing with this issue, and ensuring growers are well informed. The IDO, as a priority, has been co-ordinating the research and implementation of a proposed “Systems Approach” for market access for the growers in this region. This Systems Approach will allow market access to continue for those commodities affected by the removal of the use of Dimethoate and potential loss of Fenthion on their produce.

- The IDO has continued to collaborate with other Grower Associations and Peak Industry Bodies in various regions in Queensland and nationally, eg Bundaberg, Mareeba, Gatton, Growcom, Vegetables WA, AUSVEG and others.
- The IDO position has been run out of the local Department of Employment, Economic Development and Innovation (DEEDI) Research Station in Bowen. This has facilitated good networking and project collaboration opportunities with relevant extension officers, and provided good information flow between DEEDI and the local growers.
- Increased partnership arrangements between Industry and Bowen Gumlu Growers Association, has been achieved through growers championing the benefits of initiatives driven by the IDO at a regional, state and national level.
- The Strategic Plan has been updated as required with the IDO in collaboration with others working on developing other strategies across export, investment and market development.
- With the implementation of various projects, the IDO could now benefit with the assistance of a Skills and Workforce Development Officer and an Administration person to further develop and deliver outcomes for industry and growers in the identified projects for the future.

Overall, as a Management Committee, we feel the IDO project's performance has been well above the initial expectation of the commencement of the project. The project continues to deliver outcomes in the area of industry develop and supports the wider industry nationally in its collaborative approach to supporting industry on managing the key priority areas.

Bowen Gumlu Growers Association

Industry Development Officer Management Committee



Industry Development *Case Study 1*



Mulgowie Farming Company Nutrient, Soil & Irrigation Management

Most farmers would like to get more out of their land without compromising its health. Mulgowie Farming Company is on its way to doing just that.

Through consultation with the Industry Development program with Bowen Gumlu Growers Association, Mulgowie Farming Company has started to achieve great outcomes across their farm management systems in the areas of Nutrient, Soil, Pesticide and Irrigation Management.

One specific area facilitated by the Industry Development Officer has been the Reef Rescue Initiative with NQ Dry Tropics and Growcom over the past three years.

Mulgowie Farming Company is Australian owned and operated and has been growing sweet corn, fresh beans and other vegetables for almost 30 years.

It was started by the Emerick family in the Lockyer Valley, Queensland. Now it has 400 staff working 5,000 hectares in Queensland and Victoria.

Mulgowie sells direct to supermarkets, agents and markets and has two packing/processing enterprises in the Bowen region.

Some of the key changes that have taken place over the past three years through the facilitation of Reef Rescue Initiative, workshops and field days are:

- Mulgowie has increased the number of vegetable rows from four to six, getting more yield, saving on diesel and ground preparation costs and improving the condition of the soil.
- The Company has introduced minimum tillage and controlled traffic, to some of its farms. Its fleet of tractors are set up to run down very precise three metre wheel spacing based on GPS coordinates. (It is a common practice on broad acre farms but unusual on vegetable properties).



- Development of a recycling pit to improve the quality of water leaving the farm by reusing water.
- Mulgowie has incorporated automated fertigation and irrigation systems for a more efficient and targeted approach to water use and fertilizer application.

With support from the Industry Development program, Mulgowie received funding from the Australian Government's Caring for Our Country Reef Rescue initiative.

The Mulgowie project, to convert to controlled traffic and minimum tillage, was one of 23 horticulture projects facilitated by natural resource management group NQ Dry Tropics. Through this initiative and support from the Industry Development Officer, Mulgowie secured funding to modify machinery and planters to implement controlled traffic and minimum tillage.

They also received funding for a recycling pit which has improved the quality of water leaving the farm by reusing water. The Industry Development Officer facilitated the Fruit and vegetable representative body Growcom to work through a risk assessment on the Bowen farm to find out what the Company can do to improve farm management systems around water quality.

Farm manager Andrew Sippel says using minimum tillage has made a big difference to the quality of the soil. "We can get on the ground a lot earlier in the wet season and the ground is getting softer. We also don't have to worry about driving over crop beds." Andrew says. He has also found that the soil holds more moisture because it is not as compacted.

There is now a more targeted and accurate application of Fertiliser and water since it is not being put in wheel tracks, thus Mulgowie is using less fertiliser in the new production systems. Andrew says one of the downsides of using controlled traffic on vegetable paddocks is the difficulty of manoeuvring large machinery around small rows. It takes the Company a third longer to plant an area; however savings are still achieved. Training staff to get their head around such precise straightness has also been challenging for the Company. Up to 30 people had to be taught to use GPS and get used to this different way of operating. In the long term Mulgowie wants to avoid digging up the ground at all. "We want to get to the point where we do not have to hoe ground," Andrew said. "We currently hoe beans but try not to hoe corn." Is it really achievable on such a large scale? Andrew thinks so. The unpredictable tropical weather can throw a spanner in their goals. The Company, through automated fertigation and irrigation systems would also like to reduce their fertiliser use by a third more at least over the next two to three years.

In 2011, Mulgowie Farming Company won the AUSVEG Environmental Award for their demonstrated commitment to implementing sustainable farming practices.

This case study was developed by Bowen Gumlu Growers Association in collaboration with NQ Dry Tropics Reef Rescue Initiative.





Industry Development Case Study 2

Vee Jays – Jurgens Produce Nutrient, Soil & Irrigation Management



Vee Jays Farm is owned and operated by Jamie and Melita Jurgens and is based just out of Bowen in the Euri-Creek area. Vee Jays Farm is a family-owned and operated business that has been growing tomatoes and capsicums in Bowen for over 37 years.

Fifteen years ago the family re-branded its tomatoes and capsicums 'VeeJays' in order to stand out at busy wholesale markets and make sure its product is not overlooked in the competitive produce sector. Vee Jay believe if people understood the seasonality of vegetables more, they would be able to eat fresher, tastier produce that had not been stored in warehouses and travelled miles. Tomatoes are the company's main product.

Over the past 6 years Vee Jays has worked closely with the Industry Development Project to better support the overall sustainability of their business. Vee Jay Farms has always believed that access to support in areas of priority for their farm means they will always stay up to date with industry, new technology and receive support in accessing funding to deliver outcomes across their farming enterprise.

Over the past three years Vee Jays has attended many workshops, field days and seminars facilitated by the Industry Development Officer. An example of a key area of support was the facilitation of the Biodegradable Mulch film project initiated 4 years ago. The Industry Development Officer facilitated trials of Biodegradable Mulch Film in collaboration with the State Government research facility based in Bowen. A key priority for this project was that growers in the region needed to be involved. Some growers took up the initial opportunity to trial the product on farm and organise field days and workshops.



As a result of Vee Jays attendance at the initial workshop and field days, they trialled the product on their property. After two years of trial on farm and further workshops facilitated by the Industry Development project, Vee Jays has now replaced all polyethylene based mulch on their farm with Biodegradable Mulch film.

Some of the initiatives Vee Jays have taken up facilitated by the IDO are:

- The Reef Rescue initiative where they received funding to manage runoff on farm improving in the areas of irrigation management, soil management, nutrient management and pesticide management.
- The implementation of controlled traffic and minimum tillage on farm
- The Business and Industry Transformation Incentive scheme accessing funding to diversify and develop a value add product using their field grown tomatoes – the funding was used to construct a processing line that includes a system to blast-chill semi-dried tomatoes to improve the storage life and quality of the dried product
- Received support to develop a Business Plan
- Attended the Business Management Certificate IV course
- Utilised the Grown in the Whitsunday branding initiative
- Incorporating a pest and disease crop consultant within their business
- Involvement in the Fruit Fly market access project
- Farm tours with high school students, industry groups, teachers and others



Jamie Jurgens said “VeeJays Tomatoes are a family business that produces Tomatoes and Capsicums for both Australian and overseas markets. VeeJays Tomatoes are committed to producing a safe food product with the highest consideration for the environment”. “Without the support of the Industry Development project it would have been a lot harder to achieve these outcomes.”

Not only has the Industry Development project supported Vee Jays but it has encouraged them to engage in State and National steering committees and boards providing a direct link between grower’s, government and industry.

BOWEN GUMLU GROWERS ASSOCIATION INDUSTRY DEVELOPMENT OFFICER PROGRAM

SURVEY ANALYSIS REPORT

Facilitated by
Alex's Temporary Business Administration Services

BACKGROUND AND METHODOLOGY

This report presents the results of a survey among Growers conducted on behalf of the Bowen Gumlu Growers Association Incorporation. BDGA commissioned Alex's Temporary Business Administration Services to conduct a survey in order to gauge grower's satisfaction level on the communication and correspondence between them and the BGGGA regarding the key priority areas for the industry, with a particular emphasis on the work carried out by Industry Development Officer Denise Kreymborg.

The survey results are reported in the final report for Horticulture Australia Limited, Management Committee and the Industry Development Officer. This information will also support gaining future funding for the continuation of IDO projects.

To collect the information contained in this report, 59 growers were invited to complete an online survey—a total of 16 growers completed the questionnaire, 5 declined and 38 were unavailable; which represents a participation rate of 25%.

EXECUTIVE SUMMARY

Over the past three years the IDO has supported and/or collaborated with R&D projects in order to improve and add value to the overall horticulture development and operations in the Bowen and Gumlu region.

Since the introduction of an Industry Development Officer in the Bowen region, the information flow from a wide range of different projects has enabled growers to benefit on a larger scale than they previously were.

SURVEY RESULTS

Bowen Gumlu Growers Associations overall industry surveyed satisfaction level is high. More than 90% of those surveyed are happy with the communication between them and the BGGGA however growers are most satisfied with the work output and commitment level shown by Industry Development Officer Denise Kreymborg.

100% of the growers whom completed the survey knew of the Industry Development Officer and confirmed they received and found the Newsletters informative, as well as faxes and

mailed out information from the Bowen Gumlu Growers Association through the Industry Development Officer.

Each year for the past three years the BGGGA growers have been invited to attend workshops on Soil, Nutrient, Irrigation, Pesticide, Industrial Relations and other topics.

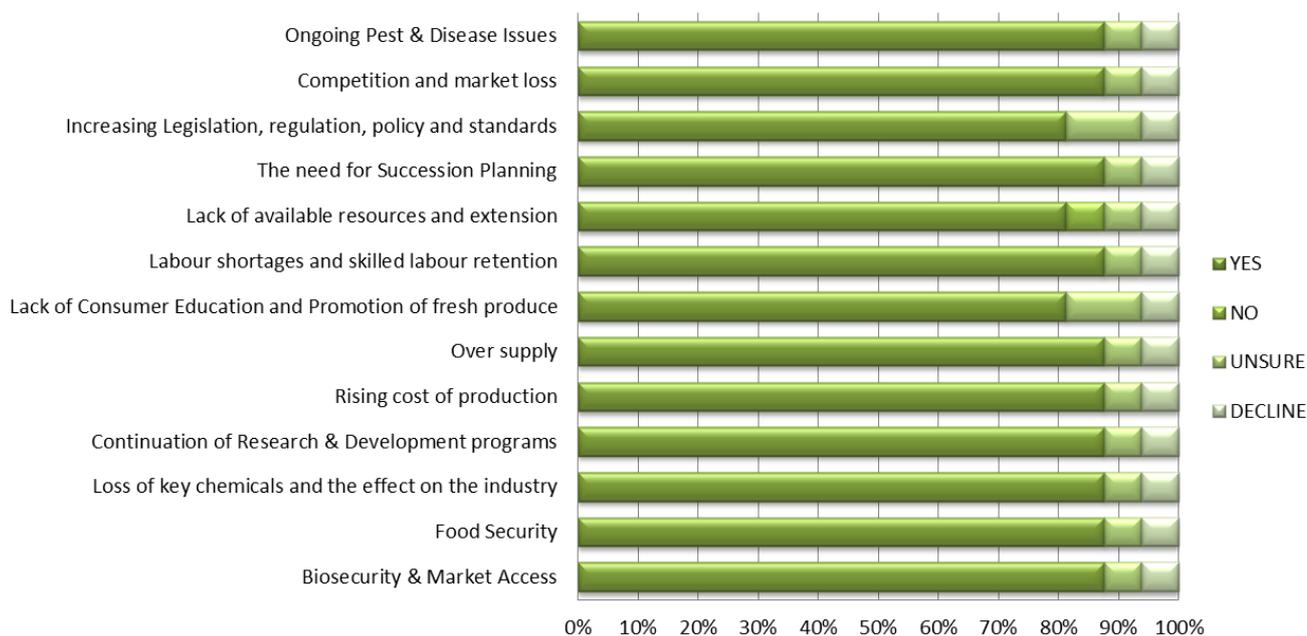
100% of those surveyed said they received invitations to these workshops and/or attended workshops facilitated by the Industry Development Officer.

Q. Have you found these workshops informative?



The 25% of those surveyed (as shown above), who answered no to this question commented they had no time to attend the workshops offered to them due to work commitments.

Q. Are you aware of the following key priority for the industry?



The majority of growers were aware of the key priority areas within the industry although a small percentage of those that were surveyed were unsure of how to respond and an even smaller percentage choosing not to answer.

Further comments on key priority areas:

- Lack of Consumer Education and Promotion of fresh produce

“Lack of knowledge when it comes to knowing what foods are grown in Australia - Origin of production should be placed on product instead of the origin of the packaging”

- Labour shortages and skilled labour retention
“Younger people are not staying in the industry because it seems to be too difficult. People need to be educated that with hard work comes reward. Farmers and their workers are feeding the country”
- The need for succession planning
“Planning for the future is important. Grooming people, including key workers and family members to take over jobs and planning should be happening now.”
- Competition and market loss
“Free trade gives imports an advantage. We should be looking after Australian product first and imported products second.”
- Increasing Legislation, Regulation, Policy and Standards
“Pricing should be regulated to ensure consumer is getting a fair deal. Handling costs are far too high and unnecessary as farmers do majority of the handling to provide a product packaged and ready for market. Agents and Merchants commission should have GST to keep them accountable and to minimise unnecessarily high prices.”
- Ongoing pest and disease issues
“DPI is understaffed and under resourced. More money needs to be placed into R&D monitoring. Money should not be spent on marketing.”

More than 90% of those that were surveyed strongly believe the Industry Development officer is supporting growers through the development of programs and initiatives in the key priority areas. *“We’d be lost without her”* & *“She supports all industries and is helping everyone”* are a few of the added comments from the growers.

When asked the question; have you implemented or been a part of programs supported by the Industry Development Officer such as Reef Rescue Initiative, Systems Approach for the potential loss of Dimethoate, Biodegradable Mulch film and others? 100% answered yes, with no further comments made.

All those surveyed believe there has been a significant change in the management of industry issues in this region due to the Industry Development Officer. *“No way could we do it without her”* *“She loves the industry and has learnt a lot. This position is essential as she represents all farmers and is non-bias to one grower.”*

The overall satisfaction level within the region from growers is high with most growers very enthusiastic about the work being carried out. When asked if they believe there is a need for an Industry Development Officer in the region 100% of those surveyed said yes. The growers then went on to comment about how they are particularly most satisfied with the works being carried out by IDO Denise Kreymborg and believe she is not only a vital asset to the team but also believe she has to the knowledge to achieve the greatest outcomes for the industry.

“Denise is doing a great job of getting information out to everybody.”

“The IDO adds value to the information flow chain and assists with the coordination between the growers and the other parties that lack communication skills. The IDO also has the ability to communicate well with all areas of the industry and does a great job of it.”

“Denise is doing a great job. The industry has needed someone like her for a long time and the BGGGA have found the right person for the job.”

“We would be lost without her.”

“She is doing really well.”

“Absolutely vital. The IDO position is very necessary if we want to be listened to and have changes made in the industry. The IDO is required to get messages out including those which need the government involved.”

“We hope someone doesn’t see her from another industry or the mines and try to snap her up for themselves”

“Very good. The government should be allocating more funding to these projects”

A number of those that were surveyed also showed great support for the need of an additional staff member to assist the IDO in carrying out the required works. *“I’d like to see more funding go towards getting supports staff for Denise Kreymborg. This position is overworked and stressed. I believe there is a need for a full time project and full time office employee. The industry has enormous opportunities but not enough people power to do the job.”*

OVERALL SATISFACTION

Whilst there are still opportunities for growth within the Bowen and Gumlu horticultural industry operational process, communication and training, the industry has responded well to the Industry Development Officer projects to date.

The support from the growers for the continuation of the project and future projects is 100% and BDGA is confident that its grower members will continue to support the project financially and that this will broaden further as future project goals and objective are met.

The Bowen Gumlu Growers Association have taken the critical first steps in demonstrating their commitment to the growers and in boosting operations and productivity for the industry with the assistance of the IDO program. Therefore it is highly recommended that this program be continued to ensure continual growth of the horticultural industry within the Bowen and Gumlu region.

Overview of the Industry Development Needs Assessment

Within the first six months of this project an Industry Development Needs Assessment (IDNA) was undertaken. Through the IDNA the industry identified key priority areas. These were:

- Improve Supply Chain re Local Produce to Local Food Service sector
- Expand Export Markets
- Improve 'consistency of quality' of products supplied out of this region
- Explore the supply chain and areas that need improvement
- Strategic Planning and Marketing of local produce, value adding and processing opportunities
- Pest & Disease incursions/management/IPM systems and implementations
- Improve skilled workforce and/or recognise skilled work on farm
- A plan and program for career pathways in horticulture
- Improve on-farm delivery systems for legislative requirements, workplace health & safety, industrial relations issues
- Improvement in farm management systems and efficiencies and the inclusion of improved environmentally friendly practices in farm management systems
- Marketing and Promotion of fresh produce to consumers
- Industry Sustainability and Profitability long term

A list of key industry issues affecting the Bowen and Gumlu region were also identified. These were:

- Ongoing Pest & Disease Issues
- Labour Shortages and recognition of skilled workers in the industry
- Tomato Levy discussions
- Managing the Horticulture Code Issues
- Managing Water Issues
- Managing Market Access Issues
- Managing the new Horticulture Award that was developed through the Award Modernisation process and other Industrial Relations Issues
- Workplace health and safety legislation and regulation
- Transport regulations
- Chemical reviews
- The rising cost of production
- Runoff to the Great Barrier Reef environmental government legislation
- Fragmentation within the industry
- Lack of extension support from government

A list of scheduled industry development activities were developed with key performance indicators and actions against the key performance indicators (See Appendix 1 - for the full IDNA).

An Action Plan was developed (See Appendix 1 - for the full IDNA), which delivered more focused outcomes for the completion of this project.

The overall Industry development need for **HG08020** Bowen and Gumlu - Industry Development Officer which followed on from HG04016 and MT07056 was Facilitating the horticulture development of Bowen & Gumlu to:

- *Assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and support efforts to build a strong and united industry in the region*

The outcomes required by the completion of the project or into an ongoing project were:

- By 2011 an estimated 75% of growers in Bowen & Gumlu region will have attended the workshops/training sessions listed below and or undertaken improved on-farm practices
- By 2011 all growers in the Bowen & Gumlu region will have had the opportunity be a part of the Reef Rescue Plan which aims to improve FMS and improved water quality practices on-farm in order to reduce runoff to the Great Barrier Reef
- By 2011 all growers will have access to information flow through the IDO program delivering information on R & D outcomes, Pest & Disease issues, IPM, Farm Management Systems
- By 2011 there will be one cohesive association managing key issues in the Bowen and Gumlu region
- By 2011 an estimated 80% of growers in the region will have taken part in industry development activities
- By 2011 there will be one all-inclusive well-functioning local producer organisation capable of effectively supporting the regions fruit and vegetable industry through a range of avenues

The BDGA Strategic Plan link was

Strategies

- a) Collecting and collating Information from within the industry and government to deliver information flow on
 - New Technology & Innovation
 - R&D project outcomes
 - Vegetable Industry Development Program
 - Regulation, Legislation, Policies, & Priorities
 - Industry body activities (local, state, national)
 - Workshops/Seminars/Forums/Training/Leadership
 - Business Management & Farm Management Systems (Water, Soil, Nutrient, Irrigation, Pesticide)
 - Sources of funding
 - Environmental Initiatives

b) Building relationships and networks with industry bodies, government (local, state and federal)

c) Support BDGA in developing, managing and delivery of projects to support local growers and industry

Goal 2 Develop projects specific to the needs of the industry in this region and align with industry priorities

- a) Pest & Disease
- b) Supply Chain Locally
- c) Supply Chain Improvement
- d) Export Market Development
- e) Strategic Marketing Plan for local branding initiative
- f) Improve produce quality out of region
- g) Improve on farm management systems
- h) Up skill on farm workers
- i) Traineeships and Apprenticeships in Horticulture Production Development
- j) Develop what best practice is on farm

The IDNA showed there is still a strong need for the Industry Development Officer project with industry identifying key priorities through the Industry Characteristics Questionnaire. Through the IDNA process there were areas of the Industry Development Project that needed refocus. These were for the IDO to facilitate key projects, initiatives and programs to deliver results in the areas of need.

Through the Industry Development Project over the past three years and incorporating the IDNA, the IDO has facilitated a number of key projects, initiatives and programs to support growers in the key areas identified. These key projects, initiatives and programs include;

- Contributed to and collaborated on a number of key industry projects to support growers in dealing with the loss of Dimethoate and Fenthion
- Contributed to the development of a 'Systems Approach' for market access for tomatoes, capsicums and eggplant
- Contributed to and collaborated on the development of a local brand 'Grown in the Whitsundays & Made in the Whitsundays'
- Contributed to and collaborated on the development of the Biodegradable Mulch Film trials and HAL funded project
- Facilitated the amalgamation of BDGA and GLPA to become Bowen Gumlu Growers Association
- Facilitated the development of a skills and workforce development strategy for the region which will deliver benefits at a local, state and national level
- Facilitated the delivery of the Reef Rescue Initiative and Reef Guardian program to growers in the region

- Facilitated growers taking up Business Management training and receiving a Certificate IV in Business Management
- Facilitated a successful application for Next Gen Succession Planning workshops (DAFF) for growers and engaged a consultant to deliver the workshops over two years
- Facilitating an average of 17 workshops/forums/field days per year across the key areas listed in the IDNA
- Facilitated, contributed to and collaborated to gain funding and deliver key results in the area of Economic Development within the Horticulture Industry - Food Circle project
 - The establishment of a local supply chain between growers, restaurants and hotels direct and through a newly established farmers market in the coming year
 - Development of a strategic marketing and investment plan across agri-tourism to support growers in developing value add and diversification opportunities
 - The development of basic export strategies moving forward for the region and more
- Contributed to and collaborated on the Agribusiness Education & Training Audit for the Mackay, Whitsunday and Isaac regions
- Facilitated an application for funding to develop a new Bowen Gumlu Growers Association website to connect food production with local supply, healthy eating promotion, kid's horticulture projects, community engagement and a grower portal. This application was approved by the Department of Employment, Economic Development and Innovation
- Facilitated an application for Bowen Gumlu Growers Association to engage a consultant to develop a Strategic Agri-Tourism Marketing plan to deliver key recommendations and actions in the area of value adding, diversification and promotion of fresh produce (application awaiting approval)

The IDO also contributes to a number of industry, government and community strategies, programs, initiatives and working and advisory groups. Some of these are:

- National Food Plan
- Australian Melon Association Strategic Plan
- Australian Mango Association Strategic Plan
- Bundaberg Fruit and Vegetable Growers Strategic Plan
- National Fruitfly Strategy
- Reef Rescue Initiative
- Reef Guardian Initiative – Horticulture, Cane and Grazing
- Local Council Regional Development Plan
- Horticulture 2020 – Alliance for Action (working groups – Workforce Development & Policy and Regulation)
- Industry Advisory Group – People Development and Leadership
- Regional Economic Development Strategy
- Urban Encroachment on Agriculture Strategic Plan

The IDO continued to facilitate workshops/forums/seminar/fields in areas of need for the industry as well as provide communication and information flow to industry, government and growers.

An IDNA will be conducted within the first 6 months of the follow-on Industry Development Program starting 2012 to compare results, outcomes and refocus where needed.

Cost Benefit Analysis

By Thomas Mullins

Department of Employment, Economic Development and Innovation

Financial Analysis of HAL project

Data sources

Commodity price information was sourced from “Prices and Throughput for the Brisbane Markets”, 2002 – 2010 by Market Information Services.

2006 Production Estimates for the Whitsunday Shire, by S Heisswolf, DPI.

2010 Production Estimates for the Whitsunday Shire, by TJ Mullins & Dr S Subramaniam, DEEDI.

Methodology

The HAL project commenced in late 2005 with 2006 used as the base point.

Area grown and production data for the 11 major commodity lines produced in the shire were used with the 2006 data as the base point and 2010 as the end point. Figures from 2011 will not be fully available till March 2012.

The 5 year average price received on the selected commodities at the Brisbane market 2002-2006 was the base point with 5 year average price 2006-10 as the end point.

Gross Value of Production (GVP) was calculated for 2006 and was indexed by 4% per annum to estimate the GVP in 2010 \$ value.

Returns for individual commodities were calculated as per above.

Adjusted values for GVP and individual commodities were compared against 2010 \$ values.

Results

GVP

Adjusted GVP indicated that over the life of the project the \$ value of product had increased by \$72M

Indexed 2006 GVP	\$246.42M
2010 GVP	<u>\$318.44M</u>
Increase in GVP	\$ 72.02M

Area under production

Area under production increased by 5%, 2006 (6,899ha) to 2010 (7,276ha).

The proportion of the increase measured in GVP attributable to increase in area under production since 2006 was estimated at \$16.153M.

Price received per Unit

The 2006 individual commodity average price received when indexed by 4% per annum showed an average fall in price received by growers in 2010 of 15.41% with a range across the 11 commodities of -38.84% (rockmelons) and +5.08% (sweet corn).

Productivity

Productivity as measured by the Gross \$ Value per ha after 2006 prices were indexed by 4% per annum.

The proportion of the increase measured in GVP attributable to increase in productivity since 2006 was estimated at \$55.469M.

Summary

In the life of the project (averaging figures from 2006-2010)

- **GVP** indexed by 4% per annum has risen by **\$72.02M**
- **Average commodity price** indexed by 4% per annum **fell** on average across the commodities by **15%**
- Increase in **Area under production** contributed **22% or \$16.531M** towards the increase in GVP.
- Increases in productivity contributed **78% or \$55.468M** of the increase in GVP.

Although we will not know the actual figures for 2011 till March 2012 in terms of the dollar value for the industry, it is believed that productivity has also increased in 2011 from the figures outlined above to be worth over \$400M.

It is believed the increase in productivity is directly related to the Industry Development project based with Bowen Gumlu Growers Association. Many growers in the region over the past 5 years have implemented improved on farm practices and efficiencies in the areas of irrigation, soil, nutrient, and pesticide management as well as more productive ways of planting to increase yields and incorporating environmentally friendly farming practices such as biodegradable mulch film, cutting down on costs in a number of areas.

Growers now have access to information on up to date technology and innovative practices as well as research and development outcomes and extension activities and programs that they

can access information on or be a part of the actual trials and research to gain firsthand knowledge of improved practices and systems.

Growers and industry rely on the Industry Development Officer to be across all areas of the industry and provide feedback and information flow. The growers, industry and government also rely on the industry development program to be a representative of the industry in this region.

The industry in this region has benefited significantly from the presents of the industry development officer. It is envisaged that this program will continue to increase the productivity in the region and build a more sustainable future for the industry.

Implications

The key learning's from this project are:

- There is a need for industry to continue to invest in these types of projects for a more sustainable future
- Critical success factors
 - Industry and grower involvement and support
 - Building industry, government and grower networks at local, state and national levels
 - Collaboration between growers, industry and government at local, state and national levels
 - Industry Development Officers ability to listen to industry and interpret the needs
 - Facilitation of projects in key areas of need
 - Good flow of information and support to growers and industry
 - Continued delivery of workshops, forums, seminars, conventions and conferences
 - Continued training and attendance at workshops, forums, conventions and conferences for the Industry Development Officer to maintain a thorough understanding of the industry, key priorities and initiatives
 - Growers willingness to be involved in key projects and implement recommendations
- These types of projects won't achieve good results for industry unless they are long term projects with the recruitment of the right people in the Industry Development positions

The implications for Australian Horticulture are:

- Industry nationally values the importance of the Industry Development program more highly and is pushing for more of these types of positions to be placed in other horticultural regions
- Many of the key priorities for this project are the same key priorities for industry state-wide and nationally and many of the projects and activities facilitated in this project could be adapted for use in other horticultural regions
- This project is supporting the industry in surrounding horticultural regions and is a key contributor to industry strategies, initiatives, projects, advisory and working groups, committees and boards at a local, state and national level
- the project will achieve long term viability and sustainability of the industry
- Since the introduction of the Industry Development project the industry value has increased from an estimated \$250M in 2005 to an estimated value of \$400M with no increase in the area of land under production.

How might industry benefit from these insights?

The nature of the Industry Development project is to not only support growers, industry and government to achieve outcomes in the key priority areas but to bring industry, government and growers together collaboratively to support a more sustainable future for the industry. In

addition to this, the key to delivering a benefit for industry is for the Industry Development project to be apolitical and without agenda as well as passionate about a sustainable future for the industry. The recruitment for the position is crucial to the successful implementation of the program.

The industry will benefit from:

- a more collaborative approach to managing industry priorities, issues and areas of need
- information and communication flow between growers, government and industry
- grower engagement in industry advisory groups, committees, initiatives and in key priority areas
- a more targeted strategic approach to project development across productivity and value adding, supply chain and markets, climate change, biosecurity, innovation skills, technology and natural resource management.
- growers implementing research outcomes, initiatives and programs that benefit the overall sustainability of their business enterprises and the industry long term

Attached are copies of audits, project reports and strategies that may be used to support the development of initiatives, projects and programs adapted for specific needs and regions.

How can the planning of future initiatives or events use the feedback and evaluation on this project?

In developing other initiatives or programs using the feedback and evaluation, it is important to incorporate key learning's in the development and facilitation of activities. These learning's are in general terms so they can be incorporated into any event or initiative to achieve a desired outcome.

The critical success factors are a crucial part of any initiative and should be incorporated:

- Industry and grower involvement and support
- Building industry, government and grower networks at local, state and national levels
- Collaboration between growers, industry and government at local, state and national levels
- Industry Development Officers ability to listen to industry and interpret the needs
- Facilitation of projects in key areas of need
- Good flow of information and support to growers and industry
- Continued delivery of workshops, forums, seminars, conventions and conferences
- Continued training and attendance at workshops, forums, conventions and conferences for the Industry Development Officer to maintain a thorough understanding of the industry, key priorities and initiatives
- Growers willingness to be involved in key projects and implement recommendations

Industry challenges and opportunities, strengths and weaknesses

Strengths

- ⇒ Ideal climate for growing vegetables in winter when other regions are too cold, this contributes to the Whitsundays being one of the largest winter growing vegetable region in Australia
- ⇒ A strong knowledge base passed down through generational farming, the region has been growing produce since the 1880's
- ⇒ The backpacker market provides a good supply of seasonal labour perfect for picking and packing work during harvest
- ⇒ Through the united front of the Bowen Gumlu Growers Association (BGGGA), the industry has good communication and information flow, networks and collaboration with growers, industry, government and the local community
- ⇒ BGGGA and the Industry Development program are proactive and drive industry sustainability and capacity building
- ⇒ Growers are involved in key government initiatives, programs and projects to support the industry facilitated by the Industry Development project. This provides growers with the opportunity to be involved in projects and initiatives as well as uptake technology and implement outcomes of initiatives and projects
- ⇒ Growers have quality assurance, accreditations and certifications in place for auditing and regulation
- ⇒ Growers generally have good farm management systems and processes in place and have been improving their farm management systems through number of initiatives facilitated through the industry development program
- ⇒ Many growers are moving toward softer chemicals and environmentally friendly farming practices
- ⇒ The region is recognised nationally as a supplier of quality fresh produce.
- ⇒ The industry is well recognised throughout Queensland and Australia for being proactive and supportive of key initiatives within the industry, their opinions are respected.
- ⇒ Due to Bowen being situated eight hours from nearest major growing region (Bundaberg), pests and diseases are at lower levels than other regions
- ⇒ The Whitsunday horticulture industry is the most efficient user of water for fruit and vegetable production in Australia, the region also currently has a good supply of water

- ⇒ The value of the local industry has increased significantly since the introduction of the industry development program with less growers and the same amount of land under production

Weaknesses

- ⇒ Overall, the industry nationally is fragmented. This is driven by competition and leads to over supply on the domestic market causing low prices.
- ⇒ Some growers take a short-term approach when making business decisions. This can cause some businesses to have insecure cash flow management and affect their long-term profitability and sustainability.
- ⇒ Some large-scale growers only focus on the competitive domestic markets and may not understand the effects of globalisation and the increasing importance for them to compete at a global and domestic level in order for their business to be sustainable.
- ⇒ There is lack of funding for market development strategies leading to new market and business diversification opportunities such as value adding
- ⇒ Being a relatively remote region located over 1,000kms from the nearest capital city (Brisbane), the cost of freight and transport is high and produce must travel long distances to central markets
- ⇒ Continuity of supply through the summer months, the Whitsundays currently only has production during the winter season
- ⇒ Pest & disease control is a challenge in north Queensland's climate which is made worse by chemical reviews and loss of key chemicals for market access
- ⇒ There is a lack funded research and development projects to support market access, particularly in the area of biosecurity.
- ⇒ Lack of skilled labour available and the increasing skills shortage that is shared with the region's mining and construction industry
- ⇒ Lack of succession planning and young people entering the workforce, the horticulture industry tends to lose knowledge and key stakeholders as no retention strategies are in place. This issue is unassisted by the lack of national industry leadership and long-term local strategies need funding.
- ⇒ Natural disasters occurring in the region such as droughts, cyclones and floods
- ⇒ Lack of marketing and promotion of fresh produce and consumer education, particularly around produce blemishes, health benefits, and the cost of production

Opportunities

- ⇒ Build further capacity through stakeholder collaboration for the purpose of marketing, promotion and education programs
- ⇒ Add value to current business practices through food processing, crop diversification, smart packaging and tourism
- ⇒ Work with local distribution companies to improve supply chain efficiencies and lower the cost of transport through strengthening regional networks
- ⇒ Secure a share of the high end, low volume market through crop diversification into high yield, niche products
- ⇒ Drive the high volume, average price market and incorporate mechanisation & innovation practices with the aim of reducing labour force and lowering overall production costs and improving efficiency
- ⇒ Work with training organisations and government to build capacity in young people (traineeships, apprenticeships, skills development programs)
- ⇒ Use technology and the Internet to track industry development and sustainability and improve procedures such as measuring and forecasting supply and demand within the global economy
- ⇒ Use creative marketing and communication tactics to raise the region's profile as a fresh food producer and consumer awareness about food production
- ⇒ Build on the local brand and collaborate with other local industry such as tourism to capitalise on the positive reputation of the Whitsundays
- ⇒ Continue to work with government and industry on projects that set the standards in farming
- ⇒ Development of environmentally friendly farming practices by industry for industry rather than government setting the standards
- ⇒ Explore opportunities in the export market
- ⇒ Market Research surrounding the use of waste product
- ⇒ Follow national and global market trends to ensure the region is meeting consumer demand

Challenges

- ⇒ The rising cost of production and the threat of cheaper overseas imports and free trade agreements
- ⇒ A weakening relationship between farms and food prices meaning a decline in farmers share of consumer spend (growers are price takers not price setters)
- ⇒ Over supply and low prices on the domestic market due to a decrease in Australian exports (high \$AU and high regulation) and increase in overseas imports
- ⇒ Reduced viability on the value add sector due to the high cost of production and low cost of imports
- ⇒ Increased competition with investment in the Australian horticulture industry from countries such as India and China
- ⇒ Sectors of the industry are put under pressure and experience financial burden when there is a pest or disease incursion for commodities that do not have a mandatory levy in place.
- ⇒ The economic impact of legislation and the effects of legislative change
- ⇒ Climate change, the carbon price initiative and other rising costs of production associated with adjusting to new environments
- ⇒ Increases in minimum wage and the lack of availability of seasonal skilled labour
- ⇒ Competition for skilled workers with the mining industry and inability to provide workers with 12 month, full-time employment
- ⇒ The negative effects of a two-speed Australian economy on the cost of living and consumers average expendable income
- ⇒ The occurrence of natural disasters and financial losses associated with the recovery
- ⇒ Rapid global population growth and the demand that puts on primary industries that may not have developed efficient technology to support the increase in production
- ⇒ Migration and cultural shifts leading to changes in consumer demand

Recommendations

- Continued funding of the Industry Development Program in this region to continue the projects and initiatives established and provide vital support to industry and growers
- Further recognition of the key priorities for the industry and the allocation of funding for resources and extension to facilitate project develop delivery and support for the industry
- Further support is needed for industry state-wide and nationally for projects and initiatives across priority areas
 - the improvement of supply chains regionally to cut down on transport costs, quality issues and food security issues (Local producers supplying the local food service sector)
 - expand Export Markets (developing export strategies for the industry nationally and regionally and improvement of market access)
 - initiatives to support growers to incorporate value adding and processing opportunities
 - pest and disease incursions/management/IPM systems and extension
 - leadership, up-skilling and workforce development and recognition of skilled workers on farm
 - development of a program for career pathways in horticulture
 - improving on farm delivery systems for legislative requirements, workplace health & safety, industrial relations issues, auditing and quality assurance
 - improved on farm management systems and efficiencies and the inclusion of improved environmentally friendly practices in farm management systems
 - marketing and promotion of fresh produce to consumers

Acknowledgements

Note anyone who has been involved in, collaborated with or provided input into this project.

BGGA Management Team

Carl Walker, President
Jamie Jurgens, Vice President
Leanne Born, Treasurer
Dale Williams, Executive

All growers in the Bowen and Gumlu Region

Department of Employment, Economic Development and Innovation

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Sarah Limpus, Development Horticulturalist
Dr Siva Subramaniam, Senior Entomologist
Barry Heineman, Principal Project Officer
Greg Crossan, Project Manager
Nikki Wright, Director, Mackay Regional Office
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Rex Williams, Science Leader, Crop Improvement
Mark Panitz, Biosecurity Queensland
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Neil Platt, BITI project Manager
Howard Hayse, Trade Start Adviser
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Vivki Lane, Workforce Development and Skills
Gary Fullelove, Project Manager
Nick McLeod, Science Leader
John Chapman, Director General
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Justin Severin, Policy and Regulation
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Martin Kneebone, Freshlogic

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Kathy Hansen – Healthy Lifestyle coordinator

Bianca Walker – Community Nutritionist

Whitsunday Regional Council

Mike Brunner, Mayor

Judy Adsett, Healthy Communities Coordinator

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Department of Immigration

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Sheryl Stanton, Traineeships
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Annemarie Redsell, Agriculture and Science

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Bob Shepherd

Appendices




Denise Kreymborg
 Industry Development Officer
 Bowen Gumlu Growers Association
 PO Box 489
 BOWEN QLD 4805

18th November 2011

Dear Denise,

RE: BING SUPPORT OF BOWEN INDUSTRY DEVELOPMENT OFFICER (BIO) PROJECT.

Bundaberg Fruit and Vegetable Growers Cooperative Limited (BFVG) represents the horticulture industry in the greater Bundaberg region with additional membership located in the Gympie, Gayndah/Mundubbera and Agnes Waters regions. Our membership base consists predominantly of horticulture growers, however we also have a strong membership and alliance with many of the industry-affiliated businesses that service the horticulture industry.

The industry within the Bundaberg region alone is estimated to employ over 5,000 people, grow more than 30 major horticulture commodities and many minor commodity lines, has a farm gate value of over \$490 million and injects over \$1 billion into the Queensland economy. Our vision is



Appendix 1. Industry Development Needs Assessment



Appendix 2. Whitsunday Coles Pitch



Appendix 3. Strategic Marketing Plan

Across agri-tourism for the horticulture industry



Appendix 4. Food Connect Final Report

Collaboration between Industry and Economic Development



Appendix 5. Agribusiness Education and Training Audit



Appendix 6. Workforce Development Strategy & Position Description



Appendix 7. Newsletters



Appendix 8. Articles and Publications

YOUNG ♦ SMART ♦ READY

Denise tackles horticulture head on



It seems hard to believe when considering the impact she has made in the horticulture sector that Denise Kreyenborg began her role four years ago with no industry experience.

"The Bowen District Growers Association wanted an industry development officer and I didn't know much about the industry," Denise said this week.

"She is true in her word when she says she has become very passionate about the industry since then and the commitment shows in her cause is testament to this."

The Bowen district horticulture sector is worth \$350 million annually but has had been overlooked by the government and even within the broader horticulture industry.

Denise used the networks established during her previous role as the area's business development officer with the Queensland Regional Business Advisory Service to lay a foundation of improving recognition and services to Bowen district growers.

"For such a large industry, horticulture is so fragmented and I feel I can do something about that on a small level," Denise said.

"When I achieve an outcome for

Horticulture is so fragmented and I feel I can do something about that on a small level.

in collaboration with growers and the Darwin Reef TAFE.

- Facilitated the Federal Reef Rescue Initiative in the Bowen and Oxley region.
- Directly involved in delivering a commission from growers to support the Water for Bowen project and its implementation in Bowen.
- Facilitated the negotiation of water allocations for growers in the Bowen region.
- Helped unify Bowen district growers to take a strategic approach towards tackling issues that threaten the industry.

Denise Kreyenborg

prepare them for the future by helping them become involved in research initiatives.

These have included:

- Biodegradable mulch film trials for

intermittent and export markets for 99 per cent of the region's growers.

- Identifying plant virus issues and implementing different strategic plans to solve the problem.

making the importance of eating fresh fruit and vegetables to local children in her district and has just finished a leadership course that has groomed her to be a horticulture leader of tomorrow.

**Appendix 9. Proposed Bowen Gumlu Growers Association
graphic design of new logo**



Appendix 10. Letters of Recommendation & Support

Fruit & Vegetable
Growers



13/2 Tantitha Street
Bundaberg Qld 4670
PO Box 45
Bundaberg Qld 4670
Phone (07) 4153 3007
Fax (07) 4153 1322
Email bfg.info@bfg.com.au
Web www.bfg.com.au

Denise Kreymborg
Industry Development Officer
Bowen Gumlu Growers Association
PO Box 489
BOWEN QLD 4805

18th November 2011

Dear Denise,

RE: BFGV SUPPORT OF BOWEN INDUSTRY DEVELOPMENT OFFICER (IDO) PROJECT.

Bundaberg Fruit and Vegetable Growers Cooperative Limited (BFGV) represents the horticulture industry in the greater Bundaberg region with additional membership located in the Gympie, Gayndah/Mundubbera and Agnes Waters regions. Our membership base consists predominantly of horticulture growers, however we also have a strong membership and alliance with many of the industry-affiliated businesses that service the horticulture industry.

The industry within the Bundaberg region alone is estimated to employ over 5,000 people, grows more than 30 major horticulture commodities and many minor commodity lines, has a farm gate value of over \$490 million and injects over \$1 billion into the Queensland economy. Our vision is to represent the interests of the horticulture industry in our region on issues that are critical to its

Appendix 11. Up to date Bowen Gumlu Growers Association Strategic Plan



NEEDS ASSESSMENT TEAM DETAILS

(Bowen and Gumlu Region) IDO Management Team

Name	Carl Walker		
Address	P O Box 769, Bowen Qld 4805		
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Email	carlwalker7@bigpond.com		

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Name	Leanne Born		
Address	P O Box 1291, Bowen Qld 4805		
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Name	Jamie Jurgens		
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Phone	07 4785 2312	Mobile	0418 988 915
Email	jurgensproduce@bigpond.com		

Name			
Address			
Phone		Mobile	
Email			

Name			
Address			
Phone		Mobile	

Email	
-------	--

Proposed meeting schedule

Meeting	Proposed date
Initial meeting to discuss the task and establish the Needs Assessment Team	20/01/2009
1st NAT Meeting	19/5/2009
2nd NAT Meeting	21/7/2009
3rd NAT Meeting	22/9/2009
NAT meetings are each month usually on the third Tuesday of the month	

NEEDS ASSESSMENT TIMETABLE

(Bowen & Gumlu Region) Timetable

Stage	Comments	By when	Responsibility
1. Establish Needs Assessment Team (NAT) and determine project management and funding	<ul style="list-style-type: none">Completed Tool A Needs Assessment Team DetailsDetermined project management and funding	20/01/2009	Current IDO
2. Set timetable, definitions and objectives	<ul style="list-style-type: none">Milestones SetFunding Agreement SignedAchievement Criteria SetObjectives Set	19/05/2009	Current IDO & Management Team
3. Define the key industry characteristics	<ul style="list-style-type: none">Tool C – Industry Characteristics Questionnaire DevelopedManagement Committee and other industry representatives to complete questionnaire	21/07/09	Current IDO Management Committee

Stage	Comments	By when	Responsibility
4. Review industry development strategy options	<ul style="list-style-type: none"> ▪ Industry Characteristics Questionnaire (Tool C) to be sent to the Team members to complete individually, then compare and compile results when they meet. ▪ Re-evaluate current project activities and prioritise. 	21/07/09 – 16/02/2010	IDO & Management Committee Members & Industry reps
5. What industry development activities are we doing now?	<ul style="list-style-type: none"> ▪ Complete Tool D – Industry Development Schedule of Activities with current projects 	20/04/2010	IDO
6. Confirm new list of industry development needs	<ul style="list-style-type: none"> ▪ Review Tool D - Industry Development Schedule of Activities and complete Tool E - add any new projects 	06/05/2010	IDO & Management Committee
7. Prioritise and funding	<ul style="list-style-type: none"> ▪ Determine any new funding to support new projects 	06/05/2010	IDO
8. Determine delivery options	<ul style="list-style-type: none"> ▪ Complete Tool F – New Action Plan 	03/06/2010	IDO & Management Committee

Stage	Comments	By when	Responsibility
1. Implementation plan	<ul style="list-style-type: none"> Continue to implement employment of current IDO under new project guidelines 	04/06/2010	Management Committee

INDUSTRY CHARACTERISTICS QUESTIONNAIRE

(Bowen & Gumlu region) Industry characteristics survey

Answers are collated across responses

Location

1. Is production located in say 1–3 geographically limited areas and in which areas are they located?	<ul style="list-style-type: none"> Yes, Bowen and Gumlu
2. Are there new production areas developing in this region? Why? What is different about them? What share of production do they have? Is it increasing?	<ul style="list-style-type: none"> Some farms expanding into areas previously under cattle, scrub but not in a big way Some diversification into cane and broad acre crop production
3. Are there areas of production in marked decline? If so, where and why?	<ul style="list-style-type: none"> No

Maturity

4. Is the industry 'mature' in the sense that it has been in existence for a long while with well established production methods and supply channels?	<ul style="list-style-type: none"> Mature
---	--

Products

5. Is the product/product mix well established and widely recognised? For example; are different varieties identified by consumers; brands developed and brand loyalty established; or value-adding in say packaging or part-processing?	<ul style="list-style-type: none"> Very few well established brands overall – chain stores/supermarkets use black crates (no branding or area recognition). Brands are declining individually
6. Does the region need to develop a brand for this region?	<ul style="list-style-type: none"> The region has taken steps towards this with a regional branding ' Made in the Whitsundays'

Markets & customers

7. Is there a broad base of end-customers (i.e. households/consumers); or is the market more confined or 'niche'?	<ul style="list-style-type: none"> Broad base
8. What about the Food Service market? How strong and developing are we there?	<ul style="list-style-type: none"> Supply to Food Service sector is developing with local food service providers working with local supply chain to purchase locally grown produce slowly but consistently

<p>9. Exports? Size? Growth? Prospects?</p>	<ul style="list-style-type: none"> • Main markets are southern domestic during cooler months with region a major supplier of vegetables to capital cities. • Main export out of this region New Zealand (medium in size) • There is scope for further development depending on government support programs, risk/profitability profile of specific markets for specific products. • There is huge potential in this area
<p>10. Is there opportunity to market produce better to service the consumer from the Bowen & Gumlu regional industry level?</p>	<ul style="list-style-type: none"> • Yes, I think the concept of linking product from the region with the already well established tourism brand for a feel good value adding factor could work • There is probably also scope to improve the 'consistency of quality' of product supplied – tomato flavour comes to mind – by having a close look at the supply chain from paddock to plate rather than just varieties. Particularly important if linking with Brand Whitsunday with its visuals of sun, sand and indulgence • Branding initiative in the process of development
<p>11. Do you see an opportunity for a project in the area of marketing?</p>	<ul style="list-style-type: none"> • Yes, see comments under point 10 above. A close look at the supply chain to support regional brand is needed • Also need support to develop a strategic marketing plan and recognise the way forward with marketing a brand domestically

Supply chain

<p>12. Are there good relationships along the supply chain? If not, Why?</p>	<ul style="list-style-type: none"> ▪ Yes – varies with individuals/individual businesses?
<p>13. Is there good communication of market signals and production information along the supply chain?</p>	<ul style="list-style-type: none"> ▪ In most cases if there is a good relationship in place then there is a fair bit of communication happening on a regular basis

Competitive environment

<p>14. What is the degree of supplier (grower) power within the industry?</p>	<ul style="list-style-type: none"> ▪ Quite small for most ▪ Minimal
<p>15. What is the degree of buyer (wholesaler, process or retailer) power within the industry?</p>	<ul style="list-style-type: none"> ▪ High/significant
<p>16. Availability or threats of substitutes (from imports or within produce categories)?</p>	<ul style="list-style-type: none"> ▪ Both imports and glasshouse industry
<p>17. What are the barriers to entry to the industry in the Bowen & Gumlu region?</p>	<ul style="list-style-type: none"> ▪ Most likely capital investment needed to establish post harvest facilities ▪ Startup capital required to plant and harvest crops also high for some crops eg trellised tomato before first cash flows come in for the

	<p>season</p> <ul style="list-style-type: none"> ▪ Accessing and managing (effectively) staff and labour as an overall component of cost structure ▪ Competition from other regions growing over this regions seasonal window
18. What is the level of rivalry between producers in the industry in these regions?	<ul style="list-style-type: none"> ▪ High to medium - however there may be alliances between producers within the region and also inter regionally however long term these alliances may be unstable

Industry structures and planning

19. How well-organised and resourced is the industry Peak Industry Body?	<ul style="list-style-type: none"> ▪ BDGA is well organised and resourced and has good support from within its grower base ▪ Growcom seems well-organised but it may be financially stressed. Also seems to have only limited support from its grower base
20. Does the Peak Industry Body have the confidence and support of all industry participants?	<ul style="list-style-type: none"> ▪ Growcom – No ▪ BDGA - Yes
21. What about State/regional organisations? How well structured and supported are they?	<ul style="list-style-type: none"> ▪ See comments under 19 & 20
22. As an industry in the Bowen & Gumlu region, are we flexible and able to adjust and respond quickly?	<ul style="list-style-type: none"> ▪ Yes and No depending on the issue
23. Does the locally based organisation provide industry with a good level of support? How is this achieved?	<ul style="list-style-type: none"> ▪ Yes – the IDO is critical as is the calibre of the BDGA executive ▪ The IDO is a provider of vital information flow, project development, management and delivery within the industry locally and nationally

Funding

24. Is there adequate levy and/or matched funding at present to implement the Strategic Plan?	<ul style="list-style-type: none"> ▪ Not sure – probably not from a strategic point of view if BDGA is planning to expand its support for growers for example with projects to explore supply chain assessments and improvements, safeguard against pest and disease issues etc. ▪ Strategic Planning for marketing of the regional branding ▪ Expanding involvement in projects/activities to support growers and industry will require additional staff to manage expanded operations
25. Is the industry in the Bowen & Gumlu region generating or accessing other funds to support its programs?	<ul style="list-style-type: none"> ▪ BDGA sources funding through a sponsorship program to VC fund projects that are also HAL funded projects

Information & Technology Transfer

<p>26. Is there adequate flow of industry information between growers, industry bodies and government? If not, where do you see a need for improvement?</p>	<ul style="list-style-type: none"> ▪ Information flows and cooperation between different sectors of industry are good ▪ However more could be done if IDO had additional support eg project officer, administrative support to build on this positive position - see comments under 24 & 25 above.
<p>27. Is the industry in the Bowen & Gumlu region developing R&D projects to support the industry locally and nationally?</p>	<ul style="list-style-type: none"> ▪ Yes – IDO through BDGA provides a high level of information flow ▪ IDO feel there is a need for better industry communication at a national level
<p>28. Are there any projects you see a need for in the Bowen & Gumlu region that will support the industry?</p>	<ul style="list-style-type: none"> ▪ Pest and disease incursions/management/IPM systems implementation ▪ Supply chain work ▪ Shortage of skilled workforce eg working with schools to encourage interest, training and education in horticulture ▪ Staff management, legislative requirements, workplace health & safety, Industrial Relations ▪ Marketing and Promotion
<p>29. Is there an industry organisation that is the first point of contact for industry in the Bowen & Gumlu region?</p>	<ul style="list-style-type: none"> ▪ BDGA

Industry Cohesiveness

<p>30. Is there increased industry cohesiveness in the Bowen & Gumlu region?</p>	<ul style="list-style-type: none"> ▪ There has been a lack of cohesion in the past however the IDO project has brought the desire for a progressive, cohesive industry to fruition with the BDGA and GLPA uniting to be one organisation. There is more work that could be done – see comments under 31
<p>31. Where do you see an opportunity to increase industry unity?</p>	<ul style="list-style-type: none"> ▪ Expanding the BDGA work team to further support the (voluntary) grower executive through well-targeted projects that address key issues both at a day to day level as well as strategic level would do much to further illustrate the benefits of a unified industry that is willing to work together to address key issues ▪ Other industry organisation working together across projects such as Bundaberg and Bowen

Industry Characteristics Overview

- Horticulture Industry in Bowen and Gumlu is very mature
- The Industry is more cohesive due to BDGA and GLPA amalgamating
- The industry is sometimes able to respond to issues quickly and sometimes not so quickly
- The local growers association (BDGA) needs to expand to be able to deliver more services to industry
- There is a need for more funding to deliver BDGA strategies long term
- Bowen and Gumlu face ever increasing competition from other regions growing across seasons
- Information Flow is very good
- There are some good current projects that the IDO project and BDGA have developed, delivered, collaborated and support on:
 - Alternative Fruit Fly Management and Market Access Project for Capsicum and Tomato
 - Dimethoate and Fenthion Efficacy Trials
 - Development of a test to quantify irradiation damage in fruit flies
 - MT09068 - Comparison of biodegradable mulch products to polyethylene in irrigated vegetable, tomato and melon crops
 - VG09038 – Vegetable soil health systems for overcoming limitations causing soil borne diseases
 - VG09041 - Environmental effects of vegetable production on 'sensitive' waterways
 - Controlled traffic farming for production efficiencies and soil health in tropical vegetables
 - Local Branding initiative – 'Made in the Whitsundays' in collaboration with Enterprise Whitsunday
 - Horticulture Traineeship and Apprenticeship Program in Bowen & Gumlu– A high school traineeship program that moves into an apprenticeship program over 3-4 years
 - Horticulture Industry Tours for year 9 & 10 students
 - Water for Bowen project

There is a need for more projects in the areas of

- Improve Supply Chain re Local Produce to Local Food Service sector
- Expand Export Markets
- Improve 'consistency of quality' of products supplied out of this region
- Explore the supply chain and areas that need improvement
- Strategic Planning and Marketing of local produce, value adding and processing opportunities
- Pest & Disease incursions/management/IPM systems and implementations
- Improve skilled workforce and/or recognise skilled work on farm
- A plan and program for career pathways in horticulture
- Improve on farm delivery systems for legislative requirements, workplace health & safety, industrial relations issues
- Improvement in farm management systems and efficiencies and the inclusion of improved environmentally friendly practices in farm management systems
- Marketing and Promotion of fresh produce to consumers
- Industry Sustainability and Profitability long term

Customer, Markets and products

Products Marketed

Green Beans

Sweet Corn

Tomatoes (Gourmet, Round, Egg)

Capsicums

Zucchini/Squash

Melons (Watermelons, Rockmelon, Honeydew)

Pumpkins

Cucumber

Eggplant

Chilli

Mangoes

- All these commodities do well in the market place – Bowen and Gumlu is the largest winter growing region in Australia)
- These commodities are seasonal
- There are some growers moving to Sugar Cane on a small scale

Markets (domestic and export)

- Most of the produce that goes to market is sold domestically throughout Australia with some export in place to New Zealand and further afield in some cases
- Bowen and Gumlu send to market around 244562 tonnes of produce a year
- Produce generally goes through the central markets and some goes direct to chain stores (Coles and Woolworths)
- Current trend in Bowen and Gumlu is less growers producing more
- The potential for growth of export markets is high as it is relatively untouched do to growers needing to do too much work to get into new export markets

Marketing and market development (domestic and export)

- In Bowen and Gumlu there is little to no marketing of individual commodities to consumers through the supply chain
- There is currently no non levy marketing although the 'Made in the Whitsunday' branding initiative is a step in the direction of marketing the produce from this region
- There has been some generic tomato marketing in the past with no real results or consumer data collected around it
- New markets are identified when current markets are not delivering the outcome needed for a grower to continue producing the produce

Competitors and the nature of competition

Competitors

- Bowen and Gumlu now face competition from other regions that no longer produce in a seasonal window but supply markets 12 months of the year
- Bowen and Gumlu stick to their seasonal window and in the past have not had competition for part of their season
- Market share in this region due to other areas growing during our season has diminished significantly seeing some growers leaving the industry
- Our competitive advantage is that during Bowen and Gumlu's season there is good quality produce and other areas growing out of season may not have the quality
- The issue is that supply chain (mainly chain stores) provide consumers with no choice as to where the produce comes from regionally due to produce from different regions being placed on display in one crate or bin
- Australia does import some commodities and it is unclear how much

Ease of Entry

- It is difficult for someone wanting to set up a production farming enterprise with an average outlay of around \$10M - \$18M as a start up figure depending on the size of the operation and the type of crops grown

Alliances and linkages

- Bowen and Gumlu have built good alliances with local, state and federal government as well as industry bodies and organisations

Operating Systems

Marketing Systems and structures

- In the Bowen and Gumlu region there is minimal value adding to production of fresh produce
- Most growers in the region have a good understanding around costs
- Most growers in this region are a member of the local growers association
- The trend in this area is to move towards more innovation and technology to improve efficiencies in production removing some of the reliance on seasonal labour force and improving margins on cost of production
- There are many areas to improve on efficiencies however there is a need for a project to deliver actual areas of improvement for even more efficiency on farm

Production systems and processes

- There is a need for improved and up to date production data in comparing costs/productivity with best practice/up to date information
- At this stage there is minimal benchmarking set within the horticulture industry with regard to soil management, nutrient management, irrigation management and pesticide management because from region to region there are so many diverse soil types, production methods and systems
- There is very good local support from the DEEDI research centre in the areas of Bowen and Gumlu with a need for more government extension officers to deliver improved services to growers
- There are differences in production between regions
- There is increased efficiency opportunities for growers in the area of production through new innovative technology

Industry organisation and performance

Location, extent of production, performance, people

- Bowen and Gumlu (around 1,400km north of Brisbane, 200km south of Townsville)
- Production for this region is worth around \$350M per year, around 244562 tonnes of produce per year, well over 9000hectares,
- The trends in productions are decrease in growers increase in production over the next five years
- Most production farms are well resourced and very efficient
- Bowen and Gumlu growing season is from Mid May to Mid November in most varieties apart from Mangoes which come on over December/January
- The industry in Bowen and Gumlu needs to improve its marketing and promotion of produce, explore areas of improvement in the supply chain, supply chain locally to the food service sector, delivery of a quality product to consumers and explore new markets
- There are around 45 growers in the Bowen and Gumlu region
- Bowen and Gumlu have a research station (DEEDI) with a Horticulturalist, Scientist and Research Officers that provide support in the area of R&D
- There is a lack of skilled industry extension officers in the region with many of the research officers and horticulturalist retiring in the not too distant future
- There is a need for horticulturalist and researchers in this region and many others
- There are leadership and development courses available but not enough people to attend

Industry Organisation, funding and Community relationships

- Bowen and Gumlu have an amalgamated association that employs the IDO and a part time secretary
- The IDO has provided a high level of support to industry through the local growers association which continues to drive the industry sustainability long term
- Key issues for the association are that it is under resourced (not enough funding) to expand to deliver vital projects to support growers in the area of pest and disease and IPM etc
- The local industry body is Bowen District Growers Association (BDGA) and it is based in Bowen at the local research station
- Currently the BDGA has a membership, HAL support for the IDO program and a sponsorship program with industry

Technical Information and Communication

- Currently the IDO program is the conduit for information flow and delivery in the Bowen and Gumlu region
- The IDO provides information flow to growers and the industry through the following mediums
- Fax, One-on-one consultation, email, newsletters and mail-outs
- The above mentioned activities are delivered on a day to day basis as information flows to the IDO
- The IDO accessing information through networks built over the course of the project. These networks include Local, State and Federal Government, Industry Bodies, Committees, Workshops, Seminars and Forums attended, industry meetings and conferences and leadership programs, Subscriptions to newsletters and industry advice systems
- The industry is well thought of throughout the local community as it is one of the major industries and drivers of economic development and employment in the region
- The industry employs over 3000 skilled and unskilled workers during the season
- The local community also supports the BDGA through sponsorship each year
- There are no real issues between the community and horticulture industry
- The industry has and will continue to manage the local resources in such a way to not impact on the environmental sustainability of the region and the water supply

Key industry issues affecting the Bowen and Gumlu region

- Ongoing Pest & Disease Issues
- Labour Shortages and recognition of skilled workers in the industry
- Tomato Levy discussions
- Managing the Horticulture Code Issues
- Managing Water Issues
- Managing Market Access Issues
- Managing the new Horticulture Award that was developed through the Award Modernisation process and other Industrial Relations Issues
- Workplace health and safety legislation and regulation
- Transport regulations
- Chemical reviews
- The rising cost of production
- Runoff to the Great Barrier Reef environmental government legislation
- Fragmentation within the industry
- Lack of extension support from government

BDGA supports growers by managing each issue to the best of its ability through strong relationships with government and industry

INDUSTRY DEVELOPMENT ACTIVITY SCHEDULE

Schedule of (Facilitating the horticulture development of Bowen & Gumlu) Industry development activity

Employment of Industry Development Officers and/or Managers

PROJECT DETAILS							NEEDS ASSESSMENT TEAM RANKING			
Activity (plus HAL project number if applicable)	Brief description	Intended outcomes	Started	Finish due	Value & funding	Managed by	Urgency (1-3)	Imp. (1-3))	Impact (1-3)	Success (1-3)

<p>HG08020 Bowen Industry Development Officer (Follow-on from HG04016, MT07056)</p>	<p>Through an Industry Development Officer (IDO)- Facilitate the horticulture development of Bowen & Gumlu by providing a broad spectrum of communication, information flow and industry development activities/roles including:</p> <ul style="list-style-type: none"> ▪ assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and ▪ provide growers in Bowen & Gumlu region with a number of workshops/trainin g/seminar sessions to deliver information in areas of need for the industry ▪ access to education programs that include business management and farm management courses ▪ communication to/for the industry on various 	<ol style="list-style-type: none"> 1. By 2011 there will be one all inclusive well functioning local producer organisation capable of effectively supporting the regions fruit and vegetable industry through a range of avenues 2. By 2011 an estimated 75% of growers in Bowen & Gumlu will have attended workshops/training/seminars listed below 3. Each year for 3 years the following training, workshops, seminars, and field days will be held in the Bowen & Gumlu region <ul style="list-style-type: none"> ▪ Industrial Relations ▪ Workplace Health & Safety ▪ Improved On-farm Practices ▪ Biodegradable Mulch Film field days, workshops and on-farm implementation ▪ Reef Rescue Plan – Soil Management, Nutrient Management, Pesticide Management & Irrigation Management ▪ Improved farm management systems ▪ Supply Chain Management 	<p>1/12/2008</p>	<p>1/12/2011</p>	<p>\$395,575.00 BDGA voluntary contribution and HAL matched</p>	<p>Bowen District Growers Association</p>	<p>2</p>	<p>2</p>	<p>2</p>	<p>2</p>
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	<p><i>regional/national issues</i></p> <ul style="list-style-type: none"> ▪ <i>act as the first point of contact/information base for grower information needs</i> ▪ <i>industry development initiatives eg market access, branding, improved environmental management</i> ▪ <i>Industry Newsletter, industry wide communications (good press), general publications (fact sheets etc), website</i> ▪ <i>Skills development (IDO and growers)</i> ▪ <i>support efforts to build a strong and united industry in the region</i> 	<ul style="list-style-type: none"> ▪ <i>Climate Change</i> ▪ <i>Water Issues</i> ▪ <i>Working Visa's & Labour Shortages</i> ▪ <i>Pest Management – eg Dimethoate & Fenthion, Powdery Mildew</i> <p>4. <i>Two Succession Planning workshops for the next generation of farmers (DAFF Funding 'Next Gen Farmers')</i></p> <p>5. <i>Working directly on industry development in collaboration with:</i></p> <p><i>Growcom –</i></p> <ul style="list-style-type: none"> a. <i>Pest Management</i> b. <i>Farm Management Systems (FMS)</i> c. <i>Labour Shortages</i> d. <i>Fruit Fly Strategy</i> e. <i>Land & Water projects</i> <p><i>AUSVEG – working in with the Vegetable IDO and Vegvision 2020</i></p> <p><i>DEEDI – working on projects to support the needs of the industry</i></p> <p>6. <i>There will be training sessions and workshops developed in collaboration with the Reef Rescue Plan which will be detailed in reporting and evaluations after the project</i></p>								
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		<p><i>commencement</i></p> <p>7. <i>By 2011 all growers in the Bowen & Gumlu region will have had the opportunity to part of the Reef Rescue Plan which aims to improve Farm Management Systems (FMS) and improved water quality practices on-farm in order to reduce runoff to the Great Barrier Reef</i></p> <p>8. <i>The IDO will attend a number of industry conferences, workshops, seminars, forums and meetings to provide information flow on industry issues that affect not only the Bowen & Gumlu region but the State and Australia wide, building industry networks that provide vital industry direction and support for growers and their needs</i></p> <p>9. <i>By 2011 all growers will have access to information flow through the IDO program delivering information on R&D outcomes, Pest & Disease issues, IPM and FMS</i></p> <p>10. <i>The IDO will initiate collaborative projects and or develop projects to support the horticulture industry locally and nationally eg Made in the Whitsundays branding, Traineeships and</i></p>								
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		<p><i>Apprenticeship program</i></p> <p>11. <i>Increased industry cohesiveness and an appreciation of the value of strategic industry measured through:- positive responses to an industry survey during the project and continued support for the IDO position, active collaboration in the project by Gumlu LPA and increased support for BDGA for the continuation of the project</i></p> <p>12. <i>By 2011 an estimated 80% of growers in the region will have taken part in industry development activities</i></p> <p>13. <i>Close working relationships between BDGA, Gumlu LPA, Growcom and the state-based IDO team resulting in:- achievement of work plans including milestone reports to Horticulture Australia, effective reporting and management structure for the IDO</i></p> <p>14. <i>At the beginning of each new year of the project an evaluation of the project will determine appropriate changes to research & development, training programs and information delivery to address key issues</i></p> <p>15. <i>Growers input and involvement in the strategic directions of the melon, tomato, vegetable</i></p>								
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		<p><i>(AUSVEG) and mango industries at the national level, both directly and through and BDGA, GLPA, Growcom and the IDO team activities</i></p> <p><i>16. IDO attend training and leadership development programs to maintain skills levels appropriate to the industry</i></p> <p><i>17. There will be an evaluation of what has been achieved in the previous project which will include an industry survey to measure the impact of the project in the Bowen & Gumlu region. An evaluation of the current project will also be completed towards the end of the project which will link with future proposals in continuation of this type of project</i></p>								
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Training programs, workshops and field days (facilitated, managed or delivered by the IDO)

PROJECT DETAILS							NEEDS ASSESSMENT TEAM RANKING			
Activity (plus HAL project number if applicable)	Brief description	Intended outcomes	Started	Finish due	Value & funding	Managed by	Urgency (1-3)	Imp. (1-3)	Impact (1-3)	Success (1-3)
3 x Alternative fruit fly control and markets access for capsicums and tomatoes (VG06028)	Data collection on Fruit Fly pest prevalence during the Bowen and Gumlu Growing season for tomatoes and capsicums. Data to be used to put a systems approach together for Bowen and Gumlu	Market access for tomatoes and capsicums through the development of a systems approach	2007	2011	Project VC from BDGA \$77094	BDGA & IDO	1	1	1	1
3 x Dimethoate and Fenthion Efficacy Trials workshop (VC from BDGA, HAL funded)	Data demonstrating the efficacy of dimethoate and fenthion at a range of doses in two commodities (tomatoes and capsicums).	If an efficacious treatment using lower rates of insecticide can be developed then postharvest use of these chemicals may meet APVMA requirements and as such their use as a quarantine treatment can be retained. The use of lower rates will also result in reduced use of insecticide in the supply chain	4/4/08	ongoing	Project VC from BDGA \$13800	BDGA & IDO	2	2	2	2
6 x Biodegradable	The project will produce	The project will result in a practical,	24/8/2009	31/5/2011	BDGA VC \$15000	BDGA & IDO &	2	2	2	2

Mulch Film Trial Updates and field days (MT09068)	sound technical data and agronomic advice on potential replacement mulch films evaluated. This information will be made available to growers, the broader horticulture industry and relevant manufacturers through a periodic newsletter, industry publications, a final report and a "how to use" leaflet for industry.	environmentally acceptable solution to the insidious polyethylene mulch waste problem. It will support environmental management programs such as Enviroveg, Freshcare, ISO14001 and Reef Rescue and raise awareness within the horticulture industry of the potential of biodegradable mulch products to solve plastic waste management problems.			over three years	DEEDI				
1 x Water Meter Workshop	New Federal Government Water Policy – run out via State Government (Natural Resources & Water)	Installation of new water meters in the Bowen Region for all growers	Feb 2008	2009	In kind - \$1000	BDGA & IDO & NRM	2	2	2	2
6 x Pest & Disease Workshops (DEEDI)	Yearly Pest & Disease Update program	Updates for growers on Integrated management of foliar diseases, silverleaf whitefly and new pests in the region.	Feb 2009	2011	In kind - \$6000	IDO & DEEDI	2	2	2	2
7 x Horticulture Nutrition and Soil Health Workshops (2 x Growcom, 4 x DEEDI, 1 x AUSVEG)	Yearly Nutrition & Soil Health program	Inform the vegetable industry about HAL projects that are about to start in North Queensland, obtain industry and grower input on focus, issues, problems, interests when it comes to soil and nutrient management in	March 2009	2011	In kind - \$7000	BROWCOM, IDO, DEEDI, AUSVEG	2	2	2	2

		<p>order to fine tune project objectives and outcomes</p> <p>Managing for healthy & productive soils</p> <p>Other topics incorporated in workshops include</p> <ul style="list-style-type: none"> • soil pH • macro-nutrient levels and availability • micro-nutrient levels • Cation Exchange Capacity (CEC) • Electrical Conductivity (EC) • Why use a nutrient budgeting and recording tool? • How to use a nutrient budgeting and recording tool. 								
3 x Industrial relations & Immigration workshops	Facilitate Industrial Relations Workshops in Bowen regarding changes to legislation	Work through year to year changes to Industrial Relation Regulation Issues such as Award Modernisation and Immigration legislative changes to working visa's and on farm worker Issues	March 2009	Ongoing	In kind - \$3000	IDO & GROWCOM	2	2	2	2
3 x Chemcert workshop for growers in the Bowen & Gumlu	Chemcert renewal course for growers	Accreditation for growers to be able to use chemicals legally on farm	4/3/2009, 29/4/2010	Ongoing	In kind - \$3000	IDO	2	2	2	2
1 x Fire Extinguisher Cert course	Fire Extinguisher & Fire Warden	Certificate in Fire Extinguisher & Fire Warden for Farm Managers as a requirement of Insurance on farm	5/3/2010	17/3/2010	In kind - \$1000	IDO	2	2	2	2
4 x Reef Rescue	Horticulture Integrated	<ul style="list-style-type: none"> • An IPM approach to the control of weeds that require residual herbicides. 	20/4/2010	Ongoing	In kind - \$4000	IDO & GROWCOM	2	2	2	2

Workshops (IPM)	Pest Management training	<ul style="list-style-type: none"> An IPM approach to the improved efficacy and crop performance to the use of systemic chemicals. Improved strategies to assist management of Silver Leaf White fly in horticultural crops 								
2 x Succession Planning workshops (Next Gen Farmers grant)	Succession Planning – Business Management Skills for succession planning workshop over two days	-Young growers received tools necessary to build their business succession plan - two day Introductory Workshop -the First Stage of a comprehensive skills development program that will provide practical farm business management skills for farmers who are in line to continue the family farming business through a successful succession of the business from one generation to the next. (Some existing farmers have also expressed interest in being included in the program). The Introductory Workshop consists of nine farm business management skill modules (listed below). At the commencement of each module, the participant will complete a personal RISK ASSESSMENT FORM to gauge their level of skill in the module topic. The risk assessment forms will be collected and analysed for future planning of competency based training, conducted locally according to the skills priority of the participants in the region.	Aug 2009	Sept 2009	Total Project \$14,500 Next Gen DAFF grant BDGA in Kind - \$2000	IDO	3	3	3	2
1 x PIXEL Project workshop	Water Quality Monitoring	Growers in Bowen participated in a Water Quality Monitoring project – 30 growers in Bowen participated	Feb 2009	Ongoing	In Kind \$1000	IDO & PIXEL(BIFFMAC)	2	2	2	2
1 x Don River Forum	Don River Silt Build Up Forum	Forum delivered - to work through issues for growers being flooded	5/11/2009	5/11/1009	BDGA VC \$500	PIXEL (BIFFMAC)	3	3	3	3

		each year due to higher levels of water coming down the Don River due to the river silting up – water management								
2 x Climate Change & Carbon workshop (Growcom)	Climate change issues for Agriculture & Carbon Footprinting for Agriculture	<p>Climate change basics.</p> <ul style="list-style-type: none"> • Climate science summary. • The international picture (eg. Kyoto). • The Australian perspective. • Focus on agriculture. • The Carbon Pollution Reduction Scheme. • Carbon footprinting. • Adaptation strategies. • What's next? <p>Crop management.</p> <ul style="list-style-type: none"> • Variety selection. • Water management and storage. • Site selection. • Diversification. • New technology and equipment. • Pests and diseases. • Enhanced production from elevated CO2. • Integrating knowledge and experience. • Risk management and insurance. • Consumer behaviour 	Sept 2009	Sept 2009	In kind - \$2000	IDO & GROWCOM	3	2	3	3
3 x Workplace Health & Safety workshop	Deliver training on Workplace Health & Safety & Understanding Farm Risk Management	<p>Update growers on new legislative changes and provide business support via templates and processes for growers to incorporate on farm</p> <p>A full day workshops covering:</p> <ul style="list-style-type: none"> ▪ legal obligations; ▪ Company policy; ▪ Visitors, suppliers and 	Sept 2009	Sept 2012	In kind - \$3000	IDO & SUNSTATE RURAL	2	2	2	2

		<p>contractors visiting your farm;</p> <ul style="list-style-type: none"> ▪ Accident and incident reporting; ▪ Communication and consultation; ▪ Emergencies and hazardous events; ▪ Risk management assessments for worker activities; ▪ Risk management assessments for plant and equipment; ▪ New employee WHS induction training; ▪ The forms required for keeping WHS records. <p>A farm visit:</p> <ul style="list-style-type: none"> ▪ Install WHS management system on the computer (including all of the forms covered in the course); ▪ Train grower in how to use the documentation and change it to reflect the farm business name; ▪ Teach you how to conduct a practical risk assessment (usually of the packing shed); ▪ Answer specific questions relating to the farm's WHS and any issues that may need to be resolved, e.g. getting workers to follow WHS instructions and what to do in case of an accident. 								
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2 x Freshcare (Growcom)	Freshcare Transition training in Bowen & Gumlu	From Version 2 to Version 3 for Freshcare	9/3/2010	10/3/2010	In kind - \$2000	GROWCOM & IDO	2	2	2	2
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Industry communications (newsletters, magazines, websites, DVD's etc)

PROJECT DETAILS							NEEDS ASSESSMENT TEAM RANKING			
Activity (plus HAL project number if applicable)	Brief description	Intended outcomes	Started	Finish due	Value & funding	Managed by	Urgency (1-3)	Imp. (1-3)	Impact (1-3)	Success (1-3)
Newsletter	Collation of industry information	Information Flow via Newsletter	June 2005	Ongoing	\$1200 print p/a	IDO	2	2	2	2
Website	BDGA Website	Provides general information regarding projects, information flow and the region	Nov 2009	Ongoing	\$1500 to develop \$960 p/a To run	IDO	3	2	3	2
Mail Outs/Fax Outs	BDGA Mail outs & Fax outs of Information	Provides the best way of information flow quickly to all growers	June 2005	Ongoing	\$3840 p/a	IDO	1	1	1	1
Email	Important information may be sent to growers through a number of modes of communication	Email information that can only be emailed to addresses listed	June 2005	Ongoing	\$1589.40 p/a	IDO	3	1	2	2
Publications	Good News stories written in Publications	To promote information flow throughout the region good news stories and important industry issues are given to local and industry publications to promote widely	June 2005	Ongoing	In-kind \$2000 p/a	IDO	3	1	2	2

Other

PROJECT DETAILS							NEEDS ASSESSMENT TEAM RANKING			
Activity (plus HAL project number if applicable)	Brief description	Intended outcomes	Started	Finish due	Value & funding	Managed by	Urgency (1-3)	Imp. (1-3)	Impact (1-3)	Success (1-3)
Made in the Whitsunday branding Initiative	Across Industry Branding that can be used in the horticulture industry in Bowen & Gumlu	Market and Promote fresh produce from the Bowen and Gumlu region	Oct 2009	Ongoing	\$4000 In-kind \$4000 p/a	IDO & BDGA	2	2	2	2
Traineeships & Apprenticeships in Horticulture Production	Organised registration of cert 2 in Horticulture Production and working on an Apprenticeship in Horticulture Production	<ul style="list-style-type: none"> -School based traineeship Cert 2 Horticulture Production -Proposed apprenticeship in horticulture production -Delivery of school industry tours program x 6 per year -Career opportunities in horticulture program in the local high school 	Jan 2010	Ongoing	In-kind \$4000		1	1	1	1

PRIORITISATION RANKING GUIDE

<p>Urgency (in the context of the industry's national interest)</p>	<p>Ranked 1 to 3 with:</p> <table border="0"> <tr> <td> <p>1. Very Urgent Must be continued (existing projects) or addressed immediately</p> </td> <td> <p>2. Urgent Must be continued (existing projects) or addressed within the next three years</p> </td> <td> <p>3. Not so Urgent Must be continued (existing projects) or addressed within the next five years</p> </td> </tr> </table>	<p>1. Very Urgent Must be continued (existing projects) or addressed immediately</p>	<p>2. Urgent Must be continued (existing projects) or addressed within the next three years</p>	<p>3. Not so Urgent Must be continued (existing projects) or addressed within the next five years</p>
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<p>Importance (in the context of the industry's national interest)</p>	<p>Ranked 1 to 3 with:</p> <table border="0"> <tr> <td> <p>1. Very Important Critical to the survival of the industry</p> </td> <td> <p>2. Important Important for the industry's development and growth</p> </td> <td> <p>3. Not so Important Would be valuable to do, funds permitting</p> </td> </tr> </table>	<p>1. Very Important Critical to the survival of the industry</p>	<p>2. Important Important for the industry's development and growth</p>	<p>3. Not so Important Would be valuable to do, funds permitting</p>
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<p>Impact (in the context of the industry's national interest)</p>	<p>Ranked 1 to 3 with:</p> <table border="0"> <tr> <td> <p>1. Greatest Impact Very significant impact on the overall industry's profitability and or future viability</p> </td> <td> <p>2. High Impact Considerable beneficial impact, though not of the highest level</p> </td> <td> <p>3. Moderate Impact Impact is limited or restricted to a certain sector, region or group</p> </td> </tr> </table>	<p>1. Greatest Impact Very significant impact on the overall industry's profitability and or future viability</p>	<p>2. High Impact Considerable beneficial impact, though not of the highest level</p>	<p>3. Moderate Impact Impact is limited or restricted to a certain sector, region or group</p>
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<p>Success (in the context of the industry's national interest)</p>	<p>Ranked 1 to 3 with:</p> <table border="0"> <tr> <td> <p>1. High Very likely to achieve the outcomes</p> </td> <td> <p>2. Moderate Reasonably likely to achieve the outcomes</p> </td> <td> <p>3. Limited Only a limited chance of achieving the outcomes</p> </td> </tr> </table>	<p>1. High Very likely to achieve the outcomes</p>	<p>2. Moderate Reasonably likely to achieve the outcomes</p>	<p>3. Limited Only a limited chance of achieving the outcomes</p>
<p>1. High Very likely to achieve the outcomes</p>	<p>2. Moderate Reasonably likely to achieve the outcomes</p>	<p>3. Limited Only a limited chance of achieving the outcomes</p>		

POTENTIAL INDUSTRY DEVELOPMENT ACTIVITY SCHEDULE

Employment of Industry Professionals (such as IDOs & IDMs)

PROJECT DETAILS						NEEDS ASSESSMENT TEAM RANKING			
Brief Description	Intended Outcomes	Possible Start	Possible Finish	Possible Budget	Managed By	Urgency (1-3)	Imp. (1-3)	Impact (1-3)	Success (1-3)
<p>Project Officer – Domestic & Export market development and Understanding industry competitiveness and improvement of supply chain</p> <p>This project would fit with Government Priority</p> <p>(Supply Chain and Markets: <i>Better understand and respond to domestic and international market and consumer requirements and improve the flow of such information through the whole supply chain, including to consumers)</i></p>	<ul style="list-style-type: none"> ▪ Improved domestic & export market access for growers in Bowen & Gumlu ▪ Understanding of domestic and international market and consumer requirements ▪ Improved awareness of the competitive nature of growers within regions and domestically ▪ Develop a strategy to encourage a more cohesive environment locally in terms of market competitiveness ▪ Research current supply chains domestically and locally ▪ Identify opportunities within the supply chain and market access ▪ Develop a potential local supply chain for the horticulture industry in Bowen and Gumlu and surrounding areas ▪ Develop strategy for improved grower and supply chain relations 	1 Jan 2011	July 2013	\$395,000	BDGA	2	2	2	2

ACTION PLAN

Industry development need

HG08020 Bowen and Gumlu - Industry Development Officer

(Follow-on from HG04016, MT07056)

- *Facilitating the horticulture development of Bowen & Gumlu*
 - *Assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and support efforts to build a strong and united industry in the region*

Outcome required by completion of project or ongoing project

- *By 2011 an estimated 75% of growers in Bowen & Gumlu region will have attended the workshops/training sessions listed below and or undertaken improved on-farm practices*
- *By 2011 all growers in the Bowen & Gumlu region will have had the opportunity be a part of the Reef Rescue Plan which aims to improve FMS and improved water quality practices on-farm in order to reduce runoff to the Great Barrier Reef*
- *By 2011 all growers will have access to information flow through the IDO program delivering information on R & D outcomes, Pest & Disease issues, IPM, Farm Management Systems*
- *By 2011 there will be one cohesive association managing key issues in the Bowen and Gumlu region*
- *By 2011 an estimated 80% of growers in the region will have taken part in industry development activities*
- *By 2011 there will be one all inclusive well functioning local producer organisation capable of effectively supporting the regions fruit and vegetable industry through a range of avenues*

Strategic plan link

Goal 1 Continue to provide information flow and industry development through employment of IDO

Strategies

- a) Collecting and collating Information from within the industry and government to deliver information flow on
 - New Technology & Innovation
 - R&D project outcomes
 - Vegetable Industry Development Program
 - Regulation, Legislation, Policies, & Priorities
 - Industry body activities (local, state, national)
 - Workshops/Seminars/Forums/Training/Leadership
 - Business Management & Farm Management Systems (Water, Soil, Nutrient, Irrigation, Pesticide)
 - Sources of funding
 - Environmental Initiatives
- b) Building relationships and networks with industry bodies, government (local, state and federal)
- c) Support BDGA in developing, managing and delivery of projects to support local growers and industry

Goal 2 Develop projects specific to the needs of the industry in this region and align with industry priorities

- a) Pest & Disease
- b) Supply Chain Locally
- c) Supply Chain Improvement
- d) Export Market Development
- e) Strategic Marketing Plan for local branding initiative

<ul style="list-style-type: none"> f) Improve produce quality out of region g) Improve on farm management systems h) Up skill on farm workers i) Traineeships and Apprenticeships in Horticulture Production Development j) Develop what best practice is on farm 	
<p>Federal rural R&D priorities</p> <p>Productivity and adding value, by increasing farm profitability and plant health through the possible use of IPM through an education process and trial work</p> <p>Natural Resources Management, by minimising the on-farm use and environmental impact of chemicals, pesticides and nutrients in programs such as Reef Rescue Initiative, improved farm management systems and training programs</p> <p>Biosecurity, by developing and collaborating on projects that educate growers and provide solutions to pest and disease issues</p>	<p>Public or spill-over benefit</p> <p>Use of less chemicals and pesticides long term will have benefits on the environment and the local community surrounding the growing region</p> <p>Managing on-farm systems will mean less chemical, pesticide and nutrient runoff to the Great Barrier Reef ensuring the environmental sustainability of the Great Barrier Reef long term</p> <p>By managing Biosecurity issues through industry collaboration the local community and further afield in the industry will not suffer from an incursion of a pest or disease</p>
<p>Current activity and comment</p> <p>This project has been running for over 4 years with slightly different activities being undertaken due to the natural progression of the project (prior to project there was no information flow, no new projects, no collaboration or cohesion)</p>	
<p>Funding options</p> <ul style="list-style-type: none"> ▪ HAL matched funding ▪ BDGA VC funding 	

Actions

Action	By when	Responsibility
18. <i>IDO Management Committee in place and overall project management structure in place</i>	Completed	BDGA
19. <i>Project Approved and IDO currently employed</i>	Completed	BDGA
20. <i>Review project - Facilitating the horticulture development of Bowen & Gumlu) - through Industry development activity schedule for project delivery</i>	Ongoing/completed by the completion of the project	IDO & BDGA
21. <i>Commence project- Facilitating the horticulture development of Bowen & Gumlu) – Delivery of Industry development activity schedule</i>	Ongoing till completion of project	IDO
22. <i>At the beginning of each new year of the project an evaluation of the project will determine appropriate changes to research & development, training programs and information delivery to address any new key issues</i>	Ongoing till the completion of the project	IDO & BDGA
23. <i>There will be an evaluation of what has been achieved in the project which will include an industry survey to measure the impact of the project in the Bowen & Gumlu region. This will be completed towards the end of the project which will link with future proposals in continuation of this type of project</i>	On completion of the project	IDO & BDGA

Key Performance Indicator's

IDO to provide a broad spectrum of communication, information flow and industry development activities/roles including:

1. *assist growers to better access information, R&D outcomes and training opportunities that are of relevance and benefit to them and*
2. *provide growers in Bowen & Gumlu region with a number of workshops/training/seminar sessions to deliver information in areas of need for the industry*
3. *access to education programs that include business management and farm management courses*
4. *communication to/for the industry on various regional/national issues*
5. *act as the first point of contact/information base for grower information needs*
6. *industry development initiatives eg market access, branding, improved environmental management*
7. *industry newsletter, industry wide communications (good press), general publications(fact sheets etc), website management*
8. *skills development (IDO and growers) opportunities*
9. *support efforts to build a strong and united industry in the region*
10. *build on and create networks and relationships through the industry*

Branding Partnership Proposal 2010



coles



Introducing “Made in the Whitsundays” branding

“Made in the Whitsundays” is an initiative of Enterprise Whitsundays and was partially funded by the Queensland’s Government Blueprint for the Bush program.

“Made in the Whitsundays” is about uniting our region’s wide cross-section of industries which grow, produce and create products, under one instantly recognisable brand.

Currently there are two labels within the brand. “Made in the Whitsundays” and “Grown in the Whitsundays”.

The accreditation process for a product to use these brands is based on the “Made in Australia” campaign model and is governed by the Trade Practices Act.

We have very promising and ambitious plans for “Made in the Whitsundays” and believe consumers will come to recognise this brand as a seal of quality and a mark of excellence.





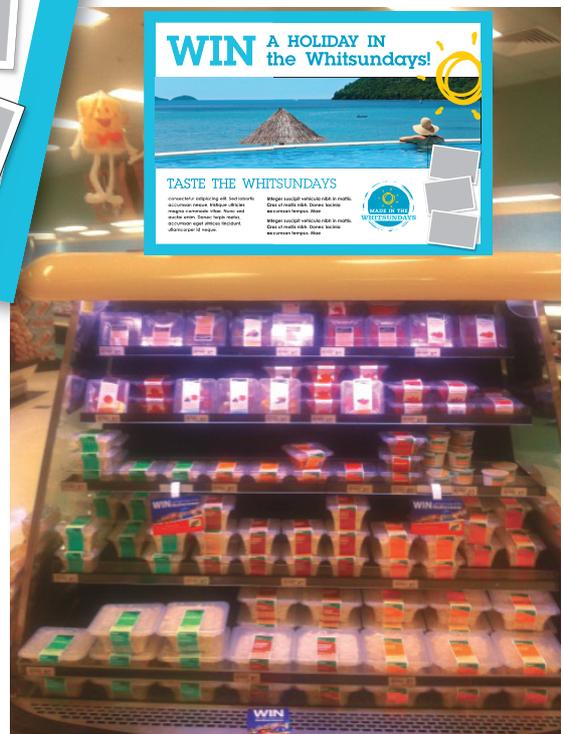
Increase sales through a “Made in the Whitsundays” **Consumer Competition**

Consumers are becoming increasingly interested in the origin of products they are purchasing. The success of other destination brands such as those used by King Island and Margaret River as well as the national brand Made in Australia are some examples which demonstrate this.

The Whitsundays is already an leading tourism brand with some very powerful imagery. Advertising which incorporates this imagery within a consumer driven market has been proven to return successful results time and time again.

Most Cole's customers would know the Whitsundays and through “Made in the Whitsundays” visuals, they will begin to associate their in-store shopping experience with good times in a beautiful sunny place. When people are relaxed and in a good mood, they spend more!

Offering Coles customers the opportunity to “Win a Holiday in the Whitsundays” when they purchase a “Made in the Whitsundays” product is sure to increase sales.



Mock up of consumer competition “Win a holiday in the Whitsundays” Poster and instore promotion

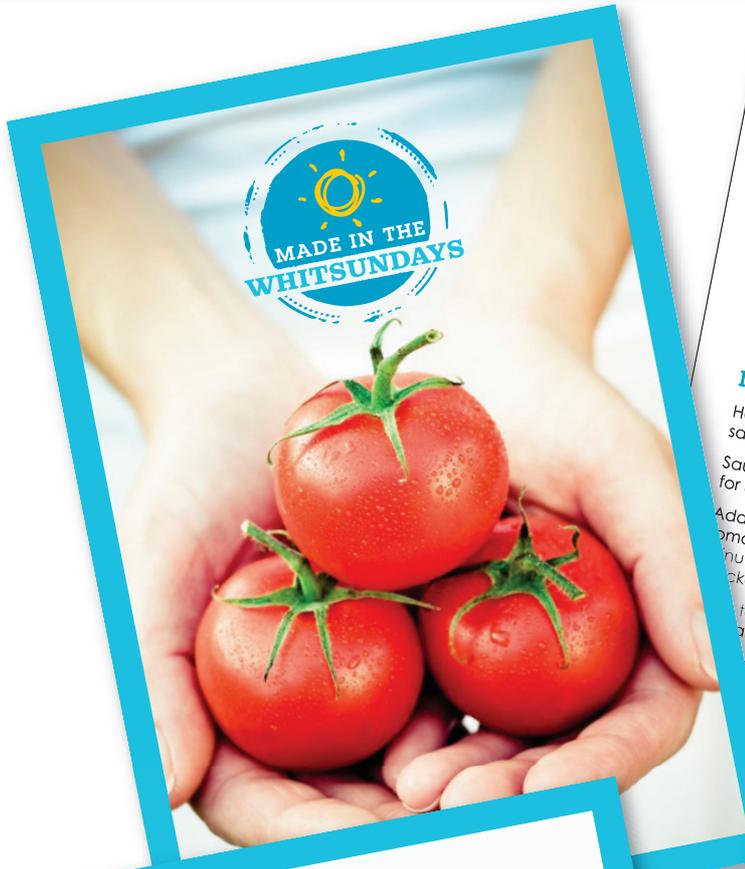
Recipe Cards promoting healthy eating using fresh produce

Health conscious consumers are looking for information on what food is fresh and in season. Consumers in general are time-poor.

A series of recipe cards featuring seasonal produce will give consumers information on produce as well as quick and easy ideas on preparing meals.

The ingredient list on each recipe card may feature the Coles brand products creating opportunity for cross-sales in-store.

“Made in the Whitsundays” recipe cards will provide relevant information and free ideas on how to prepare healthy and delicious meals by shopping at Coles.



TASTE THE WHITSUNDAYS RECIPE #1

Tomato Soup

Preparation time: 15 minutes or less

Ingredients

- tomatoes
- tomatoes
- tomatoes
- tomatoes

Method

Heat olive oil in a large saucepan.

Saute onion, carrot and garlic for 5 minutes.

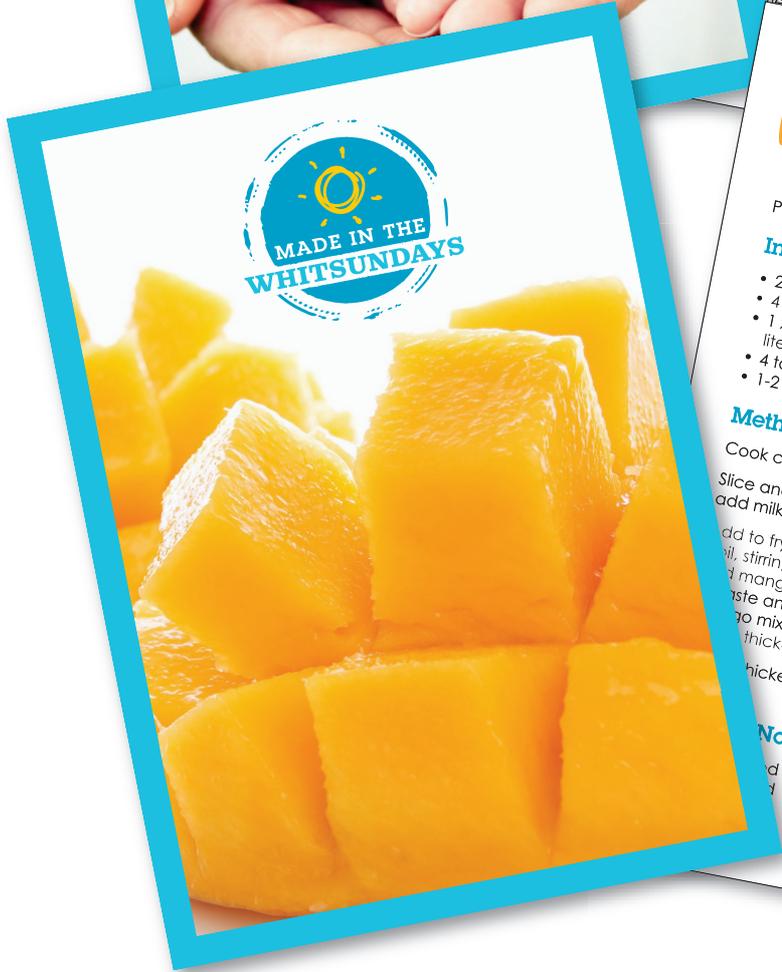
Add sliced, unpeeled tomatoes and cook for 5 minutes. Add the tomatoes, chicken stock and water.

Bring to the boil. Reduce the heat and simmer for 30 minutes.

Remove from heat and allow to cool. Season to taste.

Notes

Use extra olive oil over



TASTE THE WHITSUNDAYS RECIPE #2

Mango Chicken

Preparation time: 30 minutes or less

Ingredients

- 2 fresh bowen mangos
- 4 chicken breasts
- 1 x 395 g can evaporated milk
- 4 tablespoons Malibu
- 1-2 tablespoons cornflour

Method

Cook chicken breasts.

Slice and puree mangos, add milk and Malibu.

Add to frying pan, bring to a boil, stirring. Mix cornflour and mango juice to make a paste and mix into the mixture. Stir until it thickens.

Place chicken breasts on bed of rice and pour over

Notes

Mock up of two recipe cards - tomato and mango



“Made in the Whitsundays” and strategic partnerships lead to positive public relations

Coles may use the “Made in the Whitsundays” brand to enhance existing partnerships and develop new partnerships therefore strengthening consumer recognition.

For instance, the television show Masterchef would be a perfect opportunity for cross-promotion. A “Made in the Whitsundays” mystery box challenge which takes Masterchef contestants to their cooking stations in the Whitsundays could be possible.

In-store cooking demonstrations by a celebrity chef, using Whitsunday produce may also be possible. The opportunities for new and existing partnerships are endless.

We believe it is important consumers feel a connection to the brands they buy and positive cross-promotion is key to this consumer awareness.

Masterchef Australia meets "Made in the Whitsundays"



Whitsunday Mysterybox Challenge

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coles



Mock up of an ad for Masterchef promotion "Whitsunday mystery box"

We are excited!

Enterprise Whitsundays along with the food producers in the Whitsundays are excited by the prospect of working with Coles to promote our brand “Made in the Whitsundays”.

We know our region has some of the best produce and most talented food producers in Australia.

Through this partnership, Coles will benefit from an increased connection with consumers by using the brand “Made in the Whitsundays”.

Coles customers will benefit by enjoying the delights of the Whitsundays, no matter where they are in Australia.

We are looking forward to hopefully working with Coles to develop this opportunity.

Thank you.





coles



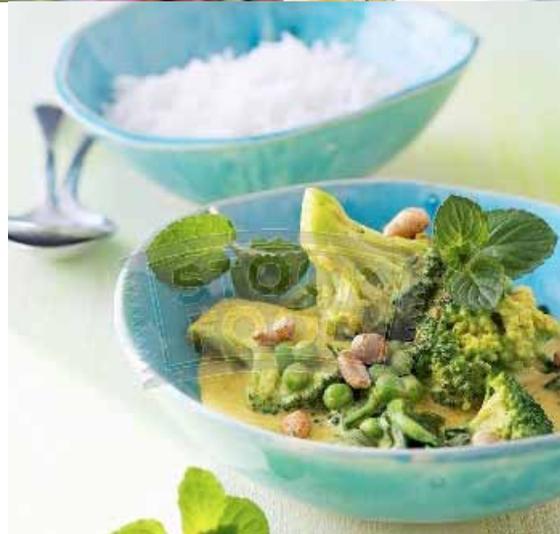


Bowen District Growers
Association Inc

Grown in the Whitsundays

Elaine Millar & Associates

November 2011





There is no
love sincerer
than the love
of food.

Grown in the Whitsundays

Elaine Millar & Associates – Strategic Marketing Plan Proposal

Deliver a marketing strategy for BGDA to achieve quality mainstream and niche brand awareness for *Grown in the Whitsundays*, to generate 'place of provenance', to increase economic viability and future investment in the region, to strengthen produce supply chains, to secure media exposure for 'farm-agri-tourism' in the region and create community event(s) to build visitation.



RESEARCH & EVALUATION

Objectives

- BDGA vision
- BDGA expectations
- BDGA objectives
- EMA objectives

MEETINGS

Objectives

Liaise with key stakeholders and associations to establish key objectives and expectations of Elaine Millar & Associates

- BDGA
- Agriculture - other
- Tourism
- Fisheries



REVIEW PAST

Identify past strategies and actions:
What worked — What did not work

Objectives

- Marketing & Branding – all encompassing
- Tourism – agri, farm, nature, experiences and general
- Regional, community & historical events

REVIEW CURRENT

Identify confirmed programs, plans and activities

Objectives

- Marketing & Branding – all encompassing
- Agricultural practice, environmental and sustainability positioning
- Supply chains
- Advancements in agricultural diversification
- Agri-tourism & general tourism
- Regional & community events and local history



NEEDS ANALYSIS

Identify the core needs of BDGA to form the marketing plan

Objectives

- BDGA's detailed objectives
- Regions, sub-regions, produce
- Supply chain – volume (chains: Coles, Woolworths, other)
- Supply chain — niche (food service and quality grocers)
- Marketing, communication and creative
- Agri-tourism, general tourism, experiences
- Regional food excellence, cottage industries, dining and accommodation

A stack of approximately 15 white ceramic plates, neatly piled on top of each other. The plates are slightly offset, creating a sense of depth and texture. The stack is centered horizontally in the lower half of the frame. The background is a plain, light gray surface.

MARKET SEGMENTS

Identify all targeted segments of the market

Objectives

- Supply chain
- Retail – volume and niche
- Restaurants & food service
- Tourism – regional and external
- Media
- Industry associations and other



COMMUNICATION

Build quality awareness within the food and travel sector, retailing and the broader community through innovative communication and events

Objectives

- Core story creation with key messaging based on 'Grown in the Whitsundays'
- Food and tourism sub stories
- Creation of specific media, consumer and community activity, workshops, tutorials, field days, famils, sampling, festivals, events and other

BRAND

Create a 'draft' design concept based around the marketing strategy for 'Grown in the Whitsundays'

Objectives

- Capture the essence of the brand
- Point of difference

Grown in the Whitsundays



Whitsunday Food Circle Project



FINAL REPORT

Supply chain analysis - Implementation of findings with engagement of key stakeholders - Identification of potential investment and value adding opportunities - Development of new premium markets.



Executive Summary

The Whitsunday Food Circle was developed to promote and support the Whitsunday horticulture industry. The projects primary objectives are to improve supply chains, facilitate opportunities for value adding produce, attract investment and raise the profile of the Whitsunday horticulture industry. This project has successfully achieved these goals and provided effective solutions to current issues to the extent that activities and media from the actions of this project have resulted in surrounding regions adopting similar action plans.

Early in this project, the steering group identified that large and small scale producers have different needs in relation to supply chain, value adding and marketing and investment opportunities. This report (milestone 3) summarises the actions taken to implement the recommendations of the quantified analysis report, which was delivered in milestone two. Achievements for each recommendation can be found on page 6 and 7.

This project resulted in some significant outcomes that have long and short term benefits for the Whitsunday Horticulture Industry. To address supply chain issues, a farmers market has been established to be open April 2012 and an industry connect website will be live in the New Year. To provide value adding opportunities, locations for a food production hub have been identified and recommended to local groups and future suppliers of the farmers market. Research to help assist local producers in value adding and efficiency has been collected and will be promoted on the industry connect site. To encourage new opportunities and diversity, maps of agricultural land in the region have been supplied as well as a list of produce that would be suitable for the region. For this project, meetings were also conducted with nearby regions with similar produce to establish relations and promote opportunities of value adding and cooperative resource sharing for larger producers.

The project working group has developed a draft strategy for the horticulture industry. This strategy revealed the need to engage a consultant to provide specialist advice around regional food identity and culture as well as create a brand story for the Whitsunday horticulture industry. Opportunities for development of food tourism products are present and it is anticipated with the success of tours such as Localvore from the Airlie Beach Hotel, the region will see this sector of the industry grow rapidly.

Recommendations were made to continue to support this industry through encouraging Food Tourism and Product Development and to implement the Marketing and Investment strategies provided. A national marketing campaign is also important for this industry sector and it is recommended this strategy be developed further.

Table of Contents

Executive Summary	1
Introduction	3
Key Project Outcomes	5
Action Plan Update	6
Regional Farmers Market	8
Industry Connect Website	10
Value-Add Packaging Cluster	15
Research Library.....	19
Industry Events	21
Research Project Proposal	24
Investment Attraction	27
Marketing Strategy	38
Conclusions	52
Appendices	54

Introduction

Enterprise Whitsundays, with funding from Department of Employment, Economic Development and Innovation and assistance from Bowen District Growers Association developed the Whitsunday Food Circle Project for the regions Horticulture Industry. The project is comprised of three Milestones, the first two included developing a stakeholder group, mapping the current supply chain model and creating a list of recommendations to assist the industry.

This final milestone of the Whitsunday Food Circle project contains the implementation of actions identified in the quantified analysis report (Milestone 2), establishment of new supply chain models and value add opportunities and development of a Whitsunday Horticulture Investment and Marketing strategy.

During this 18 month project it was identified that the Whitsunday horticulture industry consists of two sectors; 1) large scale, commercial growers predominantly based in Bowen and Gumlu 2) small to medium scale growers, which include backyard hobby or lifestyle farmers with potential to develop their business. The supply chain for these two industry sectors is significantly different and in order to develop both in a sustainable manner, two strategies are required.

The strategy for large-scale commercial growers with existing national supply chains is to make their operation more efficient through a collaborative approach to value-add packaging, preparing for new markets such as export and supplying into the value-add food production chain as well as crop diversification to extend the growing season and produce high-yield crops.

The development strategy for small to medium producers is to focus on local markets by strengthening regional supply chains such as a farmers market and local wholesale distributors and to develop relations among growers to enable value-adding and resource sharing.

Scope

This final report for the Whitsunday Food Circle Project delivers the following milestones

- ⇒ Take action to implement the recommendations of the quantified analysis report (delivered in milestone two)
- ⇒ Establishment of supply chain models that develop new markets and value adding opportunities for the Whitsunday horticulture industry
- ⇒ The development of a Whitsunday horticulture industry attraction and marketing strategy

Approach

Project working group

Consisting of four industry professionals and a Project Manager, the working group have collaborated their ideas and knowledge to reach recommendations and take action to achieve these recommendations. Minutes from working group meetings can be found in appendix 1.

Investment in expert knowledge and research

In May 2011, Enterprise Whitsundays received \$15,000 from state government through the Tourism projects feasibility study program. This grant funded the engagement of a consultant to carry forward the working group's recommendation and investigate the feasibility of a farmers market in the region.

Action

All recommendations have been ensued and while some of the final outcomes are not achievable within the timeframe of the Whitsunday Food Circle project, the direction has been set for future developments with the horticulture industry.

Media, PR and stakeholder consultation

Using press releases, public forums, industry workshops, on-on-one meetings and media interviews, communication regarding the development of a farmers market and the overall progress of the Whitsunday Food Circle project has taken place throughout the duration of this project. See Appendix 7

Key Project Outcomes

The below action plan, which was derived from the findings in Milestone 2 of this project and the additional requirements of Milestone 3 have resulted in the following activities:

- *Development of a Farmers Market*
- *Development of Industry Connect Website*
- *Establishment of Value Add Packaging Clusters*
- *Creation of a Research Library and compilation of information in relation to Regional Agricultural Land and crops that can be grown in this region.*
- *Identification of a Food Research Proposal*
- *Development of an Investment and a Marketing Strategy*
- *Hosting of an Industry Event*

The following is a summary of the action plan and details on the major activities conducted by Enterprise Whitsundays as part of this project.

Action Plan Update

The following actions were identified as recommendations from Milestone 2, to be implemented in the final stage of this project (Milestone 3). Below is a summary of achievements to date.

Action	Achievement
Establish a farmers market with the capacity to expand into a multi-functional operation	Feasibility study complete November 2011. Meetings have been held with council & stakeholders. Proposed opening April 2012. Database of over 100 regional growers and food producers established.
Facilitate opportunity for regional distribution of local produce through strengthening industry networks	The farmer's market business model is multifunctional and provides partnership opportunities for distribution companies to work with local growers within the regional supply chain. Examples of local produce being supplied wholesale to the islands have already occurred through this project such as the Bioliscious and Berkshire Gold Pork that was used by Qualia on Hamilton Island during special events. This Whitsunday produce was mentioned the September edition of Gourmet Traveler.
Work with TradeStart to develop an export strategy for Whitsunday growers	Initial meetings indicate issues with pest and disease management may prohibit export opportunities for the region's horticulture industry. Further discussions will take place with TradeStart and BDGA.
Investigate research opportunities for crop diversification universities, DEEDI	CQU have offered to supply information and assist the region. The Industry Connect Website to be run by BDGA will facilitate the sharing of information.
Provide growers with available research and encourage them to diversify and incorporate high yield crop varieties	A library of research information about specialty or niche crops is being compiled and will be available on the Industry Connect website. Bioliscious, an independent consultant have supplied a list of crops that are suitable to the area(see appendix 2) Contact details for relevant University, DEEDI and DERM research officers will also be available from the library.
Work with Tourism Queensland and growers to encourage the development of food tourism in the Whitsundays	Discussions have taken place with Tourism Queensland, Tourism Whitsundays and horticulture industry representation. It is believed the farmers market, to be open in April 2012, will be a catalyst for future food tourism products.
In collaboration with the Grown in the Whitsundays brand, develop a marketing plan for regional produce	A marketing strategy has been drafted; a summary is available on page 39-51

Action	Achievement
Create a database of regional growers and their crop varieties	A database of over 100 growers and food producers has been created and is being used to communicate with industry. This database also identifies gaps in our production calendar.
Create a database of processing and packaging equipment in the region and plant capacities	“Industry Connect” website is being developed. The site allows industry to share advice and resources such as available cropping land, kitchen facilities, equipment and human resources. The Bowen & Gumlu Growers Association will host this on-line facility through their new website.
Connect growers to form a value-add packaging cluster	Due to the 2 categories of growers identified, this action lead to connecting larger growers with those in surrounding regions and for smaller growers, introducing the concept of a food production hub and building relations though the farmers market.
Identify opportunities for a pilot food production hub in the region	The farmers market (once established) and the “Industry Connect” website will identify the need for a food production hub in the region. The project working group have identified potential existing businesses that could host the hub however further funding is needed to establish the facility.
Seek opportunities for domestic and inbound investment in the value-add industry	A strategy has been developed for marketing and investment attraction for the region. See page 27-51.
Develop a database of available horticultural land and its capacity	Information has been collected and can be found in Appendix 3. A list of potential crops for the region and their plant and harvest times can be found in appendix 2. This information will be available on the Industry Connect Website.
Organise events to strengthen the region’s food industry networks	The Industry Connect networking event was held on November 23 at Food Freaks in Bowen. Close to 50 farmers and stakeholders in the Whitsunday Agriculture Industry attended the event. The event provided updates on this project with presentations from EW, BDGA and Council.
Investigate land sharing opportunities, particularly on cane farms	This is being facilitated through the “Industry Connect” website
Develop the scope for a health science research project using nutrients extracted from waste produce	Scope for Lycopene project can be found on page XX and information on Lycopene in appendix 4

Regional Farmers Market



Regional farmers market

Early in the Whitsunday Food Circle Project, the development of a Farmers Market was identified as a solution to current supply chain issues in the Whitsunday Region. This has proven to be a highly successful outcome of this project and has resulted in nearby towns, Townsville and Mackay, also setting up Farmers Markets.

Linkages to project objectives

- ⇒ Provides a link between local growers and buyers (wholesale and retail)
- ⇒ Encourages growers to diversify and to grow crops with a higher yield
- ⇒ Creates opportunity for food producers to make a value added product using local produce
- ⇒ Establishes a regional supply chain for the horticulture industry which does not compete with the interest of national, high volume supply chains
- ⇒ Attracts investment in food tourism products such as farm tours
- ⇒ Assists in the marketing and promotion for the Whitsunday region as a food growing and manufacturing destination

Current progress update

- ⇒ Additional Grant funding was provided to employ a consultant for the feasibility study of a Farmers Market
- ⇒ Shane Stanley from Queensland Farmers Markets was engaged as a consultant
- ⇒ The Feasibility is complete, survey results can be found on appendix 5
- ⇒ Expression of interest for owner/manager will be advertised by local council
- ⇒ A business in Proserpine with facilities and land have already started proceedings to start a Farmers Market which plans to open April 2012
- ⇒ Opportunities still exist for Farmers Markets in other townships in the Whitsunday region.
- ⇒ NOTE- Mackay and Townsville have also started proceedings to establish Farmers Markets in their regions

Long term vision

- ⇒ Crop diversification to allow for increased wholesale supply opportunities
- ⇒ Multi-functional distribution including wholesale, on-line and a regular retail outlet
- ⇒ Industry education and development through workshops and attraction of knowledge to the region
- ⇒ Provide a platform to market the Whitsundays region as a farming / lifestyle destination and attract growers to establish their operation here

Industry Connect Website



Industry Connect website

To communicate and provide information to farmers and relevant stakeholders the development of a website was identified as the most viable solution. The aim of the site is to provide access to information and research and to help enable the development of relations between stakeholders.

Linkages to project objectives

- ⇒ Connects owners of available horticultural land with growers in need of additional land (increase production and yield)
- ⇒ Connects food producers with suppliers for raw ingredients such as local produce (facilitates value-adding opportunities)
- ⇒ Connects producers of value-added product with production facilities such as equipment (such as commercial kitchens)
- ⇒ Provides access to industry research on crop diversification
- ⇒ Encourages collaboration within the industry and the sharing of knowledge and advice (sample available -see page 14)
- ⇒ Links with employment opportunity website – Work in the Whitsundays

Current progress update

- ⇒ Site has been mapped (see page 12) and template designed(see page 13)
- ⇒ Agreement with BDGA to host the on-line facility
- ⇒ Site to be live early 2012

Long term vision

- ⇒ Crop diversification to allow for increased wholesale supply opportunities
- ⇒ Establishment of a food production hub and community kitchen
- ⇒ Opportunities for food producers to create value added products using local produce
- ⇒ Increase efficiencies in labor and facilities use

Industry Connect

Website Overview

“Industry Connect” is designed to be an on-line meeting place and resource centre for the Whitsunday horticulture and food production industries. It will be hosted by the Bowen Gumlu Growers Association website once completed in December 2011.

The following a brief for web design of “Industry Connect”

1. About Industry Connect

Industry Connect is a free resource for growers and producers of value added food in the Whitsunday region. It provides an opportunity for local growers, landowners and food producers to connect and share resources such as plant equipment and staff.

Industry Connect has been created by the Whitsunday Food Circle working group, a project funded by the Department of Employment, Economic Development and Innovation (provide DEEDI link and logo)

2. Research Library

- a) Research reports
- b) Website links
- c) Relevant contact details

3. Industry Connect Pages (user comments module)

- a) Growers and Land Owners
- b) Food Producers and Suppliers
- c) Factories, Kitchens, Equipment
- d) Skilled & Un-Skilled workers (does not allow for comments but links directly to this address http://www.workinthewhitsundays.com/index.php?option=com_hotproperty&Itemid=55)

4. Featured logos and links

Enterprise Whitsundays
Bowen Gumlu Growers Association
DEEDI

Industry Connect Site- To be live Jan 2011

Industry Connect

I am looking for...

- Farmland
- Food Producers and Suppliers
- Factories, Kitchens and Equipment
- Skilled and Unskilled Workers

...I have for hire

...I have for hire

BOWEN GUMLU
GROWERS ASSOCIATION INC.
Collectively we grow

DEED Logo
Enterprise Whitsundays Logo
BOWEN GUMLU

About Research Reports Links Contact Us

Sample of a site where produce is discussed:

Home – The RealFood Network ... x Questions & Answers | Landsha... x +

PECKHAM PATCH up for grabs.
Created : 20:02 on 28th September 2011 by [shootthunder](#)
 Does nobody want our lovely little space of grass and border to grow anything?

free to a good home rabbits
Created : 08:44 on 28th September 2011 by [freeman93](#)
 I have three lion heads to tan and a grey there is a girl and two boys free to a good home there all only one year old
 telephone 01915214793
 Liam

Land adjacent along from my house
Created : 08:01 on 28th September 2011 by [scruffy](#)
 Hi

I have a fairly large (approx. 300m sq) area of woodland/scrub land about 10m from my house. I think it would be ideal for a community orchard/allotment adventure play area, several of my neighbours are also with me on this. However, a neighbour has cleared the land and is using it as a storage area for machinery (he's fenced it off), a local farmer (who I believe leases the land) has allowed him to do this but has blocked my informal request to transform the area into a community orchard.

So far I have applied to find out who owns the land (for £50 online) and am awaiting the land registry office getting back to me. Meanwhile, my neighbour is erecting more fences! Is there anything else I can do?

Any help would be gratefully accepted!

Many thanks

tomatos
Created : 17:07 on 26th September 2011 by [freeman93](#) | [1 answer](#)
 How do you stop tomatos from getting black spot

Water supply to Landshare Plot?
Created : 19:57 on 25th September 2011 by [Twinks](#) | [1 answer](#)
 Hi,

Posted a couple of weeks ago over on the forum, and although many have read, I have had no replies, so thought I'd try here.

Value-Add Packaging Cluster



Value-add packaging cluster

To achieve sustainability, enhance competitiveness and assist in resource management, activities have been undertaken with the aim to provide value-add packaging cluster opportunities. For larger scale producers, an opportunity for sharing production facilities has been assisted through Meetings with nearby regions with similar produce and through the upcoming Industry Connect Website.

For smaller producers, establishment of a Farmers Market, a shared food production facility and the industry connect website all contribute to value adding to produce.

Linkages to project objectives

- ⇒ Facilitates value adding opportunities for growers within the local horticulture industry
- ⇒ Provides opportunity to collaborate with neighboring regions and use equipment outside traditional season
- ⇒ Encourages new product ideas
- ⇒ Further establishes branding

Current progress update

- ⇒ Discussion held with key Bowen growers
- ⇒ Denise Kreymborg (BDGA/ EW Board of Directors) visited farmers in the Mareeba region of Cairns to develop relations and opportunities with Whitsunday Growers (see below- Connecting Growers to form a value add packaging cluster).
- ⇒ Research into a Production Hub/ Commercial Kitchen for growers to Value Add their products conducted (See below)
- ⇒ Investigation through BDGA
- ⇒ Utilisation of Industry Connect Site

Long term vision

- ⇒ Develop a product range using regional branded packaging
- ⇒ Extend the food growing and production season and increase operation of regional packaging facilities
- ⇒ Utilise Industry Connect Website to facilitate communication and opportunities
- ⇒ Establish a shared commercial kitchen for growers to value add their products

Available production facilities

- Brett ward of catering Whitsundays has a commercial kitchen that could be suitable for small contract cooking and packaging
- David Faust has a small meat works at Proserpine that could be suitable for small kills and cold storage. 0418 455111
- Garen St at Cannonvale has an ex bakery that could be suitable for food prep and storage

Report from Denise Kreymborg, Bowen District Growers Association:

Connecting growers to form a value add packaging cluster

It is increasingly evident that growers are under enormous pressure from the rising cost of production which impacts on their sustainability long term. One of the areas that growers need support in to be sustainable is to become more efficient.

It was identified that some large companies have huge inefficiencies that could support value add opportunities. These would be opportunities to create a collaborative connection between growers and growing regions to form a value add cluster.

Value Add Opportunity – Mareeba/Atherton/Bowen

A pre-packaging opportunity exists for growers who would like to pre-package their produce through any of the three major pre-packaging/processing enterprises in the Bowen region. This created a value-add opportunity for growers in the Mareeba/Atherton area as there are currently limited in any opportunities to pre-package product in the North Queensland region.

Research shows a shift in consumers buying habits towards convenience products which includes pre-packaged fresh produce. Research also shows that a high percentage of grocers and supermarkets are currently pre-packaging most of their fresh commodity lines in order to gain the convenience driven consumer.

The details of the packing and processing facilities are listed below:

Pre-packing facilities in the Bowen region

- Fresh produce is packed through the facilities from May till 1 November
- No produce goes through the facility outside of this period
- Flexibility in packing a range of commodities during the season but not as efficiently as out of season

Equipment

- Over rapping trays
- Bag up commodities
- Basic cutting and preparation
- Multiple Cold rooms
- Range of temperatures available
- Temperature enclosed loading dock

Can process two or three semitrailers a day

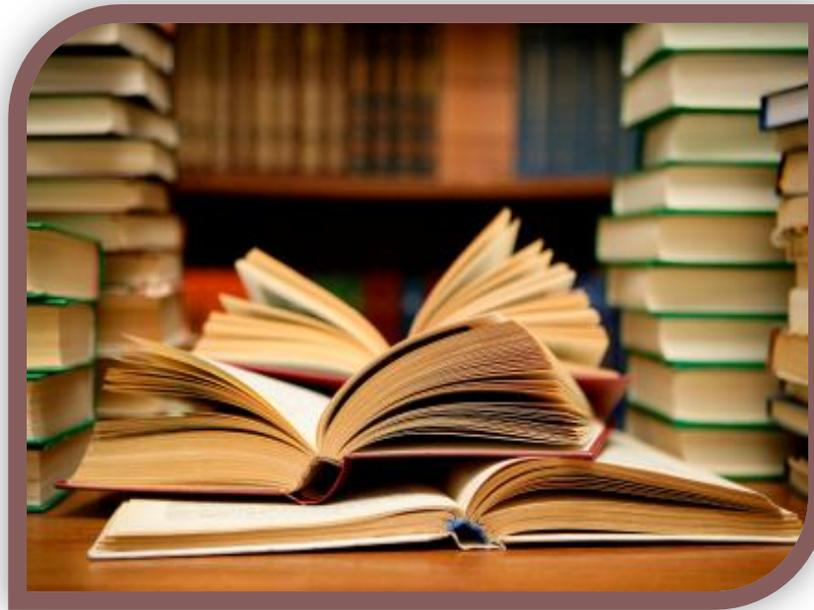
- Prefer 700 kg Chep Bins
 - Or 10kg boxes
- **Can pack into 10kg boxes**
 - **Have washing and brushing facilities**

The individual enterprises are not into buying product and offloading it to existing supply chains, however in the establishment of a relationship an arrangement that suits both companies in the Mareeba/Atherton region would be workable.

Growers Alliance and Food Connect

A presentation was made to the Mareeba and Atherton growers to establish collaboration between the two regions and encourage growers to take up the opportunity. An alliance/food connection managed by the Bowen Gumlu Growers Association has been established and will continue to be built on. There are also opportunities for growers in the Whitsunday region to diversify and value their produce through this alliance and food connection.

Research Library



Research library

Linkages to project objectives

- ⇒ Encourages growers to diversify their crops through sharing information
- ⇒ Strengthens industry networks
- ⇒ Offers a platform for future research and development projects
- ⇒ Allows growers and food producers access to information that may improve their business

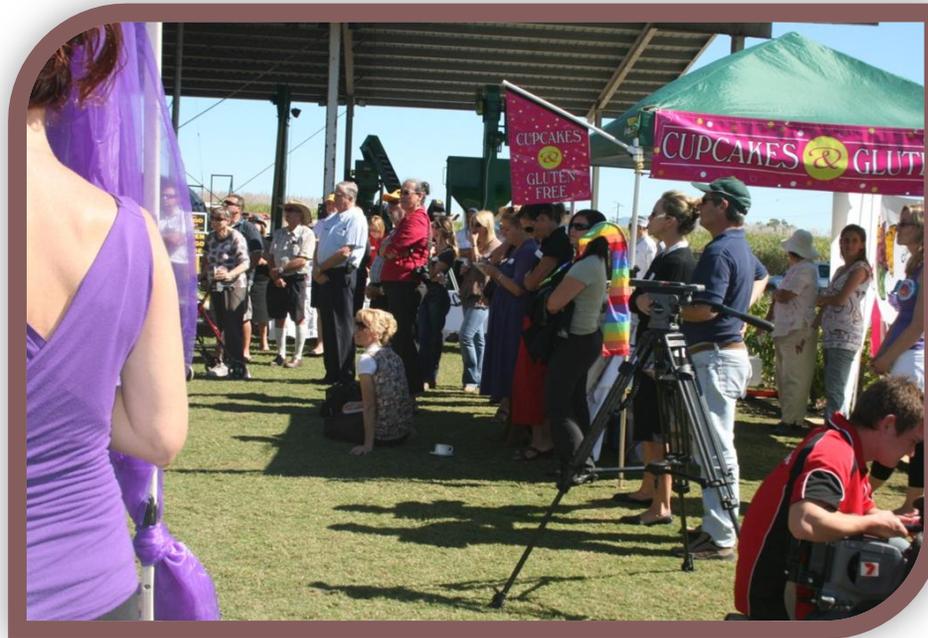
Current progress update

- ⇒ Research papers compiled (See appendix 6)
- ⇒ Relevant contacts listed
- ⇒ CQU have offered assistance in providing new research in agriculture field to site
- ⇒ Bioliscious- List (Appendix 2)
- ⇒ Maps of Agricultural land for the region (appendix 3)

Long term vision

- ⇒ Site may link to national sites such as land share
- ⇒ Concept grows and attracts significant use
- ⇒ May be able to branch out and address needs in other industries therefore connecting multiple sectors

Industry Events



Industry Events

To increase awareness of the WFC Project and achieve goals in connecting producers and promote the Industry Connect Website, an event was held on November 23rd 2011 in Bowen (pictures from the event can be seen page 23).

Linkages to project objectives

- ⇒ Strengthen industry networks
- ⇒ Allow suppliers, distributors and buyers to connect
- ⇒ Facilitate knowledge exchange
- ⇒ Provide opportunity for professional development
- ⇒ Assist in the promotion of the industry

Recent Events

- ⇒ Farmers market media launch
- ⇒ Industry Connect Event Bowen 23/11/11 (attendance of close to 50 growers and industry stakeholders)

Future Events

- ⇒ NBN advisory session (DEEDI)
- ⇒ Permaculture and farm based workshops
- ⇒ Pacific Island crop diversification workshop (through farmers market network)

Images from the Industry Connect Networking event



Peter O'Reilly, CEO Enterprise Whitsundays with a produce supplier



Gumlu Tomato Producers



Shane Stanley Queensland Farmers Market with Bowen Councilor Mark Gaudry



Carl Walker BDGA Chairman, Denise Kreymborg BDGA Industry Development Manager, Elouise Lamb EW and Mayor Mike Bruncker (WRC)



Carl Walker, BDGA Chairman, and Mayor Mike Bruncker (WRC)

Research Project Proposal



Research Project Proposal

Though discussions with the Project working group, it was identified that a health science project that looks at current crops and utilizing their waste produce would be beneficial to local growers.

With the high levels of production of watermelons and tomatoes in the region, there is an interest from local producers and industry stakeholders to look into Lycopene in more detail in relation to Health Benefits.

If scientific health benefits can be confirmed, the goal would be to identify an economical way to extract the nutrients from wastage of these products, package the product and take it to market. An example of a product currently on the market promoting the benefits of lycopene can be found below.

Information on Lycopene can be found in Appendix 4 which shows that this product has health science potential.

PROJECT: Investigation of extraction of Lycopene from Waste products and its health benefits

PROJECT SCOPE:

The Whitsundays produces a large amount of Tomatoes and Watermelons which both contain Lycopene, a product which has been identified as having potential health benefits. There is wastage from these products which may potentially be of value. This project will attempt to identify the scientific benefits of this Lycopene and then to identify extraction options to create a viable and marketable product.

Example of Lycopene Products currently on the Market:

<http://www.nutritional-supplement-educational-centre.com/lycopene-supplement.html>

Featured Lycopene Supplement

A Comprehensive Product

One company that meets the above requirement -- and more -- is Xtend-Life from New Zealand. Their flagship formula called Total Balance contains **lycopene along with a broad spectrum of over 75 specialized nutrients** that the body needs for optimal 'whole' body health, including vitamins, minerals, potent antioxidants, specialty nutrients, herbal extracts, enzymes, and amino acids.

In addition, **Total Balance** is formulated by a highly credentialed scientific team that can blend these ingredients perfectly to ensure maximum benefits, but as importantly that do not interact adversely. Plus, Total Balance is enteric coated to protect all of these ingredients against stomach acids and to ensure maximum bio-availability.

The company also uses only standardized herbal extracts, the purest herbal extracts with the highest quality and therapeutic benefits, and they adhere to strict pharmaceutical GMP compliance, which is the toughest in the industry.

We here at Nutritional-Supplement-Educational-Centre have been taking **Total Balance** for several years now and can personally attest to its **excellent results** such as an increase in energy levels, mental clarity, and an increase feeling of well-being.

Investment Attraction



Whitsunday Horticulture Industry Investment Attraction



Whitsunday Region

The Whitsunday region is located midway along Australia's Queensland coast, 1,125 kms north of Brisbane and 725 kms south of Cairns.

The region includes Bowen, Cannonvale, Proserpine, Airlie Beach, Collinsville and 74 Whitsunday Islands – eight of them inhabited - as well as beach and hinterland settlements. It is also the stepping off point for the Great Barrier Reef.

A rapidly developing region with a population of 35,000, the region is continuing to grow

Between 2005-2010, the annual growth rate in the region was 2.6 percent, compared with 2.5 percent for the State.

The Whitsundays' population is projected to increase by approximately 64 per cent by 2031, to 55,500 people, driven mainly by large-scale industrial developments associated with the mining industry.

The Whitsunday region enjoys a sub-tropical climate with average daily temperatures between 16.8 C and 29.1 C and an average yearly rainfall of 1,076 mm. Queensland destinations also enjoys more hours of sunshine each year than any other state in Australia.

The region has a diverse economic base, which includes:

- ⇒ A wide range of agricultural industries including cattle, sugar cane, aquaculture and fruit and vegetable crops
- ⇒ A strong tourism industry
- ⇒ An internationally recognised and expanding coal and minerals industry
- ⇒ A well developed and diverse manufacturing sector that includes a broad range of companies providing infrastructure support to the mining and construction industry



Whitsunday Horticulture Industry

The Whitsunday Region has a well established and strong horticulture industry produced on approximately 40,000 hectares of land.

It is estimated that the region contributes more than \$400 million to the \$9 billion Australian horticulture sector, which is the fastest growing sector in the agriculture industry.

An estimated 85 establishments across more than 6,300 hectares of land in the Whitsunday Region are dedicated to the production of approximately 36,169,453 kilograms of fruits and vegetables each year.

Vegetables grown in the region include tomatoes, capsicums, pumpkin, sweet corn, green beans, eggplant, zucchini, melons (including watermelon, rockmelon, honeydew and cantaloupe) and chillies.

The Whitsunday region also produces a wide range of fruits including mangoes, lemons, limes, oranges, grapefruit, mandarins, pineapples, bananas and passionfruit.

The region also produces macadamia nuts, with an estimated 1,275 trees in the region. It is estimated that 85 establishments across more than 670 hectares of land in the region hold 128,407 orchard fruit trees and nut trees and is valued at approximately \$7.8 million (gross) per annum.

In addition to these products, the region contributes an estimated \$278 million to the state economy through its production of crops including sugar cane, coffee, cereal, pasture and other crops cut for hay.





Whitsunday Horticulture Industry Strengths

Due to the ideal winter growing conditions, the Whitsundays can supply fruit and vegetables when other regions around Australia are unable to grow them.

The area boasts a dry (winter) season and provides a major window of clear, cloud-free days for crop ripening with approximately 120 clear days a year.

The counter-seasonal growing season also means there is the potential to provide product to domestic processing plants outside the region.

And there is the potential to import produce from other states during the summer months, to ensure year-round production of value-add products and maximise plant efficiencies.

Due to Bowen's climate, seasonal growing and being situated eight hours from the nearest major growing region (Bundaberg), pests and diseases are at lower levels than other regions.

Soil surveys and mapping indicate a significant area within the region is suitable for horticulture production. There are significant parcels of land in the region that have good quality soils for irrigated horticulture that are yet to be developed.

The region already enjoys a very good reputation as being a supplier of premium fresh produce to the rest of Australian and this reputation would extend to processed and packaged goods.

The 'Made in the Whitsundays' brand was launched in 2009 to promote genuine Whitsundays produce, made or grown in the region. The brand capitalises on all the brand properties already associated with the Whitsundays – beautiful, wholesome, quality - and has been taken up across the board by growers and producers.

Industry support

The Bowen Gumlu Growers Association (BGGGA) with their Industry Development program supports growers and provides important links for the sector with industry, Government and the local community.

BGGGA is very proactive and drives industry sustainability and capacity building.

Growers are involved in key Government initiatives, programs and projects to support the industry. This provides growers with the opportunity to be involved in industry and government initiatives and implement change in areas of farm management systems across water, soils, nutrient and pesticide management as well as new innovative techniques for improved efficiency.

Many Whitsunday growers have been at the forefront of technological advancements, leading to increased production volumes and greater production efficiencies, and have good farm management systems and processes in place (or are on the process of improving their systems).

The growers have quality assurance, accreditations and certifications in place for auditing and regulation.

The Department of Primary Industries & Fisheries has a research station in Bowen, which is able to provide research and development services for the private sector under commercial arrangements.

The site is used extensively for cropping trials (water use, yields, development of specific crop varieties, production season length and fertiliser use) as well as entomology, plant pathology, water-use efficiency and post-harvest handling R&D capabilities.



Export potential

While the Whitsundays' produce has historically been transported to other Australian states, feasibility studies have highlighted huge potential for exporting produce.

The growing markets in South-East Asia, China, Korea and the Pacific Rim, and greater market penetration into the European Union, represent the greatest future growth opportunities.

This is the case particularly for substantially transformed, counter-seasonal product, with enhanced shelf and transit life.

Australia's international reputation as a clean, healthy and disease-free producer of horticultural products, in conjunction with its reputation for quality, enhances competitiveness in the international processed horticultural market.

In terms of export infrastructure, near-by Abbot Point Coal Terminal (just 25kms north of Bowen, the region's main growing area) has been earmarked for a Multi-Cargo Facility (MCF).

In early 2011, the operators of Abbot Point, North Queensland Bulk Ports, conducted an EOI process for Early Contractor Involvement (ECI) in the Stage 1 development of the MCF, with a view to appointing a design and construct contract in late 2011.

This Multi-Cargo Export Facility will open up massive opportunities for the shipment of non-coal products and produce to the world, with plans for the construction of up to 12 berths in two stages.

Export strategies moving forward

- Further research the opportunities in emerging markets and the key requirements in gaining market access
- Expand the opportunities for the horticulture industry to export to emerging markets (South-East Asia, China, Korea and the Pacific Rim)
- Create opportunities with countries that have a vested interest in other major industries in the region such as mining
- Establish relationships with key export markets with a presence on the ground
- Work with industry and growers to build capacity to deliver an increase in export quality produce
- Encourage diversification and the capture of market share in high growth market segments





Transport logistics

The region enjoys reliable road transport, which links markets in South-East Queensland, New South Wales and Victoria where there are already very strong industry links.

Queensland's main arterial road, the Bruce Highway, traverses the Whitsunday region north-to-south and links the region to the state's major urban centres such as Rockhampton, Cairns, Townsville and Mackay.

This means value-add product can be easily transported to these centres for on-going distribution.

Rail, sea and air freight infrastructure is sufficient to meet the current needs of the processing sector.

Water

Currently the industry has a 100% allocation on water due to a regular wet season over the summer. Growers have invested in the feasibility study for the Water for Bowen project to procure water for years of potential drought. This project did not go ahead however in future this project may be revisited or other water supply programs established to maintain sustainability.

The water resource planning process in the Whitsunday region is just one step away from the implementation phase. On finalisation, the plan will implement the framework for sustainably managing the region's water resources established through preparation of the Whitsunday Water Resource Plan.

Future growth and opportunity will be accommodated through the conversion of all entitlements in the Proserpine River Water Supply Scheme to tradable water allocations. Allocations located in the Kelsey Creek and Six Mile Creek water board areas will also be tradable.

In the Andromache and O'Connell rivers in the southern part of the region, unsupplemented water entitlements will convert to water allocations. Where trading is not an option, up to 30 000 megalitres of unsupplemented unallocated water can be available in specified areas to support growth.

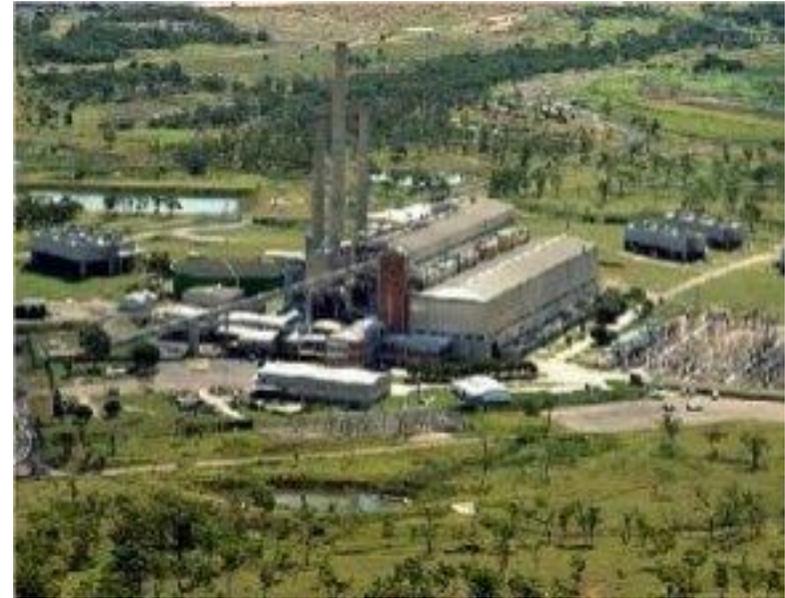


Power

Collinsville, which is just 85 kms from Bowen has its own power station, with five coal powered steam turbines with a combined generation capacity of 190 MW of electricity. The coal for the Collinsville power station comes from local open-cut mines.

The region's sugar cane is also a good source of energy when it is processed, with the Proserpine Sugar Mill being one of the biggest sellers of electricity back to the main Queensland grid.

There could be the potential for co-location of major processing plants with sugar cane processors that have generating capacity, enabling lower energy costs under long-term agreements.



Human resources

More than 3,200 people are employed by the horticulture industry in the Whitsunday region on a full or part-time basis.

The annual 'backpacker' market, which heads north during winter months to escape the colder southern states, provides a good supply of seasonal labour, perfect for picking and packing work during harvest.

The region has been growing produce since the 1880s, so there is strong horticultural knowledge that has been passed down through generations and. This knowledge is shared through the Bowen District Growers Association.

The industry is currently working with training organisations and Government to build capacity in young people through traineeships, apprenticeships and skills development programs.

The region's population is growing at a steady and consistent rate - with an average growth rate of 2.64 per cent during the past five years (2006 – 2010) – ensuring a steady flow of potential workers coming into the region.

Livability Factor

The Whitsunday region has many attractions and people don't only want to visit, they want to stay here and build a life for themselves and their family.

Wondrous natural attractions such as beautiful beaches, tropical Islands and the Great Barrier Reef – one of the seven natural wonders of the world – makes the Whitsunday region is a great place to live.

These natural attractions offer a myriad of leisure activities, from snorkeling, sailing and diving, to fishing, power boating and a wide range of watersports.

There are also excellent schools and hospitals in the region and two universities within easy driving distance, as well as a wide range of housing options, from affordable accommodation to top-end luxury homes.

This high 'livability' factor means companies investing in the region will be able to retain employees.



About Enterprise Whitsundays

Enterprise Whitsundays is the lead economic development agency within the Whitsunday region, with strong links to all levels of Government (Federal, State and Regional) and with industry and the community.

Enterprise Whitsundays will work with potential investors to ensure they have all available information at their disposal, when making their decision.

The organisation is also available to host potential investors on 'familiarisation' tours of the Whitsunday Region and can put potential investors in touch with key contacts at the Department of Employment, Economic Development and Innovation (DEEDI), the Department of Environment and Resource Management (DERM) and Trade and Investment Queensland (TIQ).

Enterprise Whitsundays can also organise introductions to key industry figures, including the Bowen District Growers Association and to other industry representatives who have established similar operations in the region.



Marketing Strategy





Whitsunday Horticulture Industry

Marketing Strategy **2012**

Industry Summary

The Whitsunday region encompasses significant cropping land, mainly in and around the towns of Gumlu, Bowen and Proserpine. Currently around 10,000 hectares of horticultural land is being used for fruit and vegetable production with approximately 62 substantial horticultural farms in operation.

The Whitsunday horticulture industry is Australia's largest winter growing region for fruit and vegetables, producing approximately 259,000 tonne per annum, valued at \$400 million per annum. The area produces over 13 major crop varieties, tomatoes and capsicums being the largest crop.

More than 3,200 people are employed in horticulture in the Whitsunday region on a part time or full time basis.

Industry Objectives

Customers

Growers sell primarily to agents based in central markets in Brisbane, Sydney and Melbourne. These agents then sell to wholesale customers including restaurants, retailers and distributors based around Australia. Supply to agents in capital cities will also lead to export sales opportunities.

Significant contracts also exist for direct with major supermarkets Coles and Woolworths. Product sold to these customers follows a strict set of requirements relating to size, quality and packaging.

A small amount of growers sell direct to regional distributors, restaurants and retailers. There are also a number of customers that buy produce direct from growers to use as an ingredient in a value added product (such as The Bowen Tomato Company who produce sun dried tomatoes).

Revenue

Currently valued at an estimated AUS \$400 million per annum, the Whitsunday horticulture industry aims to double the value of the industry over the next five to ten years through the facilitation by Bowen Gumlu Growers Association and the Industry Development program with support and collaboration through government, industry and economic development agencies initiatives and programs at local, state and national levels.



Partnerships

- Enterprise Whitsunday
- Brisbane Produce Markets
- Bowen Gumlu Growers Association
- Government - local, state, federal
- Industry bodies and representatives – local, state and federal
- NQ Dry Tropics
- Health Promotion Connection
- High Schools

Market Opportunity

Market size

Australia is the 6th largest country in the world (spanning a total area of 7.6 million km) however is placed 50th on the world scale in terms of population size (with just over 22 million people).

It is estimated the Australian horticulture industry produces \$9 billion worth of annual GDP. Australia also imports a further \$1.7 billion worth of horticultural product each year.

The value of Australian horticultural exports is approximately \$1 billion each year.

Market share

The region's production volumes equate to more than 35% of Queensland's production and 12.7% of the of Australia's production each year

The regions production value equates to more than 43% of value of Queensland's horticulture industry and 13.28% of Australia's industry

The Whitsunday region contributes to more than 78% of the total annual tomato production in Queensland and almost 30% of tomato production throughout Australia



Market segments

- Domestic
- Export
- Supermarket contracts
- Wholesale
- Retail
- Value add chain

Industry Trends

Efficiencies in farm management systems

- automation
- environmentally friendly farming practices
- monitoring systems
- efficient use of chemicals, nutrients, irrigation and soil

Niche crop development

- Diversification and value adding fresh produce

Improving supply chain costs

Under supply of fresh produce and increased demand for fresh produce

Market development, improved export opportunities

High quality product



What inhibits success?

- Over supply and flooded domestic markets
- Loss of market access and market share
- Cheaper imports, produced without the high production costs and food safety standards
- Natural disasters
- Increasing cost of production
- Legislation, policy and regulation
- Lack of skilled workforce
- Pests and diseases
- Lack of extension and resources
- Lack of market development

Target Markets

Domestic wholesale market

Demographic - grocers, consumers, major supermarkets

Motivation - access to quality produce at the best price

Opportunities - improve quality of produce, develop niche product lines that support spreading risk, develop export markets, develop value added products

Threats - over supply, price of produce reflects over supply, supermarkets purchasing off the market floor for less than the contracted arrangement with directly supplying growers, growers under cutting growers just to sell their product

Direct supply to Coles and Woolworths

Demographic - consumer under 35 years of age

Motivation - convenience, conscious of where food comes from (origin labeling down to the region or town), more environmentally conscious

Opportunities - branded fresh produce in store, access to produce grown locally, value added products branded, promotion of environmental farming practices

Threats - it could be a trend that doesn't last, we can't always supply a quality product, reviews of crop protectants and loss of market access, food miles



Demographic - consumers 60 and over

Motivation – health conscious and want to know the health benefits, conscious of where food comes from (origin labeling down to the region or town), more environmentally conscious

Opportunities - promotion of health benefits in fresh fruit and vegetables, access to locally grown fresh produce, branded fresh produce in store, value added products branded, promotion of environmental farming practices

Threats - can't always supply a quality product, produce is not grown all year round, reviews of crop protectants and loss of market access, food miles

Export

Demographic - countries needing access to fresh produce

Motivation - lack of supply currently or unable to grow certain commodities

Opportunities - more growers exporting decreasing the pressure on domestic markets, growers spreading their risk, value added products developed to suit export markets

Threats - regulatory requirement to access export markets, cost of production high in Australia and not competitive in export markets

Supply to value-add product

Demographic - consumers

Motivation – consumers watching cooking shows and entertaining at home rather than going out to restaurants for dinner, convenience

Opportunities - gourmet products and cottage industry, branded products

Threats - it may be just a trend, global financial crisis means less high end niche value add products are bought

Direct to consumer (farmers markets)

Demographic - local communities

Motivation - access to locally grown produce, quality, fresh and last longer, food miles, cheaper

Opportunities - farmers market, centralised distribution centre for local supply chains to restaurants, Islands etc

Threats - not enough local support for a farmers market



Competition

(In order of greatest target market share)

Other horticulture regions in Australia

Strength - value adding collaboration, collaboration on key issues and priorities for the industry, cross industry programs

Weakness - over supply the domestic market, pest and disease incursions, undercut on price, not always sending good product into the markets

Imported product

Strength: Ability to offer low prices

Weakness: Increasing pressure on consumers to buy Australian made/grown products

Farms with Coles & Woolworths buy-in

Strength - contracted to supply produce direct which is less risk when the price is low on the central market floor, opportunities to value add produce, brand acceptance almost automatic

Weakness - when the price is high in the central market growers are still contracted to supply at a lower price, growers can be asked to produce other commodities to supply direct creating an oversupply on the domestic market

Frozen & canned vegetables and other fresh produce alternatives

Strength - spreads the risk for growers, creates value add opportunities for growers

Weakness - high start-up costs for processing in the region, currently there is no processing facility for canned or frozen foods, large amount of water required to process, most current commodities are not able to be frozen or canned



Competitive Analysis

<p>Strengths</p> <ul style="list-style-type: none"> Harvest season different to other regions Generational farming, strong knowledge base High quality export standard for fresh produce Less pest and disease issues than other growing regions Location for brand recognition Currently good labour force Growers have good quality assurance and auditing systems in place 	<p>Weaknesses</p> <ul style="list-style-type: none"> Pest and disease issues could increase Rising cost of production Increasing regulations and legislation on industry Potential loss of crop protectants Competition within region between growers in the marketplace Competition with other growing region Growers ability to take up change opportunities Some growers take a short term approach to making decisions Loss of skilled workers to other industries Lack of succession planning within businesses Lack of marketing and promotion activity
<p>Opportunities</p> <ul style="list-style-type: none"> Supply second and third grade produce for value adding Development of a cottage industry Improved local and regional supply chain through farmers market Brand development Crop diversification Improve local supply chains Improve efficiencies Improve marketing and promotion activities Build on the positive reputation of the Whitsundays Explore export opportunities 	<p>Threats</p> <ul style="list-style-type: none"> Chemicals being taken off the market Loss of market access domestically and export Rise in imported product Rising cost in production Continued over supply of the domestic market Increase competition with overseas investment in horticulture Increase legislation and regulation Climate change Increases in minimum wages and the award modernisation Potential loss of skilled workforce Changes in consumer demand

Offering

Between May and November, the Whitsunday horticulture industry produces over 13 major crop varieties, the main being gourmet and roma tomatoes, capsicum, eggplant, sweet corn, green beans, melons and pumpkin. Smaller volumes of zucchini, squash, salad greens, herbs and strawberries are also grown in the Whitsundays during the winter months.

Between November and January, the region also produces significant volumes of mangos, many of which are processed into a value-added product such as frozen or dried mango.

Growers within the Whitsunday region are considered by industry to be market leaders in environmentally friendly practices and efficient users of water. Produce from the region largely has a reputation for being high in quality and of consistent supply.

The main point of difference the Whitsunday horticulture industry can offer the market is the time of year produce is harvested. Being the largest growing region in the winter months means the Whitsundays can supply produce when other regions cannot.

How can we improve our offering to meet customer needs?

The Vegetable Industry Development Program funded Veginsights: The Market Q3 2010/2012 shows a number of key trends significant to the industry in this region:

- A trend towards consumers preparing vegetables at home on a regular basis during the winter months
- When fruit and vegetables are promoted to consumers they purchase more of them
- Consumers are increasing conscious of where their produce comes from and environmental impacts and are moving towards locally grown branded produce and farmers markets
- Consumers are looking for convenience
- Expanding consumers' awareness of a wider array of preparation methods can help boost vegetable consumption

Based on these consumer trends, production in the Whitsundays is well placed to develop value added convenience based products, promote both fresh produce and value added through the locally grown branding initiative and develop initiatives to support better promotion through existing and not existing marketing and promotion opportunities. Currently most growers are producing fresh field grown produce with little to no value adding or promotion behind their product.

Further support is needed for growers to diversify into value adding and prepackaged fresh and convenient produce lines in and out of season. This may be through funding incentives for growers to implement value add initiatives within their production business and support and drive a change in perception for growers. An education process needs to be implemented to encourage growers to diversify and the benefits.



What new offerings would our customers most like us to develop?

- Locally grown branded products
- Convenience products
- Ethically grown produce
- Value Added products

Customer Motivation

Retail Consumer

Impulse and planned purchases

Driven by: Packaging, price, quality, convenience, ethically grown, origin of product

Price importance: Medium

Wholesale Customer

Planned purchases

Driven by: Quality, reliability, price

Price importance: High

Wholesale Agent

Planned purchases

Driven by: Price, quality

Price importance: Extreme

Export

Planned purchases

Driven by: Price, quality, niche, ethically grown

Price importance: Extreme



Pricing

Current pricing structure

Prices are determined by seasonality, weather, natural and unnatural disasters, over and under supply, and consumer demand.

There is no set pricing structure as growers do not set the price, the buyers set the price based on demand from consumers, grocers and supermarkets.

Discounts

Growers are not able to offer discounts. Supermarkets and grocers usually only discount fresh produce when it is almost past its used by date.

When there is a high or low fluctuation in prices within a day or two in markets, supermarkets or grocers this is due to a natural or unnatural disaster influencing the supply to markets.

What is the perceived value of offering compared to price?

Growers - during periods of oversupply to markets consumers pay less for produce and growers are not making breakeven point. During under supply periods consumer pay a lot higher price for fresh produce and growers are able to make break-even point and above Consumers – perceive that it cost more to purchase fresh produce on a year to year basis so they believe that fresh fruit and vegetables should be regulated more to receive a cheaper price. Consumer trends also show that consumers purchase almost the same amount of produce at a lower price as at a higher price.

Consumers – want a high quality product at a low price consistently however when they are looking for convenience they are willing to pay double if not more for fresh produce if it is more convenient or fits with a specific recipe they are working on.

Industry trends

- What drives prices up? Low supply, increase demand
- What drives prices down? Over supply, little to no demand



Key Messages

What our target audiences know and believe about us today

Industry – if a farming enterprise is generational and relatively uneducated however very knowledgeable in farming they generally resist change and implement little to no diversification and value add activities, however if the farming enterprise is well educated and knowledgeable in farming they generally diversify, value add, implement change quickly, and are more sustainable.

Consumers – consumers know what they want from industry however they are not educated enough about the industry when making purchasing decisions based on convenience, ethical growing, price paid vs. cost of production etc.

Recommendations

From the above information and meetings with the WFC stakeholder committee, it is recommended that:

- Food Tourism be developed and promoted
- A committee or consultant be hired to implement the below marketing strategy
- Large and small producers work together to further develop and promote a regional brand
- Increase communication with the local community to increase awareness of local produce available and importance of Horticulture to the region.
- Encourage more opportunities for Value Adding to provide more products to enhance the regional brand



2012 – Marketing Activity Schedule

Action	Summary	Start date	Finish date
Develop brand tools	Develop brand story Collate an image library Compile regional industry fact sheets for website Communicate brand guidelines to local growers		
Develop a media kit	Growers stories, press releases, images, logos, visions, contact details for media liaison		
Strengthen strategic partnerships	Form agreements with Coles and Woolworths for cross-promotion Participate in promotional events with central markets		
Strengthen with the tourism industry	Capitalize on the Whitsunday tourism brand and identify opportunities for cross-promotion. Support growers interested in developing tourism products on their farm Include these stories in media kit		
Advertise in print media	Lifestyle publications (regional and national) Price the cost of space. Develop artwork for ads.		
Social media	Communicate direct to consumers Launch a competition in collaboration with strategic partners		
Participate in regional events and markets	Increase brand awareness in partnership with existing events, regional show and markets Include these stories in media kit		

Conclusions



Conclusions

This project has been able to assist both sectors of the Whitsunday Regions Horticulture Industry and has instigated and implemented changes in supply chain networks, communication and value adding long term. The funding from the Department of Employment, Economic Development and Innovation has allowed Enterprise Whitsundays, with the help of Bowen District Growers Association achieve some real wins, most notably the development of a Farmers Market, creation of an Industry Connect Website and various activities that have enhanced value add opportunities for both large and small scale producers.

Through the development of the Investment and Marketing Plans, it is clear that this sector has more potential for advancement to further enhance the local economy. As one of the largest food producing areas in Queensland, and with food being a necessary commodity with an increasing demand both locally and globally, it is essential to protect, develop and grow this industry and offer producers the necessary tools to be competitive and sustainable in the future.

Appendices



Appendix 1: Working Group Minutes



Whitsunday Food Circle
Working Group Meeting
Minutes & action items

12pm Friday 14th October 2011
Enterprise Whitsundays Office, Cannonvale

Attendees: David Shelbourne-Vernon (DSV), Denise Kreymborg (DK), Andrew Stewart (AS), Claire Dulieu (CD), Peter O'Reilly (PO), Elouise Lamb (EL), Shane Stanley (SS)

Meeting Minutes

- ⇒ SS updated on farmers market initiative, feasibility study will be complete 30 November 2011. Meetings went well with Council and a venue in Airlie Beach still needs to be confirmed
- ⇒ AS voiced feedback from growers regarding how the farmers market will effect existing markets and also of how many months of the year it can not operate due to seasonal produce.
- ⇒ AS has planed a variety of potatoes to test production, believes the diversity of soil superior in the Whitsunday region, even compared to Lockyer Valley however water is too pure, no minerals.
- ⇒ AS has and available for contract sharing with equipment and infrastructure supplied
 - DK arrives
- ⇒ CD advised of her resignation from Enterprise Whitsundays, her last working day will be Friday 21 October
 - Group discuss the progress of each item from the project action plan as follows
- ⇒ DK will apply for funding from Blueprint from the Bush to develop a strategic marketing plan
 - SS departs
- ⇒ Byron Bay, Tasmania, The Barossa brands are benchmark in Australia. AS flying in China and lunch was all from the Barossa
- ⇒ AS - Last 2 – 3 years Coles star products have been tomato based sauces
- ⇒ Big strength of the Barossa is the glass blowing factory that supplies wine bottles to local industry, complimentary business like packaging assist the development process
- ⇒ Huge opportunity for export from this region using systems approach to NZ. Potentially Bowen will be the only region next season that will be able to export to NZ
- ⇒ Due to systems approach managed by Bowen Growers, the region's produce may not need to be irradiated
- ⇒ QUT tropical research may be useful for crop diversification library
- ⇒ Fed Gov report on northern Australian agriculture indicates little money put into tropical agriculture research
- ⇒ DEEDI aligned with CQU through horticulture and science unit and support funding to place student at research centers. DK coordinating this opportunity
- ⇒ "Industry Connect" needs to focus on encouraging usage in the first instance
- ⇒ Jamie Jurgens has installed a sun dried tomato processor on farm to value-add
- ⇒ Farmers market in Noosa has instigated a commercial kitchen that is used on a contract basis
- ⇒ Brisbane farmers market will allow Made in the Whitsundays product to be made and bottled in the kitchen on site
- ⇒ Denise contacted Mareeba office to request contact details of any packaging equipment in the area. They will supply a list for key organization to start with. Looking for growers to use our packing facilities in Bowen in and out of our season. This will make our growers operation more profitable and possible extend the working season
- ⇒ Facilities in Blue Bay estate that could be suitable for food producers
- ⇒ Small meat works in Proserpine not in operation, now being used to store milk. Would be suitable to people wanting to process small amounts of meat
- ⇒ Focus after the completion of this project should be on connecting people

- ⇒ Simplot looking for 400 tonne per week of sweet potato to produce sweet potato chips
- ⇒ Growers event to be 23 November 5pm drinks and nibbles to be named Whitsunday Food Circle - industry networking, held at Food Freaks in Bowen.

Action Items

Item	Deadline	Responsibility
Write to JCU, QUT, CQU to offer research placements for students relating to crop diversification	21 October	CD
Look at Barossa food connect to model "Industry Connect"	21 October	CD
Forward contact details of potential investors to EW EW to invite investors for a tour of industry and region - Mr Kowok from Wimar (Singapore) - Mr Peng – Kofko (Shanghi)	15 November	AS
Source "agriculture in northern Australia – Garry Grey" (federal government) shows water and soil studies	21 October	CD
Request a copy of the Gumlu to Bloomsbury soil map from Elders at Proserpine		DSV
Create invite list and draft invitation for food circle event	21 October	CD
Book venue and organise catering (Food Freaks) for food industry networking event Coordinate guest speakers and finalise run sheet	15 November	DK

- Next meeting will be held on 30 November 2011 -

Appendix 2: Recommended Crops for Whitsunday Region



Whitsunday Food Circle Plant List

Prepared by Biolicious

For Enterprise Whitsunday

Contents

Introduction	6
Amaranth, also Love-lies-bleeding.....	7
Angelica.....	8
Asparagus.....	9
Asparagus Pea, also Winged bean, Goa bean.....	10
Basil.....	11
Beetroot, also Beets.....	12
Borage, also Burrage, Bugloss.....	13
Broad beans, also Fava bean.....	14
Broccoli	15
Brussels sprouts	16
Burdock, also Gobo (Japanese Burdock).....	17
Cabbage	18
Cape Gooseberry, also Golden Berry, Chinese Lanterns	19
Capsicum, also Bell pepper, Sweet pepper.....	20
Carrot	21
Cassava.....	22
Cauliflower.....	23
Celeriac.....	24
Celery	25
Ceylon Spinach.....	26
Chicory, also Witloof, Belgian endive	27
Chilli, also Hot peppers	28
Chinese broccoli also Kai-lan.....	29
Chinese cabbage, also Wong Bok, Wong nga pak	30
Chinese Mustard	31
Chives, also Garden chives.....	32
Choko, also Chayote squash, christophene, chouchou, mirliton.....	33
Climbing beans, also Pole beans, Runner beans, Scarlet Runners	34
Collards, also Collard greens, Borekale.....	35
Coriander, also Cilantro, Chinese parsley	36

Cucumber.....	37
Daikon, also Japanese radish, Lo Bok.....	38
Dill.....	39
Dwarf beans, also French beans, Bush beans.....	40
Eggplant, also Aubergine.....	41
Endive.....	42
Fennel, also Bronze fennel.....	43
Florence Fennel, also Finocchio.....	44
French tarragon.....	45
Galangal.....	46
Garlic.....	47
Ginger.....	48
Globe artichokes.....	49
Horseradish.....	50
Kale, also Borecole.....	51
Kang Kong, Water Spinach.....	52
Kohlrabi.....	53
Leeks.....	54
Lemon Balm, also Bee balm.....	55
Lettuce.....	56
Luffa, also Loofah, plant sponge.....	57
Marrow.....	58
Mint, also Garden mint.....	59
Mizuna, also Japanese Greens, Mitzuna, Mibuna.....	60
Mustard greens, also gai choy.....	61
NZ Spinach, also Warrigal greens.....	62
Okra, also Ladyfinger, gumbo.....	63
Onion.....	64
Oregano, also Pot Marjoram.....	65
Pak Choy.....	66
Parsley, also curly leaf parsley or flat leaf (Italian) parsley.....	67
Peas.....	68

Potato.....	69
Pumpkin	72
Radish.....	73
Rocket, also Arugula/Rucola	74
Rockmelon, also Canteloupe	75
Rosella, also Queensland Jam Plant, Roselle	76
Rosemary	77
Sage, also Common Sage	78
Salsify, also Vegetable oyster.....	79
Shallots, also Eschalots	80
Silverbeet, also Swiss Chard or Mangold	81
Snake Bean.....	82
Snow Peas, also Sugar Peas, Mangetout, Chinese Peas	83
Spring onions, also Scallions, Bunching onions.....	84
Squash, also Crookneck, Pattypan, Summer squash	85
Strawberry Plants.....	86
Strawberries (from seeds).....	86
Summer savory, also 'Bean Herb'	88
Sunflower	89
Swedes, also Rutabagas	90
Sweet corn, also maize	91
Sweet Marjoram, also Knotted marjoram	92
Sweet Potato/Kumara.....	93
Taro, also Dasheen, cocoyam	94
Thai Coriander.....	95
Thyme, also Common thyme	96
Tomatillo	97
Tomato.....	98
Tumeric	100
Turnip.....	101
Water chestnut	102
Watercress.....	103

Watermelon 104

Winter Savory, also Savory 105

Yacon, also Sunroot 106

Yam/Oka, also Oca 107

Zucchini, also Courgette/Marrow, Summer squash 108

Planting Calendar 109

Harvest Calendar 119

Introduction

The plant species list contained in this document has been prepared to give some guidance on species which can be grown in the Whitsunday Region extending from the coast to inland areas. The list is by no means comprehensive and species have been selected after considering locally commercially grown species, species already grown in non commercial gardens, and considering new species not normally seen in this region. There are many more species which could be included with obvious exclusions to this report being many of the fruit species already popular in this region. The tables at the end of the report contain summary information regarding the planting calendar and harvest season.

The list has been prepared with the intention of providing growing information on the available opportunities to supply local fresh produce in this region throughout the year. The planting and growing season is under average and normal tropical growing conditions and annual and site variations can for some species offer opportunities to extend the season outside the suggested range however in some instances this variation may also restrict the range.

WARNING: The information in this document has been gathered from both published and unpublished material, and contains comments and opinions from people working in the field. Biolicious and Enterprise Whitsunday cannot guarantee all the information, and we stress that it is necessary to **CHECK WITH THE SOURCE** of the information, and to make your own research on species requirements before using it to make a business decision.

Amaranth, also Love-lies-bleeding

(*Amaranthus caudatus*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 P P P P P

(Best months for planting Amaranth in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 30°C.
- Space plants: 50 cm apart
- Harvest in 7-8 weeks.
- Compatible with: Onions, corn, peppers, egg plant, tomatoes

Amaranth sp are frequently grown as flower plants and have many colour variations.

Amaranth tricolor is known as Chinese spinach and has an insignificant flower.

Needs a warm sunny position. Avoid heavy soils. Poor germination rates are common

Culinary hints - cooking and eating Amaranth

Both leaves and seeds can be used. Excessive intake is not recommended.

Suggestions for use and warnings can be found here <http://en.wikipedia.org/wiki/Amaranth>

Angelica

(*Angelica archangelica*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Angelica in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C
- Space plants: 45 cm apart
- Harvest in approximately 18 months. Angelica archangelica has slightly dull leaves, not shiny.
- Compatible with: Any herbs that like damp, shady areas - mint, lemon balm

Angelica is a biennial herb-growing the first year and flowering the second. Angelica likes moist, rich soil that is slightly acid, growing best in semi-shade. It can be grown from seeds, but they must be sown within a few weeks otherwise they lose their viability. Angelica will self seed if seed heads are left on the plant. Young plants will die back in winter and will need mulching in frost-prone areas. Then they will grow again in spring and produce flowers.

N.B. Angelica pachycarpa is sold as an ornamental garden plant. It is not suitable for culinary use or herbal remedies. It has bright shiny leaves.

Culinary hints - cooking and eating Angelica

The stems can be candied and used to decorate cakes and pastries.

Pick the stems in the second year.

Asparagus

(*Asparagus officianalis*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Asparagus in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden or plant as crowns. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 30°C.
- Space plants: 20 - 40 cm apart
- Harvest in 2-3 years. Plant 'crowns' to harvest earlier.
- Compatible with: Parsley, Basil, Nasturtiums, Lettuce
- Avoid growing with: Garlic, Onions

Seeds will take 2-3 years before maturing into crowns. Plant crowns (roots) 20-40cm apart and a few cm (1 inch) deep in well manured soil. The asparagus shoots grow in spring. Harvest the shoots which are bigger than 1-2cm/half-inch in diameter. Leave the rest to grow into the leafy ferns (1.5m/5-6ft tall) which will feed the crowns to give a crop next year. In autumn the ferns will be covered in bright red poisonous berries. Leave the ferns to die down in autumn, then trim off the dead stalks and pile on plenty of rotted manure/compost to give the roots plenty of food to produce new stems in spring.

Harvest by cutting off the stalk, close to the ground. From the second or third year you can get an additional crop by letting the first lot of ferns grow, then bending down the stalks to break them. A second crop of shoots will grow and can be harvested. Leave subsequent shoots to grow on to ferns.

Culinary hints - cooking and eating Asparagus

Steaming is traditional, then coating with melted butter or hollandaise sauce.

Alternatively break in short lengths, and cook quickly in hot oil in a wok and sprinkle with soy sauce or balsamic vinegar.

NOTE: The asparagus berries are poisonous. Only the young shoots are edible.

Asparagus Pea, also Winged bean, Goa bean

(Lotus tetragonobolus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Asparagus Pea in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C
- Space plants: 20 - 25 cm apart
- Harvest in 8-11 weeks. Pick early, pick often.
- Compatible with: Best grown in separate bed

This low spreading plant has small trifoliate leaves, and deep crimson flowers are borne in pairs. Harvest pods when approximately 3cm long (about 80 days). Asparagus pea is easy to cultivate. It needs average moisture, full sun, and ordinary soil. It needs a long growing season to flower and fruit properly, so start it indoors in cooler areas.

Support with twigs to keep the stems off the ground. Protect from slugs and snails. Pick pods when small as they become hard and dry if left too long.

Culinary hints - cooking and eating Asparagus Pea

Cook quickly by steaming and serve with just a touch of butter and they are said to taste like their namesake.

Basil

(Ocimum basilicum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P P P P P P P P P

(Best months for planting Basil in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 35°C
- Space plants: 20 - 25 cm apart
- Harvest in 10-12 weeks. Pick before flowering.
- Compatible with: Tomato

A frost tender low-growing herb. Basil is a culinary herb prominently featured in Italian cuisine, and also plays a major role in the Southeast Asian cuisines of Thailand, Vietnam, Cambodia, and Laos. The plant tastes somewhat like anise, with a strong, pungent sweet smell. There are many varieties including, Thai, purple ruffles and lemon.

Can be grown inside in pots in winter. As the plant develops, pinch out the top to encourage bushy growth. Pick off flowers to encourage more growth.

Culinary hints - cooking and eating Basil

Basil is commonly used fresh in cooked recipes. It is generally added at the last moment, as cooking quickly destroys the flavour. Tear rather than chop.

The fresh herb can be kept for a short time in plastic bags in the refrigerator, or for a longer period in the freezer, after being blanched quickly in boiling water.

Beetroot, also Beets

(*Beta vulgaris*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Beetroot in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 7°C and 25°C
- Space plants: 20 - 30 cm apart
- Harvest in 7-10 weeks.
- Compatible with: Onions, Silverbeet (Swiss Chard), Lettuce, Cabbage, Dwarf Beans, Dill, Peas. Strawberries
- Avoid growing with: Asparagus, Carrots, Sweetcorn, Spinach

Soak seeds in water 24 hours before planting so that you can separate the seeds. Thinning is nearly always required as seedlings emerge from a seedball of several seeds. If you don't thin them, you will get a number of rather pathetic plants which don't grow to an edible size. Harvest in 55 - 70 days but will keep in ground for longer. Tolerates light frost.

Keep well-watered as dry beetroot develop a woody and inedible core.

For tasty and tender beetroot, start harvesting at golf ball-size.

Culinary hints - cooking and eating Beetroot

Apart from boiling whole for salads, beetroot roast well, cut in wedges. They also make a tasty salad grated raw with carrot and a little fresh orange juice.

Borage, also Burrage, Bugloss

(Borago officinalis)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Borage in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C
- Space plants: 20 cm apart
- Harvest in 8-10 weeks. Use leaves before flowers appear, otherwise they will be 'hairy'.
- Compatible with: Strawberry, tomatoes, zucchini/squash. Deters pests from many plants.

A tall, attractive plant, often grown in flowerbeds. Bright blue star-shaped edible flowers. Grow in a sunny spot with well drained fertile soil. Borage dies down in the winter, but probably you will not need to buy any more seeds as it self seeds quite vigorously and spreads around the garden. Luckily, it is so attractive that it adds to the general design.

Will grow almost anywhere but prefers well-drained soil. Can be transplanted when young but older plants do not move well.

Culinary hints - cooking and eating Borage

Has a slight cucumber taste which goes well in salads and when cooked with silver beet or cabbage.

The flowers make a pretty drink decoration when frozen in an ice block.

Broad beans, also Fava bean

(*Vicia faba*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Broad beans in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 6°C and 24°C
- Space plants: 15 - 25 cm apart
- Harvest in 12-22 weeks. Pick frequently to encourage more pods.
- Compatible with: Dill, Potatoes

It is a rigid, erect plant 0.5-1.7 m tall, with stout stems with a square cross-section. The leaves are 10-25 cm long, pinnate with 2-7 leaflets, and of a distinct glaucous grey-green color. Harvest 90 - 160 days depending on how cold the weather is.

In windy areas it is best to provide some support with posts and string; otherwise the plants will fall across each other. Pick the tops out once beans start setting to prevent black fly.

Culinary hints - cooking and eating Broad beans

The fresh beans are eaten steamed or boiled. As the beans mature it is better to remove their tough outer skins after cooking.

The leafy top shoots of the adult plants can be picked and steamed after flowering.

Small beans can be eaten whole in the pods.

Broad beans will freeze well. Remove from pods and blanch.

Broccoli

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Broccoli in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 7°C and 30°C.
- Space plants: 35 - 50 cm apart
- Harvest in 10-16 weeks. Cut flower head off with a knife.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile, oregano)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chilli, capsicum), eggplant (aubergine), strawberry, mustard

Keep well-watered as seedlings. If left without water they will bolt to seed and be inedible. The plants should grow to develop plenty of large healthy leaves, and then the green flower heads follow, which are cut for eating. Leave the plant growing after cutting the main flower head, and get additional crops from the side shoots which will develop.

Watch for cabbage white butterflies and remove the eggs and caterpillars as soon as possible.

There are two main types of broccoli. The purple sprouting is hardier. The heading varieties cope well with warmer weather.

Once a plant opens its yellow flowers then it is generally past eating as the flavour gets a bit overpowering and the plant gets very woody. Harvest them sooner rather than later.

'Brocolini' is a variety grown for the edible stalks. Grow fast with plenty of water and food, and pick as soon as possible.

Culinary hints - cooking and eating Broccoli

The stem (peeled), leaves, and flower head are all edible. Steam for best flavour. Peel large stalks, slice and steam. Goes well with blue cheese sauce.

Brussels sprouts

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Brussels sprouts in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 7°C and 30°C.
- Space plants: 45 - 60 cm apart
- Harvest in 14-28 weeks. Pick sprouts when small.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chili, capsicum), eggplant (aubergine), strawberry, mustard

Grown for its small (typically 2.5 cm diameter) leafy green buds, which resemble miniature cabbages.

BETTER IN COOLER AREAS.

Brussels Sprouts will not grow good "sprouts" in warm areas - they open and are floppy.

In warm areas they are likely to be infested with aphids Pick formed sprouts from the bottom of the stems leaving the plant growing.

Culinary hints - cooking and eating Brussels sprouts

Remove any discoloured outer leaves.

Cut in half and steam with other vegetables.

Do not overcook as that produces the distinctive smell that puts people off eating Brussels sprouts!

They go well with a chopped tomato and onion mix.

Traditionally served with roasted chestnuts for Christmas dinner in UK.

Burdock, also Gobo (Japanese Burdock)

(*Arctium lappa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Burdock in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 60 cm apart
- Harvest in 17-18 weeks.
- Compatible with: Best grown in separate bed.

Burdock grows wild on roadsides and waste places and around field boundaries throughout Britain, Europe and North America; it is cultivated in Japan. It grows to about 2m (6ft) high. It has dark green leaves with a long tap root

Keep watch for seed heads as it can become an invasive weed. The prickly balls were the inspiration for the inventor of 'Velcro', George de Mestra.

Culinary hints - cooking and eating Burdock

Harvest in the first year when the burdock root is very crisp and has a sweet, mild, and pungent flavour with a little muddy harshness that can be reduced by soaking julienne/shredded roots in water for five to ten minutes. Immature flower stalks may also be harvested in late spring, before flowers appear; the taste resembles that of artichoke, to which the burdock is related.

It is a key ingredient in the traditional Dandelion and Burdock beer.

Cabbage

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S S T T P

(Best months for planting Cabbage in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings. P = Plant direct in garden where they are to grow.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 5°C and 18°C.
- Space plants: 50 - 75 cm apart
- Harvest in 8-15 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile, thyme)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chili, capsicum), eggplant (aubergine), strawberry, mustard, parsnip

There are many varieties of cabbage.

Those which stand winter weather usually have darker leaves and a stronger flavour, e.g. Savoy Red cabbage is grown in a similar way to green varieties.

If you choose a selection of types you can have cabbage growing all year round in temperate zones.

Culinary hints - cooking and eating Cabbage

Young spring cabbage can be chopped and added to salad greens.

Steaming preserves the goodness and flavour of cabbage.

Can also be used in stir-fry.

Red cabbage chopped and cooked with brown sugar, red wine, onions, vinegar and stock is served with boiled bacon or pork.

Cape Gooseberry, also Golden Berry, Chinese Lanterns

(Physalis peruviana)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P P

(Best months for planting Cape Gooseberry in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 50 cm apart
- Harvest in 14-16 weeks.
- Compatible with: Will happily grow in a flower border

A straggling bush up to one metre tall that bears yellow fruits inside a brown papery envelope. It is perennial and can tolerate some frost. The cape gooseberry is related to tomatillo, ground cherry and husk tomato, all in the genus *Physalis*.

The Cape Gooseberry is very easy to grow and as the fruit is popular with birds and plants can be easily spread around the garden.

Culinary hints - cooking and eating Cape Gooseberry

The berry is the size of a cherry tomato, is very aromatic and full of tiny seeds. They are delicious eaten fresh or can be made into jam. They can be added to salads, desserts and cooked dishes, they are delicious stewed with other fruit, especially apples. They also go well in savoury dishes with meat or seafood.

Capsicum, also Bell pepper, Sweet pepper

(*Capsicum annuum*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Capsicum in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 35°C
- Space plants: 100 - 150 cm apart
- Harvest in 10-12 weeks. Cut fruit off with sharp knife.
- Compatible with: Egg plant (Aubergine), Nasturtiums, Basil, Parsley, Amaranth

Small bushy plant about 40cm high the seeds are reluctant to start germinating if temperatures drop at night. These are best sown in small trays in a warm, sheltered place: a small greenhouse if possible. Then plant out when about 10 -12cm (4-5in) tall.

They are from the same family as chilli but are not hot and spicy. The seeds are bitter.

Capsicums are frost tender and need warmth to ripen the fruit to the brilliant reds and yellows of commercial ones. They can be used green but are not as sweet.

There are a number of colours available, chocolate, black, yellow, orange as well as red. They all start off green and change as they ripen.

In cool, wet weather cover with a cloche or frost fleece.

Culinary hints - cooking and eating Capsicum

Can be sliced and seeded and used raw in salads.

Will freeze successfully without blanching if seeded and sliced.

Or brush with olive oil, roast at a high temperature until the skin changes colour then put in a covered dish until cool and rub off the skin and remove seeds.

Carrot

(*Daucus carota*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Carrot in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 25 - 30 cm apart
- Harvest in 12-18 weeks.
- Compatible with: Onions, Leeks, Lettuce, Sage, Peas, Radishes, Tomatoes, Beans, Celery, Rosemary
- Avoid growing with: Parsnips, Beetroot, Dill, Brassicas, Fennel

A hardy root vegetable which grows well in deep cool soil. Carrots take about 3 weeks to show themselves and the first leaves look like grass. If broadcast sowing, mix with radish seeds which will germinate quickly and indicate the sown area. In hotter or dry areas, water well before seeding then cover with boards to maintain the moisture and cool soil for more successful germination. Check every week or so.

Over fertilised ground will produce split roots. Protect against carrot fly. It is best to put carrots in a different area of the garden each year for four or five years.

Culinary hints - cooking and eating Carrot

Steamed or raw carrots are tasty. Cook them in a small amount of water until nearly dry then add a pat of butter and teasp of brown sugar to glaze.

They can be added to most casserole-type dishes.

Grate raw carrots and add to salads

Cassava

(Manihot exculenta)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 P P P P P P P P P P P P

(Best months for planting Cassava in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

Cassava growth is favourable under temperatures ranging from 25-29 but can tolerate temperatures between 12 and 40 and prefers rainfall between 1200-2000mm per year. Recommended Planting Time: All year in the tropics, during the warmer months in the subtropics.

Growing Details: Woody cuttings are planted upright in the soil with the sloping end up. Cutting the tops of the cuttings at an angle stops water sitting there and reduces problems with rot. The best cutting material is obtained from plants at least 10 months old, 2.5 to 4 cm thick and about 20-30 cm long, with a min. of 3-6 buds per cutting. The cuttings are buried to half their length, aiming to have several buds under the soil. The cuttings root readily and establish plants within 2 months. Place plants 80 to 140 cm apart.

Culinary hints - cooking and eating Cassava

Cassava can be cooked in various ways. The soft-boiled root has a delicate flavor and can replace boiled potatoes in many uses: as an accompaniment for meat dishes, or made into purées, dumplings, soups, stews, gravies, etc. Deep fried (after boiling or steaming), it can replace fried potatoes, with a distinctive flavor.

Cauliflower

(Brassica oleracea var. botrytus botrytus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Cauliflower in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 60 - 100 cm apart
- Harvest in 15-22 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chili, capsicum), eggplant (aubergine), strawberry, mustard

Large leafed cabbage-like with a white 'curd' or flower forming in the centre. It can be hard to grow successfully. More frost sensitive than most brassicas, it's also not particularly heat tolerant. They tend to fail if stressed when transplanting.

Watch for cabbage white butterfly. Grow better in cooler temperatures. Not suitable for warm areas. Break a leaf over the head to prevent the curd becoming discoloured

Culinary hints - cooking and eating Cauliflower

Cauliflower can be steamed.

Young ones can be broken into small pieces and added raw to salad.

Cook briefly and add to curry mix.

Traditionally served with cheese sauce.

Add tomato slices for colour.

Celeriac

(*Apium sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T

(Best months for planting Celeriac in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 21°C.
- Space plants: 45 - 80 cm apart
- Harvest in 14-28 weeks.
- Compatible with: Beans, brassicas, carrots, leeks, lettuce, peas, sage, tomatoes, onions

A form of celery which has a swollen root and lower stem. Raise seeds in individual pots and plant out after last frost to give them plenty of time to develop a good root. Grow in a very fertile, rich soil. Water generously.

Culinary hints - cooking and eating Celeriac

Cook whole, scrubbed and peeled.

Or slice or dice.

Tastes like celery.

Celery

(*Apium sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Celery in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 12°C and 21°C
- Space plants: 15 - 30 cm apart
- Harvest in 17-18 weeks.
- Compatible with: Not applicable as celery needs to be close together to encourage blanching.
- Avoid growing with: Sweetcorn

Most varieties improve with blanching but there are some self-blanching varieties available. To Blanch: plant in trenches 15- 20 cm (6-8 in) deep and 20cm (8in) apart. Leave about 40 cm (17 in) between rows. Fill the trenches gradually and keep well watered as the plants grow. The plants can be lifted as needed after about 11 weeks. Alternatively wrap the plants in sleeves of paper or black plastic.

Celery needs moist fertile soil.

Culinary hints - cooking and eating Celery

Chop and use raw in salad or braised in hot dishes.

Ceylon Spinach

(*Basella alba* and *B. alba* 'Rubra')

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
P P P

(Best months for planting Ceylon Spinach in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Ceylon spinach will grow from seeds, or stem cuttings. Plant directly in soil enriched with manure, will not grow vigorously until the weather warms up and lots of water. It will transplant, but does not like being moved.
- Sow seed at a depth of 2cm deep. Best planted at soil temperatures between 18°C and 21°C.
- Space plants: 15-30cm apart, also grows well in hanging baskets.
- Start Harvesting approximately 2 months after sowing
- Good Source of Vitamin A and C, iron and calcium
- The berries produce a red dye that can be used to colour desserts

Culinary hints - cooking and eating Ceylon Spinach

Make a good substitute for spinach in any recipe.

Greens with eggs on toast

Dice a handful of leaves for each serve. Lightly steam the leaves until tender, but still light green. Whisk in 1-2 beaten eggs for each serve and gently cook until set. Serve on toast.

Jungle Slaw

Mix half a grated onion, 1 handful of sliced Ceylon Spinach, 1 handful diced cabbage, 1 handful of tender beans cut into slivers, 1 grated carrot, half cup diced pineapple, half a green capsicum, cut finely. Toss to combine with half a cup mayonnaise and half cup unsalted peanuts. Serve on a bed of Ceylon spinach leaves. For extra flavour, lightly toast, or lightly grill the peanuts

Chicory, also Witloof, Belgian endive

(Cichorium intybus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Chicory in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 25 - 30 cm apart
- Harvest in 16-24 weeks. Will need forcing before final harvest.
- Compatible with: Carrots, onions, Florence fennel, tomatoes.

Harvest - to prepare to store for forcing at around 4-5 months. The second stage, blanching will take 8 - 12 weeks. To Blanch: - Lift the plants and cut off the leaves about 5cm (2in) above the roots. Shorten the roots to about 20-25cm (8-10in) and replant close together (3-5cm apart) in a pot filled with loose soil. Keep damp but not soggy. Cover to exclude light and keep out of the sunlight, but not below 10 C (50 F)

Exclude light until you use the witloof, if it goes green it will be bitter.

Culinary hints - cooking and eating Chicory

Good in salads

Grill lightly with butter

Bake with ham and cheese

Chilli, also Hot peppers

(*Capsicum sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Chilli in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 35°C.
- Space plants: 40 - 50 cm apart
- Harvest in 9-11 weeks. Wear gloves to pick 'hot' chillies.
- Compatible with: Best grown in a separate bed as chillies need plenty of light and air circulation.

Small bushy plants. Dark green ovate leaves.

Chilli need warm frost free weather, so protect with glass or plastic covers if planting outside in cooler areas.

Most varieties need a long growing period to produce many fruit.

There are many types of chilli. Some are more fiery than others. As a general rule, the smaller the pod the hotter the taste.

Culinary hints - cooking and eating Chilli

Chillies freeze very well. Wash, dry, and freeze whole. Use them direct from the freezer (no need to defrost).

Wear plastic gloves or wash your hands thoroughly after handling and cutting to avoid accidentally rubbing chilli juice onto your mouth or eyes!

Chinese broccoli also Kai-lan

(*Brassica oleracea L. cv. group Chinese Kale*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
P P P P P

(Best months for planting Chinese Broccoli in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. 2-4 rows/bed and 8-12 cm between plants, sow heavily and then thin after 3 weeks of growth. Thinned plants can be sold as the first harvest. A high density slows down the maturation process, raises the leaf area index and produces a more desirable product and higher marketable yield. A spacing of 10 cm, however, causes a reduction in mineral content due to competition among plants for nutrients
- Sow seed at a depth of 0.6 cm. Optimum temperatures for germination are 25-30°C and allow 3-6 days in summer and 4-10 days in autumn for emergence.
- Fertile soil with good drainage and a high level of organic matter PH between 6.0 and 7.0. Do not let it fall below 5.0.
- If transplanting: Transplant at 3-4 weeks. Growth rates from seedling trays in polyhouses are often too fast, particularly in warm weather, causing early flowering and minimal vegetative production. Seedling trays require wind protection but should only be stored in polyhouses in cool weather.
- Harvest in 10 weeks from sowing in autumn and 8-9 weeks in summer
- Chinese mustard and Chinese broccoli can be used as a bait crop for diamondback moth

Perennial that is usually grown commercially as an annual. Optimum temperature is 18-28°C for rapid growth. Low temperatures promote early flowering and are necessary for complete floral development. It is frost tolerant and more heat tolerant than other broccoli.

Culinary hints - cooking and Chinese Broccoli (Kai-lan)

Its flavor is very similar to that of broccoli, but slightly bitter. Kai-lan is eaten widely in Chinese cuisine, and especially in Cantonese cuisine. Common preparations include kai-lan stir-fried with ginger and garlic, and boiled or steamed and served with oyster sauce. It is also common in Vietnamese cuisine, Myanmar and Thai cuisine.

Chinese cabbage, also Wong Bok, Wong nga pak

(Brassica rapa (Pekinensis Group))

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Chinese cabbage in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow direct in the garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 30 cm apart
- Harvest in 8-10 weeks. Harvest whole head or you can take a few leaves at a time.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile, coriander), lettuce, potatoes
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chilli, capsicum), eggplant (aubergine), strawberry, mustard

Large oval shape with crinkly light green leaves and white stems. Wider at the base. Grows easily from seeds. Prefers cooler weather. Best grown fast with plenty of fertiliser and water.

Watch for slugs and snails.

Culinary hints - cooking and eating Chinese cabbage

Use in stir-fry. Has a milder flavour than regular cabbage. Shred the inner leaves and stems to use in coleslaw salad.

Chinese Mustard

(*Brassica juncea* var. *rugosa*)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
S	S	S	S	S	S	S	S	S	S	S	S

(Best months for planting Cassava in *Australia - tropical* regions)

S = Plant undercover in seed trays.

- Seed in trays
- Plant into the field at 3-4 weeks when plants are 7-8 cm high
- Space plants: Rows 30-46 cm apart
- Well drained sandy loams with high organic matter, but will grow on a wide range of soils. Prefers 5.5-6.8 and is quite tolerant to soil acidity
- Tolerates high rainfall but is susceptible to dry conditions
- Harvest in. The plant matures 45-50 days after planting. Hand cut for the fresh market
- Compatible with: cereal, Chinese mustard and Chinese broccoli can be used as a bait crop for diamondback moth

Culinary hints - cooking and Chinese mustard

Asian cooks like to pickle this, or else use it in soups or stir-fries. If you find it too pungent to stir-fry, blanch it first in salted water.

Chives, also Garden chives

(Allium schoenoprasum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Chives in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 5 cm apart
- Harvest in 7-11 weeks.
- Compatible with: Carrots, Tomatoes, Parsley, Apples

Grass-like leaves in clumps. Likes full sun but not too dry.

Chives are a perennial but die down in winter. You can dig up a small clump to pot up for indoor use in winter.

Remove flowers to encourage a continuous supply of leaves.

If weeding gets away from you, you can easily distinguish chives from grass because chives have a hollow leaf stem and onion smell.

Culinary hints - cooking and eating Chives

Use raw in salads or as a mild onion flavour in cooked dishes.

Choko, also Chayote squash, christophene, chouchou, mirliton

(*Sechium edule*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Choko in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant whole mature fruit when one produces a shoot at one end. Best planted at soil temperatures between 15°C and 30°C.
- Space plants: 100 cm apart
- Harvest in approximately 25 weeks. Best when fruit is light green and not more than 6cm long.
- Compatible with: Cucumbers

Choko is frost tender. And is only suitable for warmer climates. Plant in a warm, unused corner of the garden. Leave the shoot sticking out of the ground. It needs a long growing season, about six months. But in that time it will spread itself a lot and can be useful to cover old sheds or fences!

An average household would need one or two plants.

Leaves rather like cucumber and some prickles on the fruit. Some variation in fruit, with lighter green and few prickles depending on variety. The differences seem to be between countries e.g. USA, Australia, and Malta.

Culinary hints - cooking and eating Choko

Chokos can be peeled and chopped to use in stews, soup or as a stir fry vegetable. Cooked or raw, it has a very mild flavour and is commonly served with seasonings e.g., salt, butter and pepper or in a dish with other vegetables and/or flavourings. It can also be boiled, stuffed, mashed or pickled

Climbing beans, also Pole beans, Runner beans, Scarlet Runners

(Phaseolus vulgaris)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Climbing beans in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 30°C.
- Space plants: 10 - 20 cm apart
- Harvest in 9-11 weeks.
- Compatible with: Sweetcorn, spinach, lettuce, summer savory, dill, carrots, brassicas, beets, radish, strawberry, cucumbers, zucchini
- Avoid growing with: Alliums (Chives, leek, garlic, onions), Florence fennel

Grow beans up fences, trellis, sweet corn, trees. Almost anywhere can be 'vertically productive'.

Keep well watered and pick regularly to encourage new flowers. Watch out for snails, as they will eat through the stems near ground level, and will completely eat newly sprouted beans. If you have nice new beans plants one day, and none the next, then it is probably slugs or snails.

Culinary hints - cooking and eating Climbing beans

Use young in salads - blanch and cool. Will freeze well.

Collards, also Collard greens, Borekale

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S S T T P P

(Best months for planting Collards in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings. P = Plant direct in garden where they are to grow.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 40 - 50 cm apart
- Harvest in 8-11 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chili, capsicum), eggplant (aubergine), strawberry, mustard

Leafy, green vegetable - heat tolerant so a good substitute for kale and cabbage in tropical areas.

For best flavor and texture, leaves should be picked before they reach their maximum size.

Culinary hints - cooking and eating Collards

Slice and steam or use in stir-fry

Coriander, also Cilantro, Chinese parsley

(*coriander sativum*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Coriander in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: Thin to 45 cm
- Harvest in 30-45 days.
- Compatible with: Dill, Chervil, Anise, Cabbages, Carrots
- Avoid growing with: Fennel

Broadcast sow and thin to 45 cm apart. Grows to about 60cm. Harvest 30 -45 days A half-hardy herb with feathery leaves. . Grows more reliably from seeds as coriander is liable to bolt to flower and seed when seedlings are transplanted.

Coriander is frost tender but it doesn't like extreme heat. So in temperate zones grow coriander during summer, in sub-tropical/tropical zones grow it during the cooler season.

Needs a sunny spot and mulch to prevent drying out. Keep very well watered. If they dry out, then they will bolt to seed. Plant in successions (planting new seed every few weeks) to get a continuous supply.

Culinary hints - cooking and eating Coriander

Use the leaves to flavour hot meals or add fresh to salads.
The seeds can be dried and ground up for curries.

Cucumber

(*cucumis satavis*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Cucumber in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 35°C.
- Space plants: 40 - 60 cm apart
- Harvest in 8-10 weeks. Cut fruit off with scissors or sharp knife.
- Compatible with: Nasturtiums, Beans, Celery, Lettuce, Sweet Corn, Cabbages, Sunflowers, Coriander, Fennel, Dill, Sunflowers
- Avoid growing with: Potato, Tomatoes

Cucumbers are frost tender. Can be started in small peat pots then transplanted when weather is suitable. A trailing plant which will grow tendrils as it gets bigger. Lebanese cucumbers are best picked about 10 -12 cm (4 - 5 in) and eaten whole. Gherkins are usually picked 5 or 6 cm (2 - 3 in) long and pickled. They have a prickly skin. Apple cucumbers are round with a pale, almost white, smooth skin.

Grow in full sun. Grow up a trellis or framework to save space and keep the fruit clean. Needs ties to support it at first. Water regularly and fertilise to encourage growth.

Culinary hints - cooking and eating Cucumber

Pick frequently before the fruit become too big.
Use raw in salads, peeled if preferred.

Daikon, also Japanese radish, Lo Bok

(Raphanus sativus var. longipinnatus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Daikon in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Direct in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 15 cm apart
- Harvest in 8-10 weeks. Dig daikon carefully. They are rather brittle.
- Compatible with: Chervil, cress, lettuce, leeks, spinach, strawberries, tomatoes
- Avoid growing with: Gherkins, hyssop

A long white radish, milder flavour than the small round or oval radishes. Most varieties of Daikon prefer cooler weather. Have a tendency to 'bolt' or flower early in warm/hot weather. Grow in deep soil and water regularly. They will grow as big as large parsnips if left but the best flavour seems to be when they are about the size of a carrot.

Can be stored in the refrigerator for a couple of weeks if washed and dried and the leaves cut off.

A range of varieties of Daikon are available, some will do better in warm areas.

Culinary hints - cooking and eating Daikon

Daikon radish can be eaten simmered, stir fried, grated, pickled or baked. Its leaves are also edible and can be used in recipes that call for turnip greens, and its seeds make sprouts to eat in salads or in sandwiches.

Dill

(*Anethum graveolens*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P

(Best months for planting Dill in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 15 cm apart
- Harvest in 8-12 weeks. Use leaves before flowering.
- Compatible with: Cabbage, Coriander, Fennel, tomatoes, broccoli

Dill is best grown as an annual. It is easy to grow from seed and will produce wispy leaves growing on a single stem about 75cm (30in) high, which can be harvested about eight weeks after sowing. Once the plant will begins to produce flower heads, the leaf production will stop. Dill, like most herbs, grows best in the sun, but will tolerate afternoon shade. Dill grows up to 1M (36 in) tall, so plant it in the back of your flower, vegetable or herb garden. Sow seeds close together. This will allow the plants, which blow over easily, to support each other.

If you want to use dill seeds, let the seedheads develop and dry completely, then cut them and hang them upside down by the stems in a paper bag. The seeds will dry and fall into the bag. They can then be stored in a glass jar.

Repeat sow for a regular supply of leaves.

Culinary hints - cooking and eating Dill

Dill leaves can be used fresh or dried in salads, meats, vegetable dishes and soups. . Freshly cut leaves enhance the flavour of dips, herb butter, soups, salads, fish dishes, and salads. Both the flowering heads and seeds are used in flavoured vinegars and oils. Used whole or ground, the seeds add zest to bread, cheese, and salad dressing.

Dwarf beans, also French beans, Bush beans

(Phaseolus vulgaris)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Dwarf beans in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 30°C.
- Space plants: 5 - 15 cm apart
- Harvest in 7-10 weeks. Pick often to encourage more flower production.
- Compatible with: Sweetcorn, spinach, lettuce, summer savory, dill, carrots, brassicas, beets, radish, strawberry and cucumbers
- Avoid growing with: Alliums (Chives, leek, garlic, onions) Sunflower

Frost tender, die off in winter. Traditionally sown in rows, dwarf beans also grow well 'broadcast' or scattered over an area. Just scatter the seed (don't worry about the odd ones which are close up). Cover with soil, potting mix, or compost and firm down with the back of a spade or rake. Grown this way the beans will mostly shade out competing weeds and 'self-mulch'.

Keep watered and watch for shield bugs and green caterpillars Pick the beans regularly to encourage new flowers. Flowering will slow right down if you let the beans get too large (hard and stringy) on the plants. For a continuous crop, plant more seed as soon as the previous planting starts to flower. Protect against snails and slugs - they will completely destroy newly sprouted beans, and will eat the leaves off grown plants.

Culinary hints - cooking and eating Dwarf beans

Can be used in salads when young, blanched and cooled.
Will freeze well.

Eggplant, also Aubergine

(*Solanum sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Eggplant in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 24°C and 32°C.
- Space plants: 60 - 75 cm apart
- Harvest in 12-15 weeks. Cut fruit with scissors or sharp knife.
- Compatible with: Beans, capsicum, lettuce, amaranth, thyme
- Avoid growing with: Potatoes

A large bushy plant with attractive purple flowers. Have spiky stems. Wear gloves to harvest fruit as the spikes on the calyx are sharp enough to break one's skin.

In United Kingdom - grow in heated greenhouse. Reduce artificial heat during summer months

Needs a long season. Start under cover and plant out when frosts have finished.

Some varieties with slim, long fruit such as Asian Bride produce their fruit earlier. Mulch well and keep well watered. May need staking

Culinary hints - cooking and eating Eggplant

Cut and use the same day if possible.

Slice, no need to peel, and fry in olive oil.

Brush with oil and grill or bake.

Or microwave, plain, for about 4 minutes on high.

Makes a good substitute for pasta in lasagna or moussaka.

Can be smoked over a gas ring or barbecue, cooled and peeled and used to make dips.

Endive

(Cichorium endivia)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Endive in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 15°C and 25°C.
- Space plants: 20 - 30 cm apart
- Harvest in 10-11 weeks.
- Compatible with: beans, brassicas, carrots, cucumbers, chervil, sage.
- Avoid growing with: Alliums (garlic and onions)

This is a green leafy plant which looks a bit like a crinkly lettuce. Slightly bitter taste which can enhance a salad bowl but if this is not wanted the bitterness can be removed by blanching. Blanch by tying the leaves together when a rosette begins to form or cover with a large pot for about 3 weeks. Relative of chicory

Best grown in cooler months as hot weather might make it bolt to flower. Keep well watered to reduce bitterness. Water at base as water trapped inside leaves will cause rot.

Culinary hints - cooking and eating Endive

Very tasty topped with grated Swiss cheese and grilled for a couple of minutes to crisp up the cheese and wilt the leaves.

Can use in salads additional to lettuce, but needs a flavoursome dressing if you aren't overly fond of bitterness.

Fennel, also Bronze fennel

(foeniculum vulgare)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Fennel in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: Thin to 30 cm
- Harvest in 14-15 weeks.
- Compatible with: Best grown away from vegetables

A tall plant with feathery looking leaves. The whole plant has an aniseed flavour, including the seeds. Choose a place in the garden where it can self seed without causing too much trouble and there will be seedlings every year.

Needs staking to protect the seed heads. Can grow to 1.5m (5 ft). Keep watered, otherwise the leaves dry off.

Culinary hints - cooking and eating Fennel

Cut off leaves as required Use leaves fresh or dried. Particularly good with fish.
The seeds can be used in pickling mixes.

Florence Fennel, also Finocchio

(foeniculum vulgare dulce)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Florence Fennel in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: Thin to 15 cm
- Harvest in 14-20 weeks.
- Compatible with: Lettuce, Chicory, Cucumber, peas, sage
- Avoid growing with: Beans, tomatoes

This is a perennial grown as an annual as the stems become more fibrous with age. Both seeds and leaves have a mild aniseed flavour. With its feathery leaves it makes a good background plant in a border. Grows to approx 1.5m (5ft) Can be repeat sown throughout the year or left to self seed.

Fennel prefers well-drained fertile soil.

Culinary hints - cooking and eating Florence Fennel

The swollen base of the stem is used.

Slice and steam/stir-fry the bulb, or use raw/grated in salads. Can be cooked and served with sauces or butter.

French tarragon

(*Artemisia dracunculus*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting French tarragon in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant cuttings or root division. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 40 - 60 cm apart
- Harvest in 30-40 days. Pick leaves when young for best flavour.
- Compatible with: Aubergine (Eggplant) and Capsicum (Peppers)

French tarragon a half hardy perennial herb that is native of southern Europe. It is frost tender - which may be one of the reasons that it is not particularly widely grown - French tarragon is easy to grow but rarely sets seeds. It is propagated by division, or from cuttings.

Seed grown tarragon is usually Russian tarragon which does not have such a good flavour.

French tarragon must have a sunny position The site should be sheltered from winds and winter frosts. Keep well watered in dry weather. In autumn, mulch plants with a thick layer of straw or similar, to protect it over the winter. Tarragon prefers well-drained soil which is not too high in nutrients. It will do equally well in full sun or partial shade.

Culinary hints - cooking and eating French tarragon

Tarragon goes well with fish, pork, beef, poultry, game, potatoes, tomatoes, carrots, and most vegetables. Tarragon can be used in cream sauces, herbed butters and vinegars, soups, sour creams, and yogurt.

However, it can be overpowering in large amounts.

Galangal

(*Basella alba* and *B. alba* 'Rubra')

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
P P P P

(Best months for planting Galangal in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Perennial plant grows well in the tropics in shady positions.
- Propagate by dividing rhizomes and replanting into fertile humus rich well drained soil.
- PLANTING: plant galangal just below the soil surface about 60cm apart.
- HARVEST: Rhizomes can be harvested most of the year. The rhizomes are more tender when they are young and actively growing with a white rather than brown skin. It is possible for the home gardener to just dig carefully at the side of a clump and remove rhizomes as needed rather than harvesting the whole clump.

Culinary hints - cooking and eating Galangal

Rhizomes, young shoots and leaves are all eaten, young rhizomes and shoots are more flavoursome. Used in Asian cooking

Garlic

(*Allium sativum*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Garlic in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant cloves. Best planted at soil temperatures between 10°C and 35°C.
- Space plants: 10 - 12 cm apart
- Harvest in 17-25 weeks.
- Compatible with: Beets, Carrots, Cucumbers, Dill, Tomatoes, Parsnips
- Avoid growing with: Asparagus, Beans, Brassicas, Peas, Potatoes

Garlic is traditionally planted in cold weather and harvest in summer ("plant on the shortest day, harvest on the longest"). Plant the cloves (separated from the bulb), point upwards, and deep enough to just cover with soil. A fairly tough and easy-growing plant. On better soil with regular watering you will get a better crop. On poorer soil, and forgetting to water them, you will still get some garlic, only not quite so much.

Leave a garlic to go to seed, and you will probably get plenty of self-sown plants the following year.

To keep for later use, dig up and leave to dry out for a day or so after the green shoots die down. To use immediately, pull up a head when you need it, or cut and use the green shoots.

Culinary hints - cooking and eating Garlic

Cut the growing shoots or use the entire young garlic plants as 'garlic greens' in stir-fry.

Ginger

(Zingiber Officinale)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P P P P P

(Best months for planting Ginger in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant pieces of fresh root showing signs of shoots. Best planted at soil temperatures between 20°C and 30°C.
- Space plants: 15 cm apart
- Harvest in approximately 25 weeks. Reduce water as plant dies back to encourage rhizome growth.
- Compatible with: Grow in separate bed

Ginger is a warm climate plant. It can be grown indoors in cool/temperate areas. To grow well it needs lots of water and nutrients. Prepare the soil by adding compost which will retain some moisture but not get saturated. Add a small amount of sand to ensure drainage. Water regularly in summer to keep moist. In a pot, in addition to watering to keep moist, water ginger about once a fortnight with seaweed or other liquid fertilizer. This perennial will die down in autumn. Remove the dead leaves. In spring lift the root clumps and break them up into smaller pieces to replant.

Harvesting Ginger

You can harvest ginger root after the plant dies down in winter, digging around the plant to cut off a piece of the older root. The young root with shoots is the actively growing plant and should be left to resprout. You can also carefully dig down under the plant through the growing season to cut off bits of the older root for use, just be careful not to disturb the rest of the plant too much. Let plants become well established before harvesting - it is often best to wait until the second growing season. Make sure that you have edible ginger. Ginger plants sold in nurseries are usually decorative varieties and not suitable for eating. # Ginger can be grown in large pots indoors. Ambient temperature needs to be 25 - 30C (75-85F)

Culinary hints - cooking and eating Ginger

Use in any recipes requiring fresh ginger. Widely used in Asian cooking, it is hot without the 'burn' of chilli.

Ginger root freezes well either whole or grated, and can be used direct from the freezer in most recipes requiring fresh ginger.

Globe artichokes

(Cynara scolymus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Globe artichokes in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 15°C and 18°C.
- Space plants: 160 - 200 cm apart
- Harvest in 42-57 weeks.
- Compatible with: Needs a lot of space. Best in separate bed

Superthistles growing to 1.2-1.3m high with a spread of 1.2x1.2m. Very pretty, can be part of a herbaceous border.

Harvest from second year. Artichokes grow particularly well in sandy soil. Can be propagated by suckers or offsets. A well fertilised plant will live for about five years and throw up suckers each year. Aphids and earwigs can be a nuisance.

Culinary hints - cooking and eating Globe artichokes

Pick buds before scales develop brown tips.

If you have lots of small buds, they can be fried in olive oil and eaten whole.

Rinse in plenty of cold water to remove earwigs or other insects.

Horseradish

(*Armoracia rusticana*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Horseradish in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant root pieces. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 50 cm apart
- Harvest in 16-24 weeks. Some improvement in flavour if left till after frost.
- Compatible with: Best kept separate

Horseradish is grown from root cuttings. If you know someone who has it in their garden, just one piece of root will start off for you.

Dig a deep hole and refill with compost as the horseradish has a long taproot. Plant it and then leave it alone. Apart from constant wet or cold, horseradish will grow in any part of the garden.

Horseradish is an aggressive grower and will quickly take over the garden. It will also grow well in a deep container or sink an old bucket in the ground to prevent spreading. Otherwise, remove all the plant when you harvest it and save one piece to replant.

Can be planted in early autumn or spring

Culinary hints - cooking and eating Horseradish

Strong, spicy flavour traditionally used with roast beef.

Used grated for horseradish sauce or horseradish cream

Kale, also Borecole

(Brassica oleracea sp.)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S S T T

(Best months for planting Kale in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 40 - 50 cm apart
- Harvest in 7-9 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chilli, capsicum), eggplant (aubergine), strawberry, mustard

Green leafy plant. Kale is a good addition or substitute for cabbage varieties.

Very winter hardy. Flavour is improved by frost. Ornamental varieties are colourful, and edible. Rotate with other crops to avoid clubroot infection.

Culinary hints - cooking and eating Kale

Strong flavoured and nutritious vegetable.

Wash well and chop finely then steam.

A tomato or cheese sauce will mask the flavour if too strong.

Kang Kong, Water Spinach

(Ipomea aquatica)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
P	C	P	C	P	P			P	C	P	C	P	C

(Best months for planting Kang Kong in *Australia - tropical* regions)

P = Plant from seed. C = Plant from cuttings

Kang Kong can be grown in various ways. Under dry cultivation the plant is grown in soil which is not inundated. Seeds are broadcast, sown in rows or into raised beds. Cuttings can also be used.

- Seeds and seedlings need soil temperatures above 25°C to germinate and thrive. Plant out into nutrient rich soil that is permanently wet if possible.
- Space plants: 15 cm apart in sun or semi shade.
- Harvest whole plants about 45 days after planting but leaves can be harvested as soon as big enough
- Can grow in fish ponds
- Kang kong is available all year

Storage Conditions: Stems are tied in bundles and wrapped in plastic to prevent wilting. They can be stored at 10°C and 90-100% humidity.

Culinary hints - cooking and eating Kang Kong

The young leaves and stems can be steamed, boiled, or lightly fried in oil and used in a stir-fry. Also eaten raw in salads.

Kohlrabi

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Kohlrabi in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 10 - 20 cm apart
- Harvest in 7-10 weeks.
- Compatible with: Beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chilli, capsicum), eggplant (aubergine), strawberry, mustard

The swollen stem looks like a turnip with reddish/purple cabbage leaves, usually purple or greenish white skin.

Protect from cabbage white butterflies

Culinary hints - cooking and eating Kohlrabi

Use when young.

Scrub well, cut off leaf stalks, roots and woody parts

Young ones do not need peeling.

Can be grated raw for salads or cut in pieces and steam.

Use in casseroles.

Leeks

(*Allium porrum*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T

(Best months for planting Leeks in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

April: Leeks need moist soil throughout their growth.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 10 - 15 cm apart
- Harvest in 15-18 weeks.
- Compatible with: Carrots

A member of the onion family. Looks rather like a large scallion or spring onion. Grow in seed trays or punnets until about 20cm (8in) tall. They look rather like large blades of grass at that stage. Then plant out into trenches or individual deep holes. The aim is to blanch the stems while the plants are growing. Trenches should be about 20-25cm (8-10in) deep. Set the seedlings 10-15 cm (4 - 6in) apart then add enough soil to just cover the roots. As the plants grow fill the trench. Otherwise - make holes with a dibble or suitable stick 15 cm (6 in) deep and 3-4 cm (1.5 - 2 in) wide. Drop a seedling in each and water enough to cover the roots with soil. As they grow, watering will gradually fill the hole.

Leeks prefer moist clay soils. Keep soil moist and loose, mulch will help.

Culinary hints - cooking and eating Leeks

Trim off the roots and any damaged leaves.

Young ones can be used whole with some of the green leaves

Wash thoroughly as the earth tends to get inside.

Chop and fry in butter (or olive oil) until tender.

Can be added to casserole meals, allowing time to cook through.

Leek and mushroom make a tasty combination for a tart filling.

Lemon Balm, also Bee balm

(Melissa officinalis)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Lemon Balm in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 25 cm apart
- Harvest in 8-10 weeks. Cut back tall stems to prevent flowering.
- Compatible with: Good to attract bees

Lemon balm will grow from seed or cuttings. It self seeds readily and can become a nuisance if not checked.

Leaf shape is somewhat like mint and it likes to spread in the same way.

Pleasant lemon scent, released when a leaf is crushed.

Will grow in sun or part-shade. Lemon balm is shallow rooted so needs some water in hot dry weather. Does not like constant wet soil though. Attracts bees.

Culinary hints - cooking and eating Lemon Balm

As a herb tea or added to fruit punch.

Can be used to replace lemon, used sparingly, in desserts and with stewed fruit.

Chop leaves into salad.

Better used fresh than dried.

Lettuce

(*Lactuca sativa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Lettuce in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden, or start in seed trays and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 27°C.
- Space plants: 20 - 30 cm apart
- Harvest in 8-12 weeks.
- Compatible with: Carrots, Onions, Strawberries, Beets, Brassicas, Radish, Marigold, Borage, Chervil, Florence fennel, leeks.
- Avoid growing with: Parsley, Celery

Lettuces offer a range of shapes, sizes and colours but they are all easy to grow. Choose a variety marked on the seed packet as suitable for the time of year as some do badly in the very hot months. Try to provide some shade to prevent them 'bolting' to flower and seed in the hottest months.

Sow in rows and use thinnings as small salad greens

Lettuces are shallow rooted so water daily in hot or dry weather to prevent bitter flavour and bolting.

Culinary hints - cooking and eating Lettuce

Wash well, spin or shake dry and use in salads and sandwiches

Luffa, also Loofah, plant sponge

(*Cucurbitacea*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Luffa in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 30°C.
- Space plants: 45 - 75 cm apart
- Harvest in 11-12 weeks. Use as a back scratcher.
- Compatible with: Peas, Beans, Onions, Sweetcorn
- Avoid growing with: Potatoes

This type of squash while not strictly a vegetable can be eaten when young. They are more commonly grown to use when mature and dried.

The plants are frost tender and need warmth to grow successfully. Keep inside until all risk of frost is gone.

They grow on vines similar to cucumbers.

A large luffa makes a great back scratcher. Luffa can be cut into many shapes for scrubbing pads, padding, and other uses.

Culinary hints - cooking and eating Luffa

The luffa flowers and fruits are soft and edible when young and are sometimes cooked and eaten like squash or okra. Loofah has been an important food source in many Asian cultures. The leaves and vines should not be eaten.

Marrow

(*Cucurbitaceae*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Marrow in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 35°C.
- Space plants: 90 - 120 cm apart
- Harvest in 12-17 weeks.
- Compatible with: Peas, Beans, Onions, Sweetcorn
- Avoid growing with: Potatoes

This looks like a large version of zucchini/courgette. Skin is light yellow or white. Grow on raised mounds of earth/compost. Mulch to retain moisture and reduce weed growth. Frost tender.

Powdery mildew can be a problem especially in humid weather.

Culinary hints - cooking and eating Marrow

Good, cut in thick slices, seeds removed and stuffed with mince or spicy vegetable mix then baked in the oven

Mint, also Garden mint

(Mentha spicata)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Mint in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Grow in trays and plant out or start from cuttings. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 24°C.
- Space plants: 30 cm apart
- Harvest in 8-12 weeks. Cut leaves from top with scissors.
- Compatible with: Cabbages, Tomatoes

Although mint can be grown from seeds, cuttings are a faster, more reliable option. Cuttings can be planted directly when danger of frost is past. Mint can be grown in pots outdoors or indoors

Mint prefers damp, partly shaded areas and once established will grow for many years. Mint dies down in winter and sends up new shoots in spring.

Mint is a rampant grower and will take over a garden bed if not restrained.

One way to contain mint is to use an old bottomless bucket pushed into the ground. The mint won't be able to put its roots out sideways, so will take longer to spread. If grown in a pot, mint needs to be watered regularly to keep it healthy.

Culinary hints - cooking and eating Mint

Mint adds a fresh flavour if chopped and sprinkled over salads. And is traditionally used mixed with vinegar and sugar to make mint sauce for lamb.

Mizuna, also Japanese Greens, Mitzuna, Mibuna

(Brassica rapa var japonica)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Mizuna in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 15 - 20 cm apart
- Harvest in 35-50 days.
- Compatible with: Radish, lettuce

Mizuna and Mibuna are both grown for their leaves. Fast growing plants which have a mild mustardy flavour when young.

Tolerates light shade. Tends to bolt in hotter weather. Grows well in pots and containers - keep mulched and well-watered.

Culinary hints - cooking and eating Mizuna

Leaves used raw, stir-fried, in soups. Young flowering stems can be cooked like broccoli.

Mustard greens, also gai choy

(*Brassica sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Mustard greens in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 35°C.
- Space plants: 35 - 60 cm apart
- Harvest in 5-8 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile)
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chilli, capsicum), eggplant (aubergine), strawberry

Green leafy plant, popular for Asian cooking.

Grow fast with plenty of water and regular feeds of liquid manure to avoid bitterness. Pick young.

Culinary hints - cooking and eating Mustard greens

Use young leaves in salad for a 'spicy kick'. Add to stir fry.

NZ Spinach, also Warrigal greens

(Tetragonia expansa)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting NZ Spinach in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 35°C.
- Space plants: 45 - 60 cm apart
- Harvest in 8-10 weeks. Pick the tips.
- Compatible with: Does better if alone.

NZ spinach has green, triangulated leaves and a spreading habit.

This is a coastal plant which natively grows on dune edges. It survives salt-spray in coastal gardens. It tolerates light frost.

It can withstand hot, dry summer weather when real spinach tends to die off. Will self-sow and become widespread.

Soak seeds for one or two hours before sowing as the outer skin is hard.

Culinary hints - cooking and eating NZ Spinach

Pick the growing tips at about 8-10cm (4-6 in).

Can be used as a substitute for real spinach in cooking.

To remove the oxalates it's a good idea to blanch the leaves for 3 minutes or so, then rinse the leaves in cold water before using them in salads or for cooking.

Okra, also Ladyfinger, gumbo

(*Abelmoschus esculentus*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P P

(Best months for planting Okra in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 35°C.
- Space plants: 35 - 60 cm apart
- Harvest in 11-14 weeks.
- Compatible with: Peppers (Capsicum, Chili), Eggplant (Aubergine)

In warm districts okra can be sown in garden beds. Raise seedlings in a similar way to capsicums - warmth is essential. Pick pods within a week of flowers opening - at about 5 - 8 cm long. Pods become tough and inedible if left too long.

Pods have a high gum content so do not appeal to everyone.

Culinary hints - cooking and eating Okra

Use pods fresh or dried in soups or casseroles or as a boiled vegetable.

Onion

(Allium cepa)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T

(Best months for planting Onion in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 5 - 10 cm apart
- Harvest in 25-34 weeks. Allow onions to dry before storing.
- Compatible with: Lemon Balm, Borage, Carrots, Beets, Silverbeet, Lettuce, Amaranth
- Avoid growing with: Peas, Beans

Onions come in a range of colours and shapes and sizes. Brown :- strong flavour and pungent. Usually good keepers for storage. White :- milder but still flavoursome. Keep fairly well. Red :- Mild, suitable to use raw in salads and sandwiches. The seedlings should be allowed to gain a bit of strength before planting out - usually 4 to 6 weeks will be enough. When they are big enough to handle, you can plant out. They start off looking like blades of grass.

They don't have to be in a greenhouse (though that would be ideal), any sheltered spot will do. The idea is to guard against rapid changes of temperature, especially at night.

Onions can be bought as young plants (sets) from garden shops/nurseries to plant straight into garden beds. Choose your variety according to your climate and the time of year as some onions will grow better in the cooler months.

Onion bulbs should sit on the surface of the soil. Do not cover. They will take six to eight months to mature. Onions are ready when the tops start to dry and fall over. Pull them and leave to dry for a few days. Store in a cool, dry airy place. Use a net bag or make a string by weaving the tops together.

Culinary hints - cooking and eating Onion

Brown onions roasted whole with other vegetables are delicious.
Red onions add colour to salads or stir-fry.

Oregano, also Pot Marjoram

(*Oreganum spp*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Oregano in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden, or start in seed trays. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 25°C.
- Space plants: 15 cm apart
- Harvest in 6-8 weeks. When flowers appear.
- Compatible with: Broccoli

Perennial growing to around 45 cm (17") high. Cut the stems back to the ground to encourage new growth.

There are two main varieties.

"Greek Oregano" is the type normally associated with Oregano flavor.

"Common Oregano" or Marjoram has a less pungent, sweeter taste and is more commonly grown.

For best flavour harvest in the morning just after the dew has lifted.

Easily propagated from root division. It can be hard to germinate seed. Can be grown from cuttings.

Culinary hints - cooking and eating Oregano

Used to flavour tomato dishes, soups, sauces and Greek dishes like moussaka

Pak Choy

(Brassica campestris var. pekinensis)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Pak Choy in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 30°C.
- Space plants: 30 - 40 cm apart
- Harvest in 6-11 weeks.
- Compatible with: Dwarf (bush) beans, beets, celery, cucumber, onions, marigold, nasturtium, rhubarb, aromatic herbs (sage, dill, chamomile, coriander), lettuce, potatoes
- Avoid growing with: Climbing (pole) beans, tomato, peppers (chili, capsicum), eggplant (aubergine), strawberry, mustard

Similar to Chinese cabbage but the leaves are smoother and the stalks are longer and thicker. Grows quickly and will also go to seed quickly in hot weather. Best grown in cooler months.

Needs plenty of water.

Culinary hints - cooking and eating Pak Choy

You can treat Pak Choy as "cut and come again" or use the whole plant in one go, whichever suits your needs.

Parsley, also curly leaf parsley or flat leaf (Italian) parsley

(Petroselinum crispum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Parsley in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 20 - 30 cm apart
- Harvest in 9-19 weeks. Cut stalks from outer part of plant.
- Compatible with: Carrots, Chives, Tomatoes, Asparagus
- Avoid growing with: Potatoes

Takes a long time to germinate, about 3 - 5 weeks before the seedlings appear. Grows to about 20 -30cm (8 -10in) until it flowers when the stems will shoot up to about 1m (3ft) .

The useful leaves disappear when parsley flowers so it is best to have some more seedlings ready to plant.

Will self seed and produce plenty of new plants every year. Can survive snow and light frosts

Culinary hints - cooking and eating Parsley

Use the leaves and stems to add flavour and colour.
Can be cooked in dishes such as ratatouille
traditionally used in white sauce

Peas

(*Pisum sativum*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Peas in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 24°C.
- Space plants: 5 - 8 cm apart
- Harvest in 9-11 weeks. Pick the pods every day to increase production.
- Compatible with: Potatoes

Peas are best grown in cooler seasons. Peas need some support when growing; tree prunings with lots of small twigs are a cheap and handy source or else strings between posts or wire netting. The peas need tying in the early stages, until they start producing tendrils and clinging to the support.

Some pea varieties are called 'dwarf' but to make harvesting easier it is a good idea to support the plants.

Pick pea pods while young and pick them often to keep them producing.

Culinary hints - cooking and eating Peas

Raw straight from the pod in the garden is best!

Raw in salads.

Steamed lightly.

Small pods can be steamed whole.

Potato

(Solanum tuberosum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Potato in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant tuber. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 30 - 40 cm apart
- Harvest in 15-20 weeks. Dig carefully, avoid damaging the potatoes.
- Compatible with: Peas, Beans, Brassicas, Sweetcorn, Broad Beans, Nasturtiums, Marigolds
- Avoid growing with: Cucumber, Pumpkin, Sunflowers, Tomatoes, Rosemary

Seed potatoes

Potatoes sold in nurseries and produce stores are certified seed potatoes. Seed potatoes are small potatoes (usually fairly dried up and wrinkled) which are free of viruses and other diseases. You are more likely to get a good crop from certified seed potatoes.

Before planting expose seed potatoes to light to start shoots growing. Avoid direct sun as this can burn or par-cook the seed! Let the potatoes grow shoots up to 1cm long - this can take a few weeks. In hot or dry climates sprout seed potatoes in seed trays of dampened potting mix.

Large seed tubers can be cut into pieces - just make sure each piece has at least one 'eye' or shoot. *Let the cut pieces dry for a few days before planting or else they will probably start rotting.*

Growing in the ground

Prepare the soil by digging in plenty of well-rotted animal manure or compost (don't use fresh manure as it will 'burn' plants). Dig a trench for the seed potatoes about 30 - 40cm wide and 10 - 20cm deep. Add a bit more compost/manure to the bottom of the trench and cover with some soil. Put seed potatoes 20 - 30cm apart in the trench, shoot-side up. Fill in the trench to cover the potatoes.

As potato shoots start to appear, cover them up with soil from either side of the trench. 'Hill up the crop' this way a few times in the first four or five weeks of growth, which gives the potatoes a nice loose mound of soil in which to grow. Now leave the shoots to develop on to form leaves.

Keep potatoes well-watered. The soil should be damp enough to stick to your fingers.

No-dig and container growing - ideal for home gardens

If you don't have a ton of space then no-dig and container growing both work well for home garden growing. Using container growing you can produce potatoes in any handy space, even on balconies.

No-dig

Make a no-dig bed of potatoes by layering newspapers (or flattened cardboard boxes) at least six layers thick on an area to be planted. Spread your seed potatoes on top of the newspapers about 30cm apart, trying to get the shoots pointing upwards.

Cover the potatoes with layers of compost, weed-free straw, rotted animal manure, and other mulch materials, until the potatoes are covered by about 20 - 30cm. *Don't flatten the cover down.*

Water well. As the potatoes start to grow through, add more layers of mulch material and keep watered. After about four weeks of growing through and covering up, let the potatoes grow on without covering. As the mulch breaks down keep adding more mulch to keep the tubers covered.

Container growing

Get a container at least 40 - 50 cm deep with holes in the bottom for drainage. Shrub-sized flower pots work well. An old wheelbarrow will work if holes are drilled in the bottom. You can also make a 'container' using loose bricks or chicken wire.

Put about 10 - 20cm of mixed compost and potting mix in the bottom of the container and put your seed potatoes on top, about 30cm apart. Cover with about 10 - 20cm of compost mixed with mulch (straw, grass clippings. Water well.

As the potato shoots start to grow through, cover up with more compost and mulch mix and keep watered. Keep on covering up for about four weeks (but stop if you reach the top of the container!)

For both no-dig and container growing, keep the mulch well watered - wet enough to stick to your fingers but not sopping. If the potatoes dry out they will probably go scabby.

- The longer potatoes grow, the bigger the tubers will be.
- Don't grow potatoes in the same place as other Solanum crops as they share many diseases - for example, don't grow potatoes to follow a tomato crop, or vice-versa.
- You can start harvesting a few tubers as soon as they are big enough to eat - dig around under the plants and retrieve a few, and cover up the rest to keep growing.
- Potatoes exposed to light will go green, so keep them covered up with straw and soil as they grow. *Green potatoes are poisonous!*

- Potatoes accumulate cadmium and other heavy metals, so avoid fertilizers which contain these elements. Similarly, avoid using tyres as containers for growing potatoes as they can leach heavy metals.

Culinary hints - cooking and eating Potato

Peeled or unpeeled and scrubbed, potatoes can be boiled, baked, fried and roasted. - The only way they are not used is raw.

Keep in a pot of cold water after peeling, otherwise they will discolour.

Pumpkin

(*Cucurbita sp.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Pumpkin in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 32°C.
- Space plants: 90 - 120 cm apart
- Harvest in 15-20 weeks.
- Compatible with: Sweet Corn
- Avoid growing with: Potatoes

A large trailing plant with yellow, bell-shaped flowers, pumpkin is frost tender. Most varieties will take up a lot of room. Grow them at the edge of your garden patch so that they can spread away from other vegetables. Butternut produces small to medium pear-shaped fruit with deep orange flesh. Buttercups are small to medium round pumpkins with dark green skin. There are a number of large pumpkins, some round and flattish - good for storage and eating - others will produce the "Cinderella coach" type giant round fruit which are not such good eating.

Harvest when the vines die off and the pumpkins' stalks are dry. Leave a small piece of stalk attached to the fruit to prevent damp causing rot. The fruit can be stored for months in a cool airy place. In some parts of New Zealand, they are stored on shed roofs.

Pumpkins sometimes need hand pollination if the fruit are not setting well or die off after starting to grow.

Culinary hints - cooking and eating Pumpkin

Cut up, remove the skin and roast with other vegetables or meat.

Young crisp shoots with young leaves can be cooked and eaten - stewed in coconut milk they are popular in Melanesia. Remove any strings and tough parts and stew until tender, or cook as a vegetable in boiling water 3-5 minutes.

Radish

(Raphanus stivas)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Radish in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 3 - 5 cm apart
- Harvest in 5-7 weeks.
- Compatible with: Chervil, cress, lettuce, leeks, spinach, strawberries, tomatoes
- Avoid growing with: Hyssop, gherkins

Small, spicy tasting root vegetable usually round but some longer varieties. Available in a range of colours between red and white.

Very easy to grow. Good for a child's first garden as seedlings appear in two or three days. Sow between other vegetables as they will mark the rows until the slower germinating plants appear.

Culinary hints - cooking and eating Radish

Wash well and remove leaves and roots.

Use raw in salads or on their own with bread and butter.

Rocket, also Arugula/Rucola

(Eruca vesicaria)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 P P P P P P P P

(Best months for planting Rocket in *Australia - sub-tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 15 - 20 cm apart
- Harvest in 21-35 days.
- Compatible with: Lettuce

Plant every 2 to 3 weeks for a continuous supply. Leafy green plant with lobed, dark green leaves. It has a slightly spicy, nutty flavour. The spiciness intensifies as the plant gets older.

Frost tender.

Keep well watered in well drained ground. Will go to flower rapidly in hot dry weather.

Culinary hints - cooking and eating Rocket

Use in salads and stir-fry

Rockmelon, also Canteloupe

(Cucumis melo)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Rockmelon in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 32°C.
- Space plants: 40 - 60 cm apart
- Harvest in 10-16 weeks.
- Compatible with: Sweetcorn, Sunflowers
- Avoid growing with: Potatoes

Start in small pots then transplant when no danger of frosts. Plant into a raised mound to provide good drainage and warmth. Provide plenty of water.

Ready to use when the fruit falls from the vine

Rockmelons may need hand pollination with a soft brush.

Culinary hints - cooking and eating Rockmelon

Cut in half and scoop out and discard the seeds.
Sprinkle with some ground ginger or serve plain.

Rosella, also Queensland Jam Plant, Roselle

(Hibiscus Subdantta)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Rosella in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden, or start in seed trays. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 20°C and 35°C.
- Space plants: 140 cm apart
- Harvest in 21-25 weeks.
- Compatible with: Feverfew, Coriander, Nasturtium and Hyssop

This frost tender annual grows to a height of 2 metres. It is grown for its red fruit which make delicious jam or jelly.

Rosella needs a growing season of at least 6 months warm weather so is best suited to tropical or sub-tropical areas. Can be started under glass in cooler areas. Water well and give a dressing of fertiliser when flowering starts.

Culinary hints - cooking and eating Rosella

The large flowers produce a crimson enlarged calyx.

Use the fleshy red calyx, without the green seed pod to make jam or jelly.

Rosemary

(Rosmarinus officinalis)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Rosemary in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant cuttings. Best planted at soil temperatures between 15°C and 20°C.
- Space plants: 100 - 150 cm apart
- Harvest in approximately 1 year. In warmer areas, harvest time might be shorter.
- Compatible with: Beans, Carrots, Cabbages, Sage
- Avoid growing with: Potatoes

Rosemary will grow from seeds but this is not recommended as the success rate is very low. Small cuttings are easy to grow. Put in light, sandy soil where you want your plant to grow or start in small pots and plant out when established.

Rosemary comes from warm Mediterranean areas but adapts well to colder climates. In areas of heavy frost, a cutting potted up and kept in a sheltered spot will insure against total loss of your plant over winter.

Dryness suits rosemary, so well-drained soil and sunshine will be best.

Once established rosemary can be harvested all year round.

Rosemary grows well in patio pots or tubs.

Culinary hints - cooking and eating Rosemary

Leaves sprinkled on roast potatoes, meat and barbeque food makes them extra tasty.

Rosemary can also be used to add flavour to vinegars and oils.

Sage, also Common Sage

(Salvia officinalis)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Sage in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

May: Best grown in large pots or planter boxes as sage cannot cope with very wet soil.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 50 cm apart
- Harvest in approximately 18 months. Time reduced if grown from cuttings.
- Compatible with: Broccoli, Cauliflower, Rosemary, Cabbage and Carrots

Sage grows well from seeds but it is slow developing.

One plant will usually be enough for the average household.

A plant grown from a cutting will be ready to use in about 3 months.

Stake or protect from strong winds, otherwise the plant may snap off the main stem.

Sage will grow almost anywhere as long as it is in full sun for most of the day. Sage does not like soil that is moist all the time - Avoid frequent watering even in the middle of the summer.

Culinary hints - cooking and eating Sage

The leaves are used to flavour stuffing and meat dishes.
Sage keeps well if dried.

Salsify, also Vegetable oyster

(Tragopogon porrifolius)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Salsify in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 15 - 20 cm apart
- Harvest in 14-21 weeks.
- Compatible with: Beans, Brassicas, Carrots, Celeriac, Endive, Kohl-rabi, Leeks, Lettuce, Alliums, Spinach

This root vegetable is not seen in supermarkets but is as easy to grow as carrots or parsnips.

It is a fairly slow growing vegetable but can be harvested in small amounts as required. The ground can be loosened with a fork and a few roots lifted for use.

Scorzonera is a variety of salsify which has black skin on the root.

Culinary hints - cooking and eating Salsify

Wash and scrape the roots then boil before frying or roasting. They can also be used to make a creamed soup.

Shallots, also Eschalots

(*Allium cepa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Shallots in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant small bulblets, with stem just showing above ground. Best planted at soil temperatures between 8°C and 30°C.
- Space plants: 2 - 3 cm apart
- Harvest in 12-15 weeks. Keep a few for your next planting.
- Compatible with: Lemon Balm, Borage, Carrots, Beets, Silverbeet, Lettuce, Amaranth
- Avoid growing with: Peas, Beans

Shallots are grown from small bulbs kept from the main plant. Once they are established, you can keep your supply going indefinitely by saving a few bulblets each year.

A type of small mild multiplying onion, popular in French cooking.

Tree onions or 'walking onions' produce bulbs at the top of the stem.

Shallots are not spring onions.

They are more like garlic in their growth as they form a clump of bulbs at the base of the stem.

Culinary hints - cooking and eating Shallots

Use in any recipe instead of onions can be cooked whole, braised gently with other vegetables. Sometimes pickled.

Silverbeet, also Swiss Chard or Mangold

(Beta vulgaris var. cicla)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Silverbeet in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 15 - 30 cm apart
- Harvest in 7-12 weeks.
- Compatible with: Beans, brassica sp. (cabbage, cauliflower, etc), tomato, Allium sp. (onion, garlic, chives), lavender, parsnip
- Avoid growing with: Corn, melon, cucurbit (cucumbers, squash, melons, gourds), most herbs, and potato.

Edible dark green glossy leaves with wide white or cream stalks produced over a long period. Both leaves and stalks are eaten. This is a cut and come again plant, providing leaves for some months before going to flower. Can re-sprout from around the base if cut off when it starts to flower.

Reasonably frost and heat tolerant. Grows well in most soils. For prolific growth apply compost, or well-rotted manure. Resistant to most plant diseases.

Culinary hints - cooking and eating Silverbeet

Wash thoroughly and inspect the back of the leaves for insects.

Chop and put in a saucepan with very little water (or just what is on the leaves) cover and cook over a low to medium heat until the leaves collapse.

A small amount of nutmeg enhances the flavour.

Snake Bean

(*Vigna unguiculata ssp.sesquipedalis*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 P P P P P P P P

(Best months for planting Snake Bean in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow seed at a depth of 2cm deep. Best planted at soil temperatures between 18°C and 21°C. Seeds can take up to 12 days to germinate. Plant in moist mounded soil.
- Space plants: 40 cm apart, for climbing forms and 25cm apart for dwarf forms with 2-3 meters between rows. Seeds should be planted into damp soil and watering withheld for 3-4 days. Immediate watering can result in seed-rot developing due to water being taken up too fast and the seed rotting.
- Start Harvesting 8-10 weeks after sowing, the plant will continue to produce prolifically for many weeks if harvested regularly. Beans are ready for picking when they have reached full length, but before the seeds begin to swell in the pods. Pods should be cut from the plant using scissors or secateurs to minimise damage to developing pods and flowers, and to prolong the cropping life of each flower stalk.
- Snakebean will grow in most soils with a pH between 5.5 and 7.5
- Climbing forms need trellis
- Compatible with: grows best with peas and does not grow very well with onions, garlic or chives

Beans will keep from seven to 10 days if sealed in a plastic bag to prevent wilting, and kept under refrigeration in the crisper section at 4-8 °C. At temperatures below 2°C pitting and russet occur. Beans can be stored for longer periods if blanched and frozen.

Culinary hints - cooking and eating Snake Beans

Snake beans taste similar to green beans, with a more dense texture. Pods can be boiled, added to stir fries or eaten raw. Leaves and young stems can also be steamed and eaten as a vegetable.

Snow Peas, also Sugar Peas, Mangetout, Chinese Peas

(Pisum sativum var. macrocarpon)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Snow Peas in *Australia - sub-tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 8°C and 20°C.
- Space plants: 8 - 10 cm apart
- Harvest in 12-14 weeks.
- Compatible with: Carrots, Endive, Florence fennel, winter lettuce, Brassicas.
- Avoid growing with: Chives, Alliums, Tomatoes

They are similar to garden peas but have a softer pod.

Snow peas are best grown in cooler seasons. They need some support when growing; tree prunings with lots of small twigs are a cheap and handy source. Or else strings between posts or wire netting. The peas need tying in the early stages, until they start producing tendrils and clinging to the support.

Will not grow well in hot weather. Protect seeds from birds and mice. Pick early and often before the pods become tough.

Start in pots in frost prone areas.

Culinary hints - cooking and eating Snow Peas

Cook whole or eat raw in salads

Spring onions, also Scallions, Bunching onions

(*Allium cepa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Spring onions in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: close together
- Harvest in 8-12 weeks.
- Compatible with: Lemon Balm, Borage, Carrots, Beets, Silverbeet, Lettuce, Amaranth
- Avoid growing with: Peas, Beans

Can be grown from 'sets' i.e. seedlings brought on earlier. Spring onions are young onions grown close together and harvested before fully mature.

Do not like to be too dry. Best in a sheltered, sunny spot. If you are growing onions from seed, you can use the 'thinnings' as spring onions

Culinary hints - cooking and eating Spring onions

Can be eaten raw in salads. Often used chopped and sprinkled on Asian stir-fry.

Squash, also Crookneck, Pattypan, Summer squash

(Cucurbita pepo)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Squash in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 35°C.
- Space plants: 60 - 80 cm apart
- Harvest in 7-8 weeks.
- Compatible with: Sweet corn

Start in individual pots then transfer when all risk of frost is past. For succession, later plantings can be straight into the ground. Fast maturing squash varieties for summer growing. Not suitable to store like pumpkins. Usually grown to pick when young and used without removing rind or seeds.

Zucchini/courgette (see under Z) is also a variety of squash

Protect from frost. Water well. Grow on well mulched, raised area. Shelter from strong winds.

A spray with a 5gm/teasp Bicarbonate of Soda in 600ml/pint of water will help slow powdery mildew when it appears.

Culinary hints - cooking and eating Squash

Use whole or sliced. Steam or fry.

Strawberry Plants

(Fragaria)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Strawberry Plants in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant with crown (of roots) just covered. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 30 - 100 cm apart
- Harvest in approximately 11 weeks. Strawberries bruise easily when ripe, handle carefully. Pick with a small piece of stem attached.
- Compatible with: Better in a bed on their own to allow good sun and air circulation
- Avoid growing with: If you are using rotation beds, avoid putting strawberries where you have grown tomatoes, potatoes, peppers or eggplant

Strawberries (from seeds)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S S S

(Best months for planting Strawberries (from seeds) in *Australia - tropical* regions)

S = Plant undercover in seed trays.

- Start inside in pots or trays after chilling seeds. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 20°C.
- Space plants: 30 - 100 cm apart
- Harvest in approximately 1 year. Seedlings need to grow for about a year before fruiting. Remove first flowers. .
- Compatible with: Better in a bed on their own to allow good sun and air circulation
- Avoid growing with: If you are using rotation beds, avoid putting strawberries where you have grown tomatoes, potatoes, peppers or eggplant

Alpine strawberries are the easiest to grow from seed. They produce tiny, triangular fruit with an intense flavour.

Chill the seeds, in a closed jar or plastic box, 2 - 4 weeks in a home freezer. Allow to return to room temperature in the closed container before sowing.

Sow seeds thinly on seed raising mix/compost. Cover with a thin layer of compost and water in. Keep under cover, either in a greenhouse or indoors near a window. Germination takes 2 to 8 weeks. Plant out into small pots to grow on when 3 leaves have appeared. Then transplant to garden when well grown.

Strawberries are low-growing, leafy plants, between 12 - 15cm (about 6 inches) high and will spread to about 50 – 100cm (20 – 40 inches). They have five petalled flowers, usually white or sometimes pink. The flowers are followed by delicious red fruits, which have their seeds on the outside. Later in the season, the plants send out runners like thin stems, across the garden. They will take root to form new plants.

At the end of fruiting, trim off old yellow leaves and clean up any mouldy fruit still attached.

Strawberries like well drained soil with plenty of humus. To prepare your bed, dig in some compost before planting and possibly use a liquid fertiliser during the growing season. Well fed strawberries taste better. To protect the fruit from moulds, use some form of mulch around the plants. Straw, pine needles, or black plastic are all suitable. Mulch will also help suppress weeds. Protect your plants with some sort of netting or bird scarer or you will lose most of your crop.

Culinary hints - cooking and eating Strawberry Plants

Pick strawberries and eat them straight from the garden - warm from the sunshine, delicious!

Strawberries can be used in any dessert needing soft fruit or berries. Summer pudding which also has raspberries and blackberries or boysenberries, mousse, trifle, dipped in melted chocolate or just with cream.

Sprinkle a bowl of strawberries with balsamic vinegar and a little sugar to enhance the flavour and colour.

Summer savory, also 'Bean Herb'

(*Satureja hortensis*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Summer savory in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in Garden. Lightly cover.. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 30°C.
- Space plants: 25 cm apart
- Harvest in 6-10 weeks. Cut before flowers form for best flavour.
- Compatible with: Beans, Onions

Likes a well-drained soil in full sun. A small spindly bush with dark green leaves and white or pink flowers. The leaves are pungent and spicy

About 30cm (12 in) high.

Useful to attract bees and butterflies. .

This is an annual plant and won't survive frost - cut it before the first frost and hang to dry. Then use the crushed or crumbled leaves. Plant in succession to extend useful life.

Culinary hints - cooking and eating Summer savory

Usually added to peas, beans or lentils. It has a slightly spicy flavour.

Sunflower

(Helianthus annuus)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Sunflower in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 30°C.
- Space plants: 20 - 30 cm apart
- Harvest in 10-11 weeks.
- Compatible with: Cucumbers, Melons, Sweetcorn, Squash
- Avoid growing with: Potatoes

Large showy flowers, available in a variety of colours Giant or Russian varieties are best for seed production

Sunflowers do not like to be transplanted.

Grow to 1 - 2 metres (4 - 6 ft) so need staking or protection from the wind. Protect the seed heads from birds when ripening.

Culinary hints - cooking and eating Sunflower

Use seeds fresh or toasted

Swedes, also Rutabagas

(Brassica napus var.napobrassica)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Swedes in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 7°C and 30°C.
- Space plants: 10 - 20 cm apart
- Harvest in 10-14 weeks.
- Compatible with: Peas, Beans, Chives
- Avoid growing with: Potatoes

Member of turnip family Round root vegetable with creamy white flesh and reddish purple leaves.

They take about 3 to 4 months to grow.

Grow where beans or peas have been grown the year before.

Culinary hints - cooking and eating Swedes

Use when about the size of a tennis ball.

The leaves can be cooked like cabbage when young.

Sweet corn, also maize

(*Zea mays, var. rugosa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Sweet corn in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 35°C.
- Space plants: 20 - 30 cm apart
- Harvest in 11-14 weeks.
- Compatible with: All beans, cucumber, melons, peas, pumpkin, squash, amaranth
- Avoid growing with: Solanum sp. (tomato, eggplant, potato), celery.

Frost tender Plant in 4 by 4 blocks to encourage germination Pick when the silky threads on the cobs turn brown or black. Part the top of the leaves and test for ripeness by pressing a grain with your fingernail. If it is milky, it is ready.

Early varieties ripen quickly and are sweeter when just picked.

Avoid planting coloured maize (for drying) near sweetcorn as they will cross-pollinate and spoil the cobs on both.

Culinary hints - cooking and eating Sweet corn

Pick and cook within an hour. Remove the silks and outer leaves.

Best flavour if microwave about 4 minutes per cob.

Can be barbequed wrapped in foil

Cook large amounts in a stock pot until test soft.

Sprinkle with black pepper and dip in butter.

Sweet Marjoram, also Knotted marjoram

(Origanum majorana)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T

(Best months for planting Sweet Marjoram in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 20 cm apart
- Harvest in 8-10 weeks. Best flavour if picked before flowering.
- Compatible with: Peppers (Capsicums, Chilies), Sage,

Sweet marjoram, from the same family as oregano, is a fragrant and useful herb. The name Knotted Marjoram comes from the way the flowers are collected into roundish close heads like knots.

Can be sown direct but the seeds are very small and should be very lightly covered, so it is easier to sow in boxes and plant out at about 15cm to 20 cm tall.

It does well in a container and can be grown under cover for use during the winter. It hates winter cold and wet and does best with a temperature of 22C during the day and 15C at night.

Culinary hints - cooking and eating Sweet Marjoram

Sweet Marjoram has a mild oregano flavor with a hint of balsam.

Sweet Marjoram can be used as a substitute for oregano in sauces for Mediterranean style pizza, lasagna, and eggplant parmigiana.

Sweet Potato/Kumara

(Ipomoea batatas)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P P P P P P P P P

(Best months for planting Sweet Potato/Kumara in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant shoots or cuttings (Slips). Best planted at soil temperatures between 17°C and 35°C.
- Space plants: 40 - 60 cm apart
- Harvest in 15-17 weeks.
- Compatible with: Best in Separate bed

Frost tender Sweet Potatoes require a long warm growing season. Plant in free draining loose soil. Fertilise before planting but no more when the plants are growing as it will encourage vine growth. They will go for miles and you will get no tubers. If they do start spreading, lift the vines off the ground to prevent them rooting.

Mound up the soil about 20cm (8 in) before planting Let the plants die down, (leaves die or turn yellow) before harvesting the tubers. Dry them in the sun for a few days, then store in a cool dry place for up to five months.

Culinary hints - cooking and eating Sweet Potato/Kumara

Use mashed, boiled, roasted, baked or fried. Or use in soups, pies, casseroles, curries and salads.

Taro, also Dasheen, cocoyam

(Colocasia esculenta)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P

(Best months for planting Taro in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant small pieces of tuber or suckers, 5-8cm deep. Best planted at soil temperatures between 20°C and 35°C. PH 5.5-7.0
- Space plants: 30-80 cm apart
- Harvest in approximately 28 weeks. When the leaves begin to die down. .
- Compatible with: Best in separate bed

N.B. Make sure that you plant EDIBLE Taro, some varieties that are grown as ornamental plants are not edible and can have unpleasant results if eaten. Taro grows to about 1m (3ft) and has long, green, heart-shaped leaves on long stalks. Taro grows well in warm/hot, humid areas - it needs a long growing time, frost free and lots of water. Keep well watered. Dryness will stop growth. Taro is among the most shade tolerant terrestrial food crops. Soil can be mounded up around the plants to encourage corm swelling, but too much mounding may induce corm elongation.

Lift the tubers and store in a cool dry place or tubers can be left in the soil until needed.

Culinary hints - cooking and eating Taro

Taro can be cooked like potatoes, boiled, roasted, fried or steamed. It is not eaten raw.

Thai Coriander

(Eryngium foetidum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 P P P P P P

(Best months for planting Thai Coriander in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow seed 15cm apart directly in the garden during the wet season to get them off to a great start. Seeds can take up to three weeks to germinate.
- Start Harvesting 8 weeks after sowing, the plant will continue to produce prolifically for many weeks if harvested regularly.

Thai Coriander is a low perennial herb which will self seed once established.

Culinary hints - cooking and eating Thai Coriander

Use instead of coriander. Unlike coriander it retains its flavor when dried.

Thyme, also Common thyme

(Thymus vulgaris)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T

(Best months for planting Thyme in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays and plant out 6-8 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 15°C and 25°C.
- Space plants: 25 - 30 cm apart
- Harvest in 42-52 weeks. Root divisions ready in 3 months.
- Compatible with: Dry-environment herbs (oregano, sage), Eggplant, Cabbage

Thyme is slow to grow from seed and is best propagated from root divisions or cuttings.

Seeds need to be started in a warm frost-free place. A greenhouse is ideal. Keep under cover until about 10cm (4in) high, then harden off by putting outside during the day and inside at night for about a week. Transplant the young plants into their final positions, in well-drained soil in full sunlight. Harvest sparingly in the first year.

Root divisions, from 3 or 4 year old plants, can be taken in late spring and then planted into a sunny spot.

Water sparingly once established and avoid feeding. The plants will have most flavour in summer months.

Thyme dies down in the winter, if frosty, but a good layer of mulch round the plant will protect the roots and provide enough food to keep it growing.

Culinary hints - cooking and eating Thyme

Common, lemon, orange and caraway thyme are used in cooking.

Thyme is mainly used with meat and fish but also tastes good with vegetables such as mushrooms, beans and carrots.

The flavour can be very intense so thyme is best used sparingly.

Tomatillo

(*Physalis ixocarpa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T T

(Best months for planting Tomatillo in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 27°C.
- Space plants: 70 cm apart
- Harvest in 10-14 weeks. Husk splits when fruit is ripe.
- Compatible with: Will happily grow in a flower border

NB Tomatillos are not self-fertile so you need to have at least two plants for cross-pollination. Tomatillos are from the same family as Cape Gooseberries, with a papery husk round the fruit.

Tomatillo plants are similar in growth to tomatoes and spread about 1 -1.5m. Can be supported but are happy spreading themselves around. The plants are very productive so 2 or 3 plants may be enough for the average household.

Tomatillos are frost tender but will cope with cooler weather than tomatoes. The fruit will swell to fill the husk as they ripen. Do not use fertiliser.

When buying seed, check that it is *Ph. ixocarpa* not *Ph. peruviana* otherwise you will grow Cape Gooseberries instead of Tomatillos.

Culinary hints - cooking and eating Tomatillo

Use in spicy sauces with or to replace tomatoes.
They are the base of salsa verde in Mexican cookery.

Tomato

(Lycopersicon esculentum)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T T

(Best months for planting Tomato in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 16°C and 35°C.
- Space plants: 40 - 60 cm apart
- Harvest in 8-17 weeks.
- Compatible with: Asparagus, Chervil, Carrot, Celery, Chives, Parsley, Marigold, Basil
- Avoid growing with: Rosemary, Potatoes, Fennel

TOMATOES

There is nothing like the taste of a freshly picked tomato, warm from the sunshine. In the smallest of gardens or even an apartment with a window-box, it is worth growing at least one tomato plant for the pleasure it will give you. They will grow in pots, troughs or even hanging baskets.

Tomatoes need feeding. In a garden bed, compost and mulching will produce a crop from one or two plants. In containers, use some suitable long term fertiliser pellets or feed regularly when you water. Feeding also improves the flavour of the fruit.

When you plant out, put the seedlings in deep holes, up to the top set of leaves. The covered stems will put out extra roots and you will have a stronger, healthier plant.

There are many different varieties of tomatoes but they all have one of two growth habits.

Determinate:

Compact bush growth, stops at a specific height and useful for containers. If left without supporting stakes, they will form a dense carpet which excludes weeds and keeps the soil cool and damp.

Indeterminate:

Will continue growing a main stem, or vine until stopped by frost. The majority of heirloom tomatoes are indeterminate.

Both types need stakes to give them some support otherwise they will sprawl across the garden.

Varieties include Acid-free, Bush, Tall, Cherry, Yellow and many others.

Culinary hints - cooking and eating Tomato

Use in sauces, with fried meals, in sandwiches. Can be frozen whole or in pieces.

Tumeric

(*Curcuma longa*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Tumeric in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant turmeric into a warm soil. The rhizomes should be planted 5-7cm deep. It is often planted on ridges, usually about 30-45 cm apart and with 15-30 cm between plants. The crop is planted by setts (small rhizomes) with one or two buds.
- Tumeric needs a warm sunny position with regular watering. It likes fertile open loamy soil that is well drained
- Start Harvesting Rhizomes are harvested 9 to 10 months after planting, the lower leaves turning yellow or stems drying and falling over are indications of maturity. It is possible for the home gardener to just dig carefully at the side of a clump and remove rhizomes as needed rather than harvesting the whole clump.
- Highly medicinal

Culinary hints - cooking and eating Tumeric

Used in Asian cooking or as a colouring agent

Turnip

(*Brassica rapa var.*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Turnip in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Sow in garden. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 12°C and 30°C.
- Space plants: 12 - 20 cm apart
- Harvest in 6-9 weeks.
- Compatible with: Peas, Beans, Chives, Spinach, Carrots, Chicory
- Avoid growing with: Potatoes, Tomatoes

Round, root vegetable. The flesh is white. Turnips take about 6 to 10 weeks to reach a useable size.

Sow every three or four weeks for a continuous supply.

Water regularly.

Culinary hints - cooking and eating Turnip

Grate young turnips and use raw in salads.
Use older turnips in casseroles and stews.

Water chestnut

(Eleocharis dulcis)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
P	P	P							P	P	P

(Best months for planting Water Chestnut in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Sow in well prepared paddy approximately 3-5 plants/m². 50 cm apart
- Prefers high temperatures, optimally 30-35° C during the growing period and 20-25 ° C when the corms are forming.
- PH between 6.0 and 7.5
- Harvest from June to November. Corms are initiated during shorter days (<12.5 hours) and the reeds (stems) senesce as days get cooler. Once stems have dried off, drain the water and harvest.
- Compatible with: Rice. Can be used to remove excess nutrient from fish ponds

Grow in rice paddy or ponds and containers. A clay based soil that holds water is best for production, but too much clay content increases the difficulty of harvest. Therefore a rich, friable soil is preferred that is high in nutrient and free of stones, wood or other debris that could obstruct harvesting. Soil can be mixed with sand or sugar mill byproduct (mill mud) if clay content is too high. Sandy or otherwise porous soils are unsuitable, as they must be lined with polyethylene sheets to retain water. Soil should be at least 30 cm deep. After planting soil is well watered but not flooded until plants are well established, as flooding tends to lower the temperature. Soil should be covered by 100-300 mm of water for the duration of the growing period. Greater depths will affect yield. After harvest, ponds can be seeded with Azolla, a nitrogen fixing fern that should reduce fertiliser requirement of the next crop. Reproduction is vegetative. The cost of planting material is high at present (80 cents per corm) and it is necessary to bulk up supplies of planting material before commercial crops can be marketed.

Hydroponics: Water chestnuts may also be grown hydroponically, using buckets and a suitable medium such as perlite plus vermiculite. The buckets can be kept topped up with old nutrient solution from other crops (Burt 1995).

Culinary hints - cooking and eating Water chestnuts

Raw water chestnuts are slightly sweet and very crunchy. Boiled water chestnuts have a firm and slightly crunchy texture, with a flavor that is very mild, slightly nutty in taste, so it is easily overpowered by any seasonings or sauces the water chestnut with which is served or cooked. Water chestnuts are often combined with bamboo shoots, cilantro, ginger, sesame oil, and snow peas. They are often used in pasta or rice dishes.

Watercress

(*Nasturtium officinale*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
P P P

(Best months for planting Watercress in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Ideally watercress should be grown in running water but it does grow in ponds that are topped up regularly with water, or in wet boggy soil
- Watercress is fairly easy to cultivate, it prefers to grow in cool, flowing, water about 2 to 3 inches deep, in a partially shaded area. Sow seed in a pot emerged to half its depth in water. Cuttings can be taken at any time in the growing season from virtually any part of the plant, put it in a container of water until the roots are well formed and then plant out in shallow water.
- Sow seeds 0.5cm deep and 2 cm apart
- Watercress is high in vitamins A, B1, B2, C, and E as well as calcium copper iron and magnesium and has been

Culinary hints - cooking and eating Watercress

Watercress is exceptionally rich in vitamins and minerals, and has long been valued as a food and medicinal plant. A mildly hot mustard flavor, very good fresh in salad or on a sandwich or cooked as a pot herb. The seed is ground into a powder and used as mustard. Young shoots and leaves are eaten in salads or added to soups

Watermelon

(*Cucurbitaceae c. lanatus*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Watermelon in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 35°C.
- Space plants: 60 - 75 cm apart
- Harvest in 9-14 weeks.
- Compatible with: Sweet corn, Sunflowers
- Avoid growing with: Potatoes

Large, round or oval, smooth green skinned, delicious, sweet pink fleshed melon.

Some have stripes on the skin.

Some varieties will produce fruit up to 14 Kg (31 US pounds).

Harvest when the part in contact with the ground is turning yellow and the fruit sounds hollow when tapped.

Watermelon needs plenty of room to grow as it sends out long vines

Needs a long warm season to mature.

Culinary hints - cooking and eating Watermelon

Cut up and eat in slices.

Use to make fruit drinks.

Use in fruit salads.

Winter Savory, also Savory

(*Satureja montana*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

S T

(Best months for planting Winter Savory in *Australia - tropical* regions)

S = Plant undercover in seed trays. T = Plant out (transplant) seedlings.

- Easy to grow. Start in trays. Cover seed lightly... Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 18°C and 30°C.
- Space plants: 30 - 40 cm apart
- Harvest in 6-10 weeks. Use the leaves fresh.
- Compatible with: Beans

Grow this perennial herb in light, well drained soil in full sun.

Winter savory is a small shrub with small, dark, green leaves.

Will make a decorative low hedge if trimmed.

Winter savory propagates better from cuttings than seeds.

It will survive all but the hardest winters if it is mulched well before frosts.

Culinary hints - cooking and eating Winter Savory

Can be used as seasoning for beans and other green vegetables.

Yacon, also Sunroot

(*Smallanthus sonchifolius*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P

(Best months for planting Yacon in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Easy to grow. Plant sprouting root/tuber to a depth of about 4cm and mulch to cover. Best planted at soil temperatures between 10°C and 25°C.
- Space plants: 100 cm apart
- Harvest in approximately 25 weeks. You can collect a few at a time without digging out the whole plant.
- Compatible with: Best in separate bed

Yacon is perennial in sub-tropical/tropical areas. Save some root pieces and treat as an annual in other areas.

Grows into a large plant (about 2m/6ft) with flowers similar to sunflowers and Jerusalem artichokes.

The plants die down after frost but the roots are sweeter. To store, dig and dry out for a couple of days in the sun if possible. Store in a dry, cool, not freezing and dark place.

Any roots left in the ground will grow the following year except where there are frosts.

Culinary hints - cooking and eating Yacon

The large roots can be used raw in salads peel and chop. Sprinkle with lemon juice to prevent browning.

'In the Andes, they are grated and squeezed through a cloth to yield a sweet refreshing drink. The juice can also be boiled down to produce syrup. In South America the juice is concentrated to form dark brown blocks of sugar called chancaca.' (Green Harvest)

Yam/Oka, also Oca

(Oxalis tuberosa)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P

(Best months for planting Yam/Oka in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Plant tubers about 5cm (1.5") deep covered with soil. Best planted at soil temperatures between 17°C and 35°C.
- Space plants: 30 - 45 cm apart
- Harvest in 15-20 weeks. Leave in the ground until foliage has completely died down so tubers reach maximum size.
- Compatible with: Best in separate bed

Frost tender. Yams need a long growing time to produce the tubers.

Protect from early autumn frosts to give time for tubers to fully develop.

Planting needs are similar to potatoes. Yams can handle more shade than potatoes. Earthing up will help increase production.

The leaves look rather like clover. Dig up after the plant dies down and leave outside for a few days to dry.

Culinary hints - cooking and eating Yam/Oka

Scrub and boil or roast with other vegetables.

Zucchini, also Courgette/Marrow, Summer squash

(*Cucurbita pepo*)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

P P P P P

(Best months for planting Zucchini in *Australia - tropical* regions)

P = Plant direct in garden where they are to grow.

- Grow in seed trays, and plant out in 4-6 weeks. Sow seed at a depth approximately three times the diameter of the seed. Best planted at soil temperatures between 21°C and 35°C.
- Space plants: 50 - 90 cm apart
- Harvest in 6-9 weeks. Cut the fruit often to keep producing.
- Compatible with: Corn, beans, nasturtiums, parsley, Silverbeet, Tomatoes
- Avoid growing with: Potatoes

Plant into a slightly raised, well composted bed and mulch. Frost tender, and needs regular plentiful water. Produces large leaves with a spread of about 1.5m x 1.5m. Some varieties trail a bit but don't climb. The yellow (or gold) variety is more resistant to mould damage in humid areas and remains productive even when the leaves have mildew on them. The yellow varieties sometimes have yellow patches on their leaves but it is just colour not disease.

Blackjack is the most popular green variety. At the start, the plants produce mainly male flowers. The female ones start as the weather warms up and the plants grow. A spray with a 5gm/teasp Bicarbonate of Soda in 600ml/pint of water will help slow powdery mildew when it appears.

Culinary hints - cooking and eating Zucchini

Zucchini are best picked or cut off the stem at about 15cm / 6 inches.
Pick frequently to keep the plant producing new flowers.

Planting Calendar

Planting Calendar

January

<u>Planting</u>	<u>Harvest from</u>	
Basil	Plant in garden.	April
Cassava	Plant in garden.	August
Galangal	Plant in garden.	August
Kang Kong	Plant in garden (seeds or cuttings)	March
Snake Bean	Plant in garden.	September
Sweet Potato/Kumara	Plant in garden.	May
Thai Coriander	Plant in garden.	March

February

Basil	Plant in garden.	May
Cassava	Plant in garden.	September
Chinese broccoli	Plant in garden.	April
Galangal	Plant in garden.	September
Kang Kong	Plant in garden (seeds or cuttings)	April
Snake Bean	Plant in garden.	October
Sweet Potato/Kumara	Plant in garden.	July
Thai Coriander	Plant in garden.	April

March

Asparagus Pea, Winged bean	Plant in garden.	June
Basil	Plant in garden.	June
Beetroot	Plant in garden.	June
Broad beans	Plant in garden.	July
Cape Gooseberry	Plant in garden.	July
Cassava	Plant in garden.	October
Chinese broccoli	Plant in garden.	May
Galangal	Plant in garden.	October
Ginger	Plant in garden.	October
Kang Kong	Plant in garden.	May
Rocket	Plant in garden.	April
Shallots	Plant in garden.	July
Swedes	Plant in garden.	June
Sweet Potato/Kumara	Plant in garden.	July
Tumeric	Plant in garden.	October

April

Amaranth	Plant in garden.	July
Asparagus Pea, Winged bean	Plant in garden.	July
Basil	Plant in garden.	July
Beetroot	Plant in garden.	July
Broad beans	Plant in garden.	August

Broccoli	Start undercover in seed trays and plant out in 4-6 weeks.	July
Brussels sprouts	Start undercover in seed trays and plant out in 4-6 weeks.	August
Burdock	Plant in garden.	September
Cabbage	Start undercover in seed trays and plant out in 4-6 weeks.	July
Cape Gooseberry	Plant in garden.	August
Capsicum	Start undercover in seed trays and plant out in 4-6 weeks.	July
Carrot	Plant in garden.	August
Cassava	Plant in garden.	November
Cauliflower	Start undercover in seed trays and plant out in 4-6 weeks.	September
Celeriac	Start undercover in seed trays and plant out in 4-6 weeks.	August
Celery	Start undercover in seed trays and plant out in 4-6 weeks.	September
Chicory	Plant in garden.	September
Chilli	Start undercover in seed trays and plant out in 4-6 weeks.	July
Chinese broccoli	Plant in garden.	June
Chinese cabbage	Plant in garden.	July
Chives	Plant in garden.	July
Choko	Plant in garden.	November
Climbing beans	Plant in garden.	July
Collards	Start undercover in seed trays and plant out in 4-6 weeks.	July
Coriander	Plant in garden.	June
Cucumber	Plant in garden.	July
Daikon	Plant in garden.	July
Dwarf beans	Plant in garden.	July
Eggplant	Start undercover in seed trays and plant out in 4-6 weeks.	August
Endive	Plant in garden.	July
Fennel	Plant in garden.	August
Florence Fennel	Plant in garden.	August
French tarragon	Plant in garden.	June
Galangal	Plant in garden.	November
Garlic	Plant in garden.	September
Ginger	Plant in garden.	November
Globe artichokes	Plant in garden.	March
Kale	Start undercover in seed trays and plant out in 4-6 weeks.	July
Kang Kong	Plant in garden.	June
Kohlrabi	Plant in garden.	July
Leeks	Leeks need moist soil throughout their growth.	August
Lettuce	Plant in garden.	July
Luffa	Plant in garden.	August
Marrow	Plant in garden.	August
Mint	Start undercover in seed trays and plant out in 4-6 weeks.	July
Mizuna	Plant in garden.	June
Mustard greens	Plant in garden.	June
NZ Spinach, Warrigal greens	Start undercover in seed trays and plant out in 4-6 weeks.	July

Okra	Plant in garden.	August
Onion	Start undercover in seed trays and plant out in 4-6 weeks.	November
Pak Choy	Plant in garden.	June
Parsley	Plant in garden.	July
Peas	Plant in garden.	July
Potato	Plant in garden.	September
Pumpkin	Plant in garden.	August
Radish	Plant in garden.	June
Rocket	Plant in garden.	May
Rockmelon	Plant in garden.	July
Salsify	Plant in garden.	August
Shallots	Plant in garden.	August
Silverbeet	Plant in garden.	July
Snow Peas	Plant in garden.	August
Squash	Plant in garden.	July
Strawberries (from seeds)	Start undercover in seed trays and plant out in 4-6 weeks.	12 months
Strawberry Plants	Plant in garden.	August
Sunflower	Plant in garden.	July
Swedes	Plant in garden.	July
Sweet corn	Plant in garden.	August
Sweet Marjoram	Start undercover in seed trays and plant out in 4-6 weeks.	July
Sweet Potato/Kumara	Plant in garden.	August
Tomatillo	Start undercover in seed trays and plant out in 4-6 weeks.	July
Tumeric	Plant in garden.	November
Turnip	Plant in garden.	June
Watermelon	Plant in garden.	July
Yacon	Plant in garden.	November
Zucchini	Plant in garden.	June
<u>May</u>		
Amaranth	Plant in garden.	August
Angelica	Plant in garden.	18 months
Asparagus	Plant in garden.	24 months
Asparagus Pea, Winged bean	Plant in garden.	August
Basil	Plant in garden.	August
Beetroot	Plant in garden.	August
Borage	Plant in garden.	August
Broad beans	Plant in garden.	September
Broccoli	Plant out (transplant) seedlings.	August
Brussels sprouts	Plant out (transplant) seedlings.	September
Burdock	Plant in garden.	October
Cabbage	Start undercover in seed trays and plant out in 4-6 weeks.	August
Cape Gooseberry	Plant in garden.	September
Capsicum	Plant out (transplant) seedlings.	August

Carrot	Plant in garden.	September
Cassava	Plant in garden.	December
Cauliflower	Plant out (transplant) seedlings.	October
Celery	Plant out (transplant) seedlings.	October
Chicory	Plant in garden.	October
Chilli	Plant out (transplant) seedlings.	August
Chinese broccoli	Plant in garden.	July
Chinese cabbage	Plant in garden.	August
Chives	Plant in garden.	August
Choko	Plant in garden.	December
Climbing beans	Plant in garden.	August
Collards	Start undercover in seed trays and plant out in 4-6 weeks.	August
Coriander	Plant in garden.	July
Cucumber	Plant in garden.	August
Daikon	Plant in garden.	August
Dwarf beans	Plant in garden.	August
Eggplant	Plant out (transplant) seedlings.	September
Endive	Plant in garden.	August
Fennel	Plant in garden.	September
Florence Fennel	Plant in garden.	September
French tarragon	Plant in garden.	July
Garlic	Plant in garden.	October
Ginger	Plant in garden.	December
Globe artichokes	Plant in garden.	April
Horseradish	Plant in garden.	October
Kale	Start undercover in seed trays and plant out in 4-6 weeks.	August
Kang Kong	Plant in garden.	July
Kohlrabi	Plant in garden.	August
Leeks	Plant out (transplant) seedlings.	September
Lettuce	Plant in garden.	August
Luffa	Plant in garden.	September
Marrow	Plant in garden.	September
Mint	Plant out (transplant) seedlings.	August
Mizuna	Plant in garden.	July
Mustard greens	Plant in garden.	July
NZ Spinach	Plant out (transplant) seedlings.	August
Okra	Plant in garden.	September
Oregano	Plant in garden.	July
Pak Choy	Plant in garden.	July
Parsley	Plant in garden.	August
Peas	Plant in garden.	August
Potato	Plant in garden.	October
Pumpkin	Plant in garden.	September

Radish	Plant in garden.	July
Rocket	Plant in garden.	June
Rockmelon	Plant in garden.	August
Rosemary	Plant in garden.	12 months
Sage	Best grown in large pots or planter boxes as sage cannot cope with very wet soil.	18 months
Salsify	Plant in garden.	September
Shallots	Plant in garden.	September
Silverbeet	Plant in garden.	August
Snow Peas	Plant in garden.	September
Spring onions	Plant in garden.	August
Squash	Plant in garden.	August
Strawberries (from seeds)	Start undercover in seed trays and plant out in 4-6 weeks.	12 months
Strawberry Plants	Plant in garden.	September
Summer savory	Plant in garden.	July
Sunflower	Plant in garden.	August
Sweet corn	Plant in garden.	September
Sweet Potato/Kumara	Plant in garden.	September
Tomatillo	Plant out (transplant) seedlings.	August
Tomato	Start undercover in seed trays and plant out in 4-6 weeks.	August
Tumeric	Plant in garden.	December
Turnip	Plant in garden.	July
Watermelon	Plant in garden.	August
Winter Savory	Start undercover in seed trays and plant out in 4-6 weeks.	August
Yacon	Plant in garden.	December
Zucchini	Plant in garden.	July
<u>June</u>		
Amaranth	Plant in garden.	September
Angelica	Plant in garden.	18 months
Asparagus	Plant in garden.	24 months
Asparagus Pea, Winged bean	Plant in garden.	September
Basil	Plant in garden.	September
Beetroot	Plant in garden.	September
Borage	Plant in garden.	September
Broccoli	Plant out (transplant) seedlings.	September
Brussels sprouts	Plant out (transplant) seedlings.	October
Burdock	Plant in garden.	November
Cabbage	Plant out (transplant) seedlings.	September
Cape Gooseberry	Plant in garden.	October
Capsicum	Plant out (transplant) seedlings.	September
Carrot	Plant in garden.	October
Cassava	Plant in garden.	January
Cauliflower	Plant out (transplant) seedlings.	November

Celeriac	Plant out (transplant) seedlings.	October
Celery	Plant out (transplant) seedlings.	November
Chicory	Plant in garden.	November
Chilli	Plant out (transplant) seedlings.	September
Chinese broccoli	Plant in garden.	August
Chinese cabbage	Plant in garden.	September
Chives	Plant in garden.	September
Choko	Plant in garden.	January
Climbing beans	Plant in garden.	September
Collards	Plant out (transplant) seedlings.	September
Coriander	Plant in garden.	August
Cucumber	Plant in garden.	September
Daikon	Plant in garden.	September
Dill	Plant in garden.	September
Dwarf beans	Plant in garden.	September
Eggplant	Plant out (transplant) seedlings.	October
Endive	Plant in garden.	September
Fennel	Plant in garden.	October
Florence Fennel	Plant in garden.	October
French tarragon	Plant in garden.	August
Garlic	Plant in garden.	November
Ginger	Plant in garden.	January
Globe artichokes	Plant in garden.	May
Horseradish	Plant in garden.	November
Kale	Plant out (transplant) seedlings.	September
Kohlrabi	Plant in garden.	September
Leeks	Plant out (transplant) seedlings.	October
Lemon Balm	Plant in garden.	September
Lettuce	Plant in garden.	September
Luffa	Plant in garden.	October
Marrow	Plant in garden.	October
Mint	Plant out (transplant) seedlings.	September
Mizuna	Plant in garden.	August
Mustard greens	Plant in garden.	August
NZ Spinach	Plant out (transplant) seedlings.	September
Okra	Plant in garden.	October
Onion	Plant out (transplant) seedlings.	January
Oregano	Plant in garden.	August
Pak Choy	Plant in garden.	August
Parsley	Plant in garden.	September
Pumpkin	Plant in garden.	October
Radish	Plant in garden.	August
Rocket	Plant in garden.	July

Rockmelon	Plant in garden.	September
Rosemary	Plant in garden.	12 months
Sage	Plant in garden.	18 months
Salsify	Plant in garden.	October
Shallots	Plant in garden.	October
Silverbeet	Plant in garden.	September
Snow Peas	Plant in garden.	October
Spring onions	Plant in garden.	September
Squash	Plant in garden.	September
Strawberries (from seeds)	Start undercover in seed trays and plant out in 4-6 weeks.	12 months
Summer savory	Plant in garden.	August
Sunflower	Plant in garden.	September
Sweet corn	Plant in garden.	October
Sweet Marjoram	Plant out (transplant) seedlings.	September
Sweet Potato/Kumara	Plant in garden.	October
Thyme	Start undercover in seed trays and plant out in 4-6 weeks.	May
Tomatillo	Plant out (transplant) seedlings.	September
Tomato	Plant out (transplant) seedlings.	September
Turnip	Plant in garden.	August
Watermelon	Plant in garden.	September
Winter Savory	Plant out (transplant) seedlings.	September
Yacon	Plant in garden.	January
Yam/Oka	Plant in garden.	October
Zucchini	Plant in garden.	August
<u>July</u>		
Amaranth	Plant in garden.	October
Asparagus	Plant in garden.	24 months
Basil	Plant in garden.	October
Borage	Plant in garden.	October
Broccoli	Plant out (transplant) seedlings.	October
Brussels sprouts	Plant out (transplant) seedlings.	November
Cabbage	Plant out (transplant) seedlings.	October
Cape Gooseberry	Plant in garden.	November
Capsicum	Plant out (transplant) seedlings.	October
Cassava	Plant in garden.	February
Cauliflower	Plant out (transplant) seedlings.	December
Celeriac	Plant out (transplant) seedlings.	November
Celery	Plant out (transplant) seedlings.	December
Chilli	Plant out (transplant) seedlings.	October
Chinese cabbage	Plant in garden.	October
Chives	Plant in garden.	October
Choko	Plant in garden.	February
Climbing beans	Plant in garden.	October

Collards	Plant out (transplant) seedlings.	October
Coriander	Plant in garden.	September
Cucumber	Plant in garden.	October
Daikon	Plant in garden.	October
Dwarf beans	Plant in garden.	October
Eggplant	Plant out (transplant) seedlings.	November
Endive	Plant in garden.	October
Fennel	Plant in garden.	November
Florence Fennel	Plant in garden.	November
French tarragon	Plant in garden.	September
Garlic	Plant in garden.	December
Ginger	Plant in garden.	February
Globe artichokes	Plant in garden.	June
Kale	Plant out (transplant) seedlings.	October
Kohlrabi	Plant in garden.	October
Lemon Balm	Plant in garden.	October
Luffa	Plant in garden.	November
Marrow	Plant in garden.	November
Mint	Plant out (transplant) seedlings.	October
Mizuna	Plant in garden.	September
Mustard greens	Plant in garden.	September
NZ Spinach	Plant out (transplant) seedlings.	October
Okra	Plant in garden.	November
Onion	Plant out (transplant) seedlings.	February
Oregano	Plant in garden.	September
Pak Choy	Plant in garden.	September
Parsley	Plant in garden.	October
Pumpkin	Plant in garden.	November
Radish	Plant in garden.	September
Rocket	Plant in garden.	August
Rockmelon	Plant in garden.	October
Sage	Plant in garden.	18 months
Salsify	Plant in garden.	November
Shallots	Plant in garden.	November
Silverbeet	Plant in garden.	October
Snow Peas	Plant in garden.	October
Spring onions	Plant in garden.	October
Squash	Plant in garden.	October
Summer savory	Plant in garden.	September
Sunflower	Plant in garden.	October
Sweet Potato/Kumara	Plant in garden.	November
Tomatillo	Plant out (transplant) seedlings.	October
Tomato	Plant out (transplant) seedlings.	October

Watermelon	Plant in garden.	October
Yacon	Plant in garden.	February
Yam/Oka	Plant in garden.	November
Zucchini	Plant in garden.	September
<u>August</u>		
Amaranth	Plant in garden.	November
Basil	Plant in garden.	November
Borage	Plant in garden.	November
Cabbage	Plant in garden.	November
Cape Gooseberry	Plant in garden.	December
Cassava	Plant in garden.	March
Chinese cabbage	Plant in garden.	November
Collards	Plant in garden.	November
Cucumber	Plant in garden.	November
Ginger	Plant in garden.	March
Kohlrabi	Plant in garden.	November
Marrow	Plant in garden.	December
Mustard greens	Plant in garden.	October
Okra	Plant in garden.	December
Oregano	Plant in garden.	October
Pak Choy	Plant in garden.	October
Rocket	Plant in garden.	September
Spring onions	Plant in garden.	November
Squash	Plant in garden.	November
Sunflower	Plant in garden.	November
Sweet Potato/Kumara	Plant in garden.	December
Taro	Plant in garden.	April
Thyme	Plant out (transplant) seedlings.	July
Yam/Oka	Plant in garden.	December
Zucchini	Plant in garden.	October
<u>September</u>		
Basil	Plant in garden.	December
Cassava	Plant in garden.	April
Ceylon Spinach	Plant in garden.	November
Collards	Plant in garden.	December
Ginger	Plant in garden.	April
Kang Kong	Plant in garden (seeds or cuttings)	August
Okra	Plant in garden.	January
Rocket	Plant in garden.	October
Snake Bean	Plant in garden.	November
Sweet Potato/Kumara	Plant in garden.	January
Taro	Plant in garden.	May
Watercress	Plant in garden.	October

October

Basil	Plant in garden.	January
Cassava	Plant in garden.	May
Ceylon Spinach	Plant in garden.	December
Ginger	Plant in garden.	May
Kang Kong	Plant in garden (seeds or cuttings)	September
Rocket	Plant in garden.	November
Rosella	Plant in garden.	April
Snake Bean	Plant in garden.	December
Sweet Potato/Kumara	Plant in garden.	February
Watercress	Plant in garden.	November

November

Basil	Plant in garden.	February
Cassava	Plant in garden.	June
Ceylon Spinach	Plant in garden.	January
Kang Kong	Plant in garden (seeds or cuttings)	October
Ginger	Plant in garden.	June
Rosella	Plant in garden.	May
Snake Bean	Plant in garden.	January
Sweet Potato/Kumara	Plant in garden.	March
Thai Coriander	Plant in garden.	May
Watercress	Plant in garden.	December

December

Basil	Plant in garden.	March
Cassava	Plant in garden.	July
Kang Kong	Plant in garden (seeds or cuttings)	November
Rosella	Plant in garden.	June
Snake Bean	Plant in garden.	February
Sweet Potato/Kumara	Plant in garden.	April
Thai Coriander	Plant in garden.	June

Harvest Calendar

<u>Harvest Calendar</u>	<u>Harvest from</u>		
January	January		
Amaranth	January	Choko	February
Basil	January	Galangal	February
Cape Gooseberry	January	Ginger	February
Cassava	January	Kang Kong	February
Ceylon Spinach	January	Lemon Balm	February
Chilli	January	Mint	February
Chives	January	NZ Spinach	February
Choko	January	Onion	February
Galangal	January	Parsley	February
Ginger	January	Rosemary	February
Kang Kong	January	Sage	February
Lemon Balm	January	Snake Bean	February
Luffa	January	Sweet Marjoram	February
Mint	January	Sweet Potato/Kumara	February
NZ Spinach	January	Taro	February
Okra	January	Thai Coriander	February
Onion	January	Thyme	February
Parsley	January	Tumeric	February
Rosella	January	Watercress	February
Rosemary	January	Yacon	February
Sage	January	March	March
Snake Bean	January	Amaranth	March
Sweet Marjoram	January	Basil	March
Sweet Potato/Kumara	January	Cape Gooseberry	March
Taro	January	Cassava	March
Thai Coriander	January	Ceylon Spinach	March
Thyme	January	Chilli	March
Tumeric	January	Chives	March
Watercress	January	Choko	March
Yacon	January	Galangal	March
February	February	Ginger	March
Amaranth	February	Globe artichokes	March
Basil	February	Kang Kong	March
Cape Gooseberry	February	Lemon Balm	March
Cassava	February	Mint	March
Ceylon Spinach	February	NZ Spinach	March
Chilli	February	Parsley	March
Chives	February	Rosemary	March
		Sage	March
		Snake Bean	March

Sweet Marjoram	March	Cape Gooseberry	May
Sweet Potato/Kumara	March	Cassava	May
Taro	March	Ceylon Spinach	May
Thai Coriander	March	Chilli	May
Thyme	March	Chinese broccoli	May
Tumeric	March	Chives	May
Watercress	March	Choko	May
Yacon	March	Galangal	May
April	April	Ginger	May
Amaranth	April	Globe artichokes	May
Asparagus	April	Kang Kong	May
Basil	April	Lemon Balm	May
Cape Gooseberry	April	Mint	May
Cassava	April	NZ Spinach	May
Ceylon Spinach	April	Parsley	May
Chilli	April	Rocket	May
Chinese broccoli	April	Rosella	May
Chives	April	Rosemary	May
Choko	April	Sage	May
Galangal	April	Strawberries	May
Ginger	April	Sweet Marjoram	May
Globe artichokes	April	Sweet Potato/Kumara	May
Kang Kong	April	Taro	May
Lemon Balm	April	Thai Coriander	May
Mint	April	Thyme	May
NZ Spinach	April	Tumeric	May
Parsley	April	Watercress	May
Rocket	April	Yacon	May
Rosella	April	June	June
Rosemary	April	Amaranth	June
Sage	April	Asparagus	June
Sweet Marjoram	April	Asparagus Pea, Winged bean	June
Sweet Potato/Kumara	April	Basil	June
Taro	April	Beetroot	June
Thai Coriander	April	Cape Gooseberry	June
Thyme	April	Cassava	June
Tumeric	April	Ceylon Spinach	June
Watercress	April	Chilli	June
Yacon	April	Chinese broccoli	June
May	May	Chives	June
Amaranth	May	Choko	June
Asparagus	May	Coriander	June
Basil	May	French tarragon	June

Galangal	June	Choko	July
Ginger	June	Climbing beans	July
Globe artichokes	June	Collards	July
Kang Kong	June	Coriander	July
Lemon Balm	June	Cucumber	July
Mint	June	Daikon	July
Mizuna	June	Dwarf beans	July
Mustard greens	June	Endive	July
NZ Spinach	June	French tarragon	July
Pak Choy	June	Galangal	July
Parsley	June	Ginger	July
Radish	June	Globe artichokes	July
Rocket	June	Kale	July
Rosella	June	Kang Kong	July
Rosemary	June	Kohlrabi	July
Sage	June	Lemon Balm	July
Strawberries	June	Lettuce	July
Swedes	June	Mint	July
Sweet Marjoram	June	Mizuna	July
Taro	June	Mustard greens	July
Thai Coriander	June	NZ Spinach, Warrigal greens	July
Thyme	June	Oregano	July
Tumeric	June	Pak Choy	July
Turnip	June	Parsley	July
Watercress	June	Peas	July
Zucchini	June	Radish	July
July	July	Rocket	July
Amaranth	July	Rockmelon	July
Asparagus	July	Rosella	July
Asparagus Pea, Winged bean	July	Rosemary	July
Basil	July	Sage	July
Beetroot	July	Shallots	July
Broad beans	July	Silverbeet	July
Broccoli	July	Squash	July
Cabbage	July	Strawberries	July
Cape Gooseberry	July	Summer savory	July
Capsicum	July	Sunflower	July
Cassava	July	Swedes	July
Ceylon Spinach	July	Sweet Marjoram	July
Chilli	July	Sweet Potato/Kumara	July
Chinese broccoli	July	Sweet Potato/Kumara	July
Chinese cabbage	July	Taro	July
Chives	July	Thai Coriander	July

Thyme	July	Kale	August
Tomatillo	July	Kang Kong	August
Tumeric	July	Kohlrabi	August
Turnip	July	Leeks	August
Watercress	July	Lemon Balm	August
Watermelon	July	Lettuce	August
Zucchini	July	Luffa	August
August	August	Marrow	August
Amaranth	August	Mint	August
Asparagus	August	Mizuna	August
Asparagus Pea, Winged bean	August	Mustard greens	August
Basil	August	NZ Spinach	August
Beetroot	August	Okra	August
Borage	August	Oregano	August
Broad beans	August	Pak Choy	August
Broccoli	August	Parsley	August
Brussels sprouts	August	Peas	August
Cabbage	August	Pumpkin	August
Cape Gooseberry	August	Radish	August
Capsicum	August	Rocket	August
Carrot	August	Rockmelon	August
Cassava	August	Rosella	August
Celeriac	August	Rosemary	August
Ceylon Spinach	August	Sage	August
Chilli	August	Salsify	August
Chinese broccoli	August	Shallots	August
Chinese cabbage	August	Silverbeet	August
Chives	August	Snow Peas	August
Choko	August	Spring onions	August
Climbing beans	August	Squash	August
Collards	August	Strawberries	August
Coriander	August	Summer savory	August
Cucumber	August	Sunflower	August
Daikon	August	Swedes	August
Dwarf beans	August	Sweet corn	August
Eggplant	August	Sweet Marjoram	August
Endive	August	Sweet Potato/Kumara	August
Fennel	August	Taro	August
Florence Fennel	August	Thai Coriander	August
French tarragon	August	Thyme	August
Galangal	August	Tomatillo	August
Ginger	August	Tomato	August
Globe artichokes	August	Tumeric	August

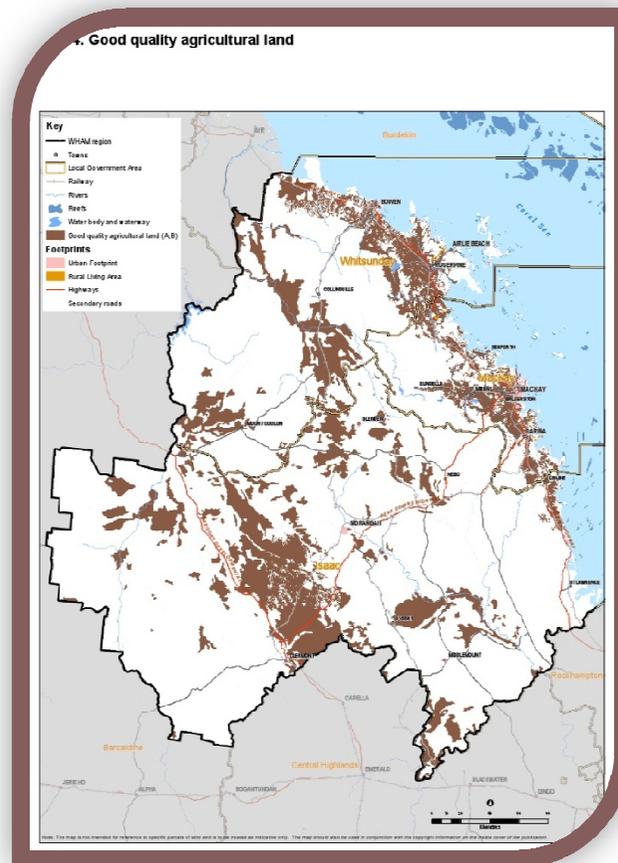
Turnip	August	Galangal	September
Watercress	August	Garlic	September
Watermelon	August	Ginger	September
Winter Savory	August	Kale	September
Zucchini	August	Kang Kong	September
September	September	Kohlrabi	September
Amaranth	September	Leeks	September
Asparagus	September	Lemon Balm	September
Asparagus Pea, Winged bean	September	Lettuce	September
Basil	September	Luffa	September
Beetroot	September	Marrow	September
Borage	September	Mint	September
Broad beans	September	Mizuna	September
Broccoli	September	Mustard greens	September
Brussels sprouts	September	NZ Spinach	September
Burdock	September	Okra	September
Cabbage	September	Oregano	September
Cape Gooseberry	September	Pak Choy	September
Capsicum	September	Parsley	September
Carrot	September	Peas	September
Cassava	September	Potato	September
Cauliflower	September	Pumpkin	September
Celeriac	September	Radish	September
Celery	September	Rocket	September
Ceylon Spinach	September	Rockmelon	September
Chicory	September	Rosella	September
Chilli	September	Rosemary	September
Chinese broccoli	September	Sage	September
Chinese cabbage	September	Salsify	September
Chives	September	Shallots	September
Choko	September	Silverbeet	September
Climbing beans	September	Snake Bean	September
Collards	September	Snow Peas	September
Coriander	September	Spring onions	September
Cucumber	September	Squash	September
Daikon	September	Strawberries	September
Dill	September	Summer savory	September
Dwarf beans	September	Sunflower	September
Eggplant	September	Swedes	September
Endive	September	Sweet corn	September
Fennel	September	Sweet Marjoram	September
Florence Fennel	September	Sweet Potato/Kumara	September
French tarragon	September	Taro	September

Thai Coriander	September	Endive	October
Thyme	September	Fennel	October
Tomatillo	September	Florence Fennel	October
Tomato	September	French tarragon	October
Tumeric	September	Galangal	October
Turnip	September	Garlic	October
Watercress	September	Ginger	October
Watermelon	September	Horseradish	October
Winter Savory	September	Kale	October
Zucchini	September	Kang Kong	October
October	October	Kohlrabi	October
Amaranth	October	Leeks	October
Angelica	October	Lemon Balm	October
Basil	October	Lettuce	October
Beetroot	October	Luffa	October
Borage	October	Marrow	October
Broad beans	October	Mint	October
Broccoli	October	Mizuna	October
Brussels sprouts	October	Mustard greens	October
Burdock	October	NZ Spinach	October
Cabbage	October	Okra	October
Cape Gooseberry	October	Oregano	October
Capsicum	October	Pak Choy	October
Carrot	October	Parsley	October
Cassava	October	Peas	October
Cauliflower	October	Potato	October
Celeriac	October	Pumpkin	October
Celery	October	Radish	October
Ceylon Spinach	October	Rocket	October
Chicory	October	Rockmelon	October
Chilli	October	Rosella	October
Chinese broccoli	October	Rosemary	October
Chinese cabbage	October	Sage	October
Chives	October	Salsify	October
Choko	October	Shallots	October
Climbing beans	October	Silverbeet	October
Collards	October	Snake Bean	October
Coriander	October	Snow Peas	October
Cucumber	October	Spring onions	October
Daikon	October	Squash	October
Dill	October	Strawberries	October
Dwarf beans	October	Summer savory	October
Eggplant	October	Sunflower	October

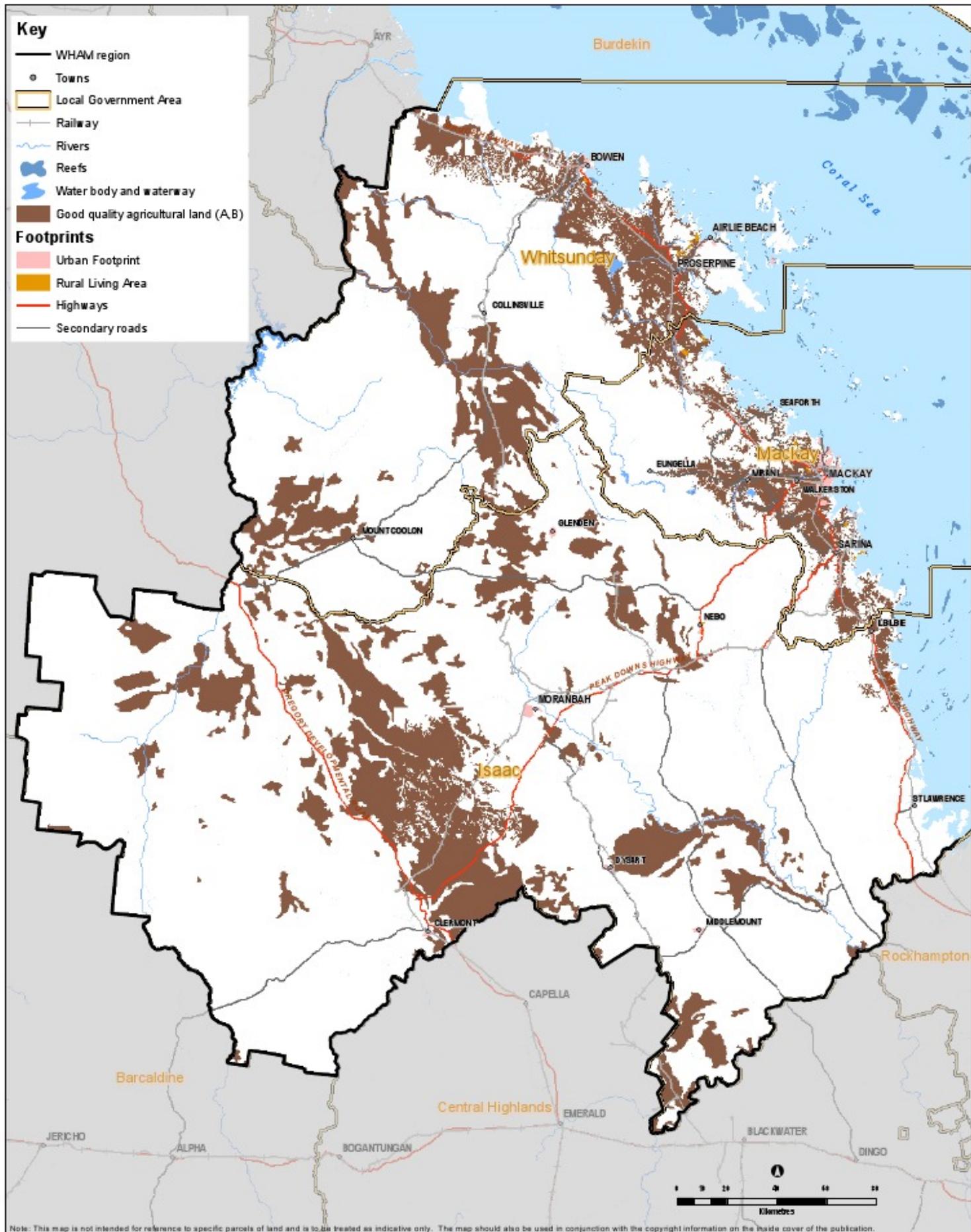
Sweet corn	October	Daikon	November
Sweet Marjoram	October	Dill	November
Sweet Potato/Kumara	October	Dwarf beans	November
Taro	October	Eggplant	November
Thai Coriander	October	Endive	November
Thyme	October	Fennel	November
Tomatillo	October	Florence Fennel	November
Tomato	October	French tarragon	November
Tumeric	October	Galangal	November
Turnip	October	Garlic	November
Watercress	October	Ginger	November
Watermelon	October	Horseradish	November
Winter Savory	October	Kale	November
Yam/Oka	October	Kang Kong	November
Zucchini	October	Kohlrabi	November
<u>November</u>	<u>November</u>	Leeks	November
Amaranth	November	Lemon Balm	November
Angelica	November	Lettuce	November
Basil	November	Luffa	November
Beetroot	November	Marrow	November
Borage	November	Mint	November
Broad beans	November	Mizuna	November
Broccoli	November	Mustard greens	November
Brussels sprouts	November	NZ Spinach	November
Burdock	November	Okra	November
Cabbage	November	Onion	November
Cape Gooseberry	November	Oregano	November
Capsicum	November	Pak Choy	November
Carrot	November	Parsley	November
Cassava	November	Peas	November
Cauliflower	November	Potato	November
Celeriac	November	Pumpkin	November
Celery	November	Radish	November
Ceylon Spinach	November	Rocket	November
Chicory	November	Rockmelon	November
Chilli	November	Rosella	November
Chinese cabbage	November	Rosemary	November
Chives	November	Sage	November
Choko	November	Salsify	November
Climbing beans	November	Shallots	November
Collards	November	Silverbeet	November
Coriander	November	Snake Bean	November
Cucumber	November	Spring onions	November

Squash	November	Okra	December
Summer savory	November	Onion	December
Sunflower	November	Oregano	December
Sweet corn	November	Parsley	December
Sweet Marjoram	November	Pumpkin	December
Sweet Potato/Kumara	November	Rockmelon	December
Taro	November	Rosella	December
Thai Coriander	November	Rosemary	December
Thyme	November	Sage	December
Tomatillo	November	Salsify	December
Tomato	November	Shallots	December
Tumeric	November	Snake Bean	December
Watercress	November	Squash	December
Watermelon	November	Sunflower	December
Yacon	November	Sweet Marjoram	December
Yam/Oka	November	Sweet Potato/Kumara	December
Zucchini	November	Taro	December
<u>December</u>	<u>December</u>	Thai Coriander	December
Amaranth	December	Thyme	December
Angelica	December	Tomato	December
Basil	December	Tumeric	December
Cape Gooseberry	December	Watercress	December
Carrot	December	Watermelon	December
Cassava	December	Yacon	December
Cauliflower	December	Yam/Oka	December
Celery	December	Zucchini	December
Ceylon Spinach	December		
Chilli	December		
Chives	December		
Choko	December		
Collards	December		
Cucumber	December		
Dill	December		
Galangal	December		
Garlic	December		
Ginger	December		
Kang Kong	December		
Leeks	December		
Lemon Balm	December		
Luffa	December		
Marrow	December		
Mint	December		
NZ Spinach	December		

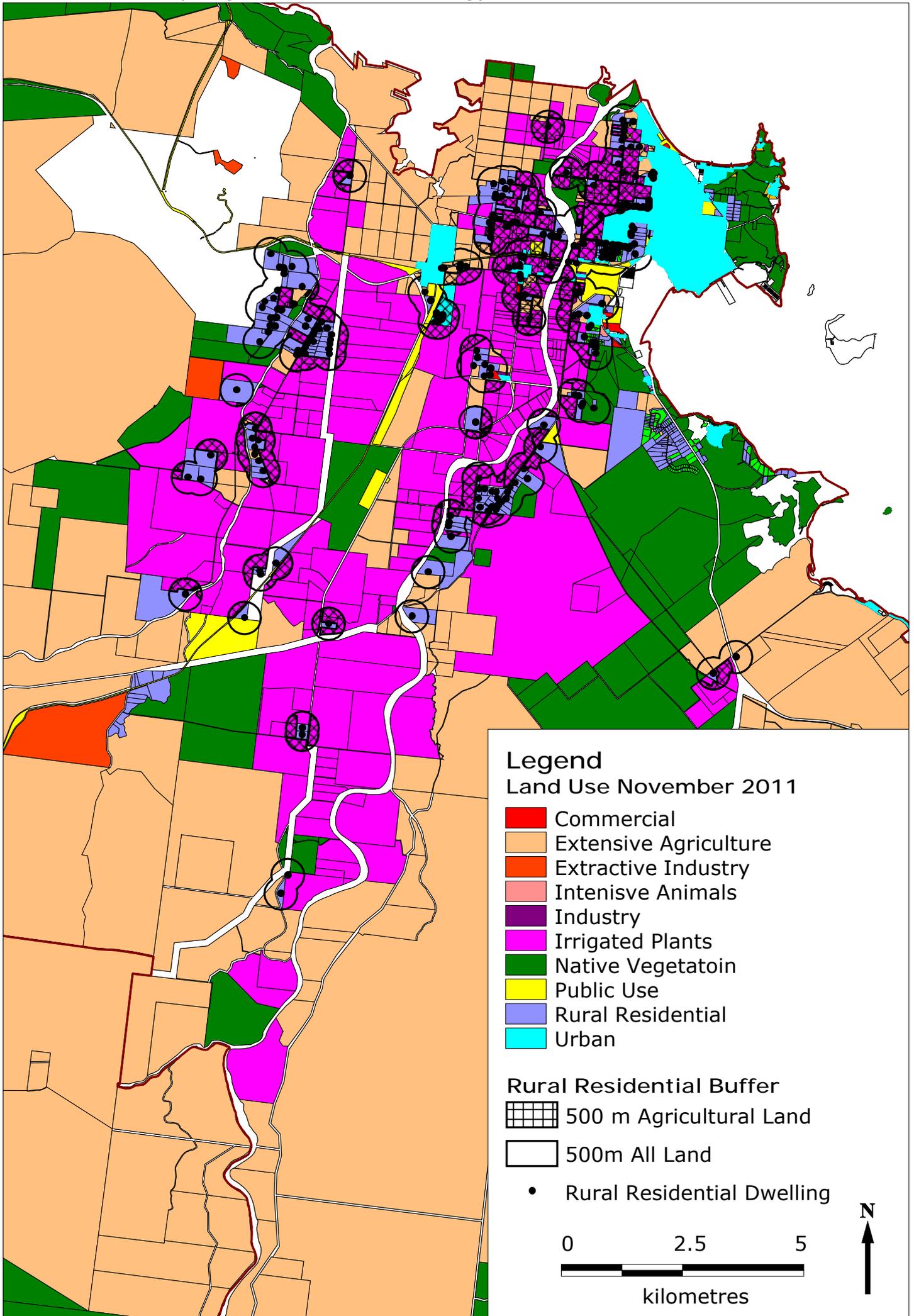
Appendix 3: Maps of Agricultural Land in the Whitsundays



Map 4. Good quality agricultural land



Note: This map is not intended for reference to specific parcels of land and is to be treated as indicative only. The map should also be used in conjunction with the copyright information on the inside cover of the publication.



Appendix 4: Information on Lycopene



Biochemistry of Lycopene

How does it protect against cancer?

By [Anne Marie Helmenstine, Ph.D.](#), About.com Guide

Lycopene (see chemical [structure](#)), a [carotenoid](#) in the same family as [beta-carotene](#), is what gives tomatoes, pink grapefruit, apricots, red oranges, watermelon, rosehips, and guava their red color. Lycopene is not merely a pigment. It is a powerful [antioxidant](#) that has been shown to neutralize [free radicals](#), especially those derived from oxygen, thereby conferring protection against prostate cancer, breast cancer, atherosclerosis, and associated coronary artery disease. It reduces LDL (low-density lipoprotein) oxidation and helps reduce cholesterol levels in the blood. In addition, preliminary research suggests lycopene may reduce the risk of macular degenerative disease, serum lipid oxidation, and cancers of the lung, bladder, cervix, and skin. The chemical properties of lycopene responsible for these protective actions are well-documented.

Lycopene is a [phytochemical](#), synthesized by plants and microorganisms but not by animals. It is an acyclic isomer of beta-carotene. This highly unsaturated hydrocarbon contains 11 conjugated and 2 unconjugated double bonds, making it longer than any other carotenoid. As a polyene, it undergoes cis-trans isomerization induced by light, thermal energy, and chemical reactions. Lycopene obtained from plants tends to exist in an all-trans configuration, the most thermodynamically stable form. Humans cannot produce lycopene and must ingest fruits, absorb the lycopene, and process it for use in the body. In human plasma, lycopene is present as an isomeric mixture, with 50% as cis isomers.

Although best known as an antioxidant, both oxidative and non-oxidative mechanisms are involved in lycopene's bioprotective activity. The [nutraceutical](#) activities of carotenoids such as beta-carotene are related to their ability to form vitamin A within the body. Since lycopene lacks a beta-ionone ring structure, it cannot form vitamin A and its biological effects in humans have been attributed to mechanisms other than vitamin A. Lycopene's configuration enables it to inactivate free radicals. Because free radicals are electrochemically imbalanced molecules, they are highly aggressive, ready to react with cell components and cause permanent damage. Oxygen-derived free radicals are the most reactive species. These toxic chemicals are formed naturally as by-products during oxidative cellular metabolism. As an antioxidant, lycopene has a singlet-oxygen-quenching ability twice as high as that of beta-carotene (vitamin A relative) and ten times higher than that of alpha-tocopherol (vitamin E relative). One non-oxidative activity is regulation of gap-junction communication between cells. Lycopene participates in a host of chemical reactions hypothesized to prevent carcinogenesis and atherogenesis by protecting critical cellular biomolecules, including lipids, proteins, and [DNA](#).

Lycopene is the most predominant carotenoid in human plasma, present naturally in greater amounts than beta-carotene and other dietary carotenoids. This perhaps indicates its greater biological significance in the human defense system. Its level is affected by several biological and lifestyle factors. Because of its lipophilic nature, lycopene concentrates in low-density and very-low-density lipoprotein fractions of the serum. Lycopene is also found to concentrate in the adrenal, liver, testes, and prostate. However, unlike other carotenoids, lycopene levels in serum or tissues do not correlate well with overall intake of fruits and vegetables.

Research shows that lycopene can be absorbed more efficiently by the body after it has been processed into juice, sauce, paste, or ketchup. In fresh fruit, lycopene is enclosed in the fruit tissue. Therefore, only a portion of the lycopene that is present in fresh fruit is absorbed. Processing fruit makes the lycopene more bioavailable by increasing the surface area available for digestion. More significantly, the chemical form of lycopene is altered by the temperature changes involved in processing to make it more easily absorbed by the body. Also, because lycopene is fat-soluble (as are vitamins, A, D, E, and beta-carotene), absorption into tissues is improved when oil is added to the diet. Although lycopene is available in supplement form, it is likely there is a synergistic effect when it is obtained from the whole fruit instead, where other components of the fruit enhance lycopene's effectiveness.

Lycopene

Other common name(s): rhodopurpurin

Scientific/medical name(s): non-provitamin A carotenoid

Description

Lycopene is an antioxidant compound that gives tomatoes and certain other fruits and vegetables their color. It is one of the major carotenoids in the diet of North Americans and Europeans. Carotenoids are pigments that give yellow, red, and orange vegetables and fruits their colors. The body uses some types of carotenoids (but not lycopene) to make vitamin A.

Overview

People who have diets rich in tomatoes, which contain lycopene, appear in some studies to have a lower risk of certain types of cancer, especially cancers of the prostate, lung, and stomach. However, not all of the studies have reached the same conclusion. Studies that tested lycopene on men who already had prostate cancer have been mixed, but in general found little effect. Further research is needed to find out what role, if any, lycopene has in the prevention or treatment of cancer. It is likely that the preventive effect of diets high in fruits and vegetables cannot be explained by just one single part of the diet.

How is it promoted for use?

Proponents claim that lycopene may lower the risk of heart disease; macular degenerative disease, an age-related illness that can lead to blindness; and lipid oxidation, the damage to normal fat molecules that can cause inflammation and disease. It is also said to lower LDL ("bad" cholesterol), enhance the body's defenses, and protect enzymes, DNA, and cellular fats.

A major claim for lycopene's benefits is in the prevention and treatment of cancers of the lung, prostate, stomach, bladder, cervix, skin, and, especially, prostate. In support of these claims regarding cancer, proponents note that lycopene is a powerful antioxidant, a compound that blocks the action of free radicals, activated oxygen molecules that can damage cells, and that several scientific studies have found lower risk of cancer among people who eat lycopene-rich foods.

What does it involve?

Tomatoes are the most concentrated food source of lycopene, although apricots, guava, watermelon, papaya, and pink grapefruit are also significant sources. Studies that looked at lycopene levels in the blood found that levels were higher after people ate cooked tomatoes than after they ate raw tomatoes or drank tomato juice. This suggests that lycopene in cooked tomato products such as tomato sauce or paste may be more readily absorbed by the body than lycopene in raw tomatoes. Eating lycopene-rich vegetables and fruits together with a small amount of oil or fat (for example, salad oil or cheese on pizza) increases the amount of lycopene absorbed by the intestines. Lycopene is also available in soft-gel capsule and liquid supplements. Dosages vary according to manufacturer.

What is the history behind it?

In recent years, the role of the diet in preventing cancer has been a popular and important area of research. The examination of the role of carotenoids, specifically beta carotene, in preventing cancer began in the 1920s. However, interest in lycopene did not really begin until the late 1980s when it was found that the antioxidant activity of lycopene was twice that of beta carotene.

What is the evidence?

Studies that look at large groups of people (observational studies) in many countries have shown that the risk for some types of cancer is lower in people who have higher levels of lycopene in their blood. Studies suggest that diets rich in tomatoes may account for this reduction in risk. Evidence is strongest for lycopene's protective effect against cancer of the lung, stomach, and prostate. It may also help to protect against cancer of the cervix, breast, mouth, pancreas, esophagus, and colon and rectum.

Some population studies have found that a diet high in lycopene from tomato-based foods was linked with a lower risk of prostate cancer. Other studies, however, found no link between tomato products or other lycopene-rich foods and prostate cancer. A recent study suggested that variation in a particular gene (known as XRCC1) that helps repair damaged DNA influences whether lycopene intake will affect a man's prostate cancer risk.

A 2004 review that analyzed 21 observational studies (that is, not clinical trials) concluded that tomato products appear to have a weak protective effect against prostate cancer. This review did not include lycopene supplements, only tomato and tomato-based foods. Some of the individual studies, however, did consider lycopene levels in the blood. The analysis noted that the protective effect was slightly stronger for cooked tomato products and that small amounts of added fat improved lycopene absorption. On the other hand, 2 studies from 2007, one of about 1,500 men and the second of more than 28,000 men, found no difference in blood lycopene levels between those in whom prostate cancer later developed and those in whom it did not. Such mixed results sometimes happen when there is no effect or only a small effect from the substance being looked at.

There have been several experimental studies on the role of lycopene in preventing or treating cancer. One animal study found that lycopene treatment reduced the growth of brain tumors. Another animal study showed that frequent intake of lycopene over a long period of time considerably suppressed breast tumor growth in mice. But breast cancer in humans is very different from breast cancer in mice, and those results may not apply to the disease in humans. There has been a human study that assigned men at high risk for prostate cancer to take an ordinary multivitamin either with or without a lycopene supplement. This study found no difference in prostate-specific antigen (PSA, a marker of prostate cancer) levels between the 2 groups. Further studies are needed to find out if any possible anti-cancer properties could benefit humans.

Since tomatoes also contain vitamins, potassium, and other carotenoids and antioxidants, it may be that other compounds in tomatoes may account for some of the protective effects first thought to be due to lycopene. These compounds may act alone or along with lycopene. When researchers look at large population groups with different lifestyles and habits, it is also possible that their findings can be explained by other factors that were not examined.

To test whether lycopene is the main cancer-fighting substance in tomatoes, one animal study compared lycopene supplements to powdered tomatoes. Groups of rats who were fed tomato powder were compared to rats given lycopene. The rats that received tomato powder had much lower cancer risk, whereas the rats receiving lycopene supplements did not differ significantly from the group that received no special supplements.

A controlled study in a small group of men with prostate cancer found that lycopene supplements appeared to reduce the rapid growth of prostate cancer cells. However, a more recent study with men whose prostate cancer had stopped responding to hormone therapy found that lycopene did not have a significant effect. One short-term study from 2006 reported that lycopene supplements were safe, but that they did not lower the levels of prostate-specific antigen (a marker of prostate cancer) in men with prostate cancer that had come back. Another reported that the combination of lycopene and soy supplements prevented PSA levels from increasing in some men with prostate cancer.

The few clinical trials that have been completed have reported mainly the short-term effects on the level of PSA in the blood, which is generally considered a good indicator of prostate cancer growth. Although these studies are an important step, they are not as valuable as long-term studies that look at whether a treatment actually helps patients live longer or relieves their symptoms.

Most of the human studies that have been published so far were case control studies or other observational studies, which are more prone to error than clinical trials are. More information from clinical trials (including results of several studies already under way) will be needed to be sure whether lycopene-rich foods can help prevent or treat cancer. There are also studies to find out if there are other benefits from lycopene.

Choosing foods from a variety of fruits, vegetables, and other plant sources such as nuts, seeds, whole grains, and beans is likely to be healthier than eating large amounts of one type of food. The American Cancer Society's most recent nutrition guidelines recommend eating a balanced diet with an emphasis on plant sources, which includes:

- 5 or more servings of vegetables and fruit each day
- choosing whole grains over processed and refined grains
- limiting processed meats and red meats
- balancing calorie intake with physical activity to get to or stay at a healthy weight

- limiting alcohol intake

Based on today's evidence, the foods you eat are likely to play a greater role in preventing cancer than in treating it.

Are there any possible problems or complications?

This product is sold as a dietary supplement in the United States. Unlike drugs (which must be tested before being allowed to be sold), the companies that make supplements are not required to prove to the Food and Drug Administration that their supplements are safe or effective, as long as they don't claim the supplements can prevent, treat, or cure any specific disease.

Some such products may not contain the amount of the herb or substance that is written on the label, and some may include other substances (contaminants). Actual amounts per dose may vary between brands or even between different batches of the same brand. The FDA has written new rules to improve the quality of manufacturing processes for dietary supplements and the accurate listing of supplement ingredients. But, the new rules do not address the safety of supplement ingredients or their effects on health when proper manufacturing techniques are used.

Most such supplements have not been tested to find out if they interact with medicines, foods, or other herbs and supplements. Even though some reports of interactions and harmful effects may be published, full studies of interactions and effects are not often available. Because of these limitations, any information on ill effects and interactions below should be considered incomplete.

Lycopene obtained from eating fruits and vegetables has no known side effects and is thought to be safe for humans. The potential side effects of lycopene supplements are not fully known. Patients in one study who took a lycopene-rich tomato supplement of 15 milligrams twice a day had some intestinal side effects such as nausea, vomiting, diarrhea, indigestion, gas, and bloating. When consumed over a long period of time, very large amounts of tomato products can give the skin an orange color.

Supplements containing antioxidants such as lycopene may interfere with radiation therapy and chemotherapy if taken during cancer treatment. Even though studies have not been done in humans, antioxidants are known to clean up free radicals, which could interfere with one of the methods by which chemotherapy and radiation destroy cancer cells. Eating fruits and vegetables high in antioxidants is still considered safe during cancer treatment.

Relying on this type of treatment alone and avoiding or delaying conventional medical care for cancer may have serious health consequences.

Additional resources

More information from your American Cancer Society

The following information on complementary and alternative therapies may also be helpful to you. These materials may be found on our Web site (www.cancer.org) or ordered from our toll-free number (1-800-ACS-2345).

[Guidelines for Using Complementary and Alternative Therapies](#)

[Dietary Supplements: How to Know What Is Safe](#)

The ACS Operational Statement on Complementary and Alternative Methods of Cancer Management

[Complementary and Alternative Methods for Cancer Management](#)

[Placebo Effect](#)

[Learning About New Ways to Treat Cancer](#)

[Learning About New Ways to Prevent Cancer](#)

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Note: This information may not cover all possible claims, uses, actions, precautions, side effects or interactions. It is not intended as medical advice, and should not be relied upon as a substitute for consultation with your doctor, who is familiar with your medical situation.

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Spectrophotometric Analysis of Lycopene in Tomatoes and Watermelons: A Practical Class

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Abstract: Lycopene is one of the most important and abundant carotenoids. It has been shown to play a very important role in human nutrition, mainly due to its high antioxidant activity. In order to show our students of analytical chemistry a practical application of food analysis as well as the different steps of the analytical methodology, we have carried out a practical analytical chemistry class which consists on the determination of lycopene in both tomato and watermelon samples by means of a quick spectrophotometric method with data analysis. The proposed class, which will be described (as well as the results obtained by our students), can be applied in subjects related with analytical chemistry, food analysis, agriculture, etc.

Introduction

Most of the orange, yellow and red colors of leaves, fruits and flowers are due to carotenoids. These essential nutrients in the human diet are thought to provide health benefits by decreasing the risk of various diseases, particularly certain cancers, cardiovascular and eye diseases [1]. One of the most important and abundant carotenoids is lycopene (Figure 1), an open chain unsaturated carotenoid containing thirteen double bonds (eleven conjugated and two non-conjugated double bonds). It is chiefly found in tomatoes, apricots, ping grapefruit, guava and watermelon [2], being tomatoes and tomato derived products the richest source of lycopene in the diet (tomatoes are also one of the largest vegetables crops in the world in terms of production). The biological activity of lycopene includes a very important antioxidant activity (protective effects on certain types of cancers have also been described) as well as the induction of cell communication and modulation of hormonal, immune systems and other metabolic pathways [3]. As a result, the determination of lycopene content in food samples is of a relevant importance, providing very important information from the nutritional and physiological point of view.

Nowadays, new analytical chemistry practical classes should provide students a global view of the different fields in which this discipline plays an important role in daily life, such as pharmaceutical, environmental or food analysis, quality control, etc. Among them, food analysis and, moreover, the determination of important nutrients, such as vitamins and antioxidants is of special importance because of their important nutritional value in the human diet. Not very often, practical classes dealing with the analysis of antioxidants are carried out at the university level, mainly due to the complexity of sample treatments and costly instrumentation. As a result, and based on recent research papers, which have suggested the analysis of lycopene in carotenoid-rich samples by using a simple and rapid spectrophotometric method after extraction of the samples with hexane [4, 5, 6], we propose a practical class consisting in the quick spectrophotometric quantification of lycopene in different tomato and watermelon samples, as well as the analysis and comparison of the obtained data. Results obtained by the students are also shown and commented.

Experimental

Chemicals. A standard solution of lycopene in hexane (0.04 mg/mL) was prepared, wrapped in foil, and stored in the dark at 4°C. Working mixtures of pertinent concentrations can be made by appropriate combination and dilution with hexane. The conjugated-double-bond system of carotenoids, in general, produces the main problems with their manipulation (they are unstable to light,

oxygen, heat, acid, and alkaline conditions). That is why particular attention should be paid in the sample/standard preparation, manipulation and storage. Butylated hydroxytoluene (BHT), acetone, hexane and ethanol were purchased from Merck (Darmstadt, Germany). Milli-Q water was also used (deionized by using a Milli-Q system, Millipore, Bedford, MA, USA).

Safety. Safety goggles must be worn when manipulating chemicals and solvents. Ensure all solvent residues are disposed in appropriate residue containers.

Equipment. These experiments requires a UV-visible spectrophotometer. In our case we have used the HP8453 UV-visible spectrophotometer from Hewlett Packard controlled byan HP Vectra XA 5 computer(Pentium IV) with ChemStation Software. Detection was carried out at 503 nm.

Samples. Watermelon and tomato samples were bought in a local supermarket. Special care was taken to select the most mature samples.

Extraction Method. Extraction method was performed according to Fish et al. [4]. Samples were first chopped and homogenized in a laboratory homogenizer. Approximately 0.3 to 0.6 g samples were weighed and 5 mL of 0.05% (w/v) BHT in acetone, 5 mL of ethanol and 10 mL of hexane were added. The recipient was introduced in ice and stirred on a magnetic stirring plate for 15 min. After shaking, 3 mL of deionized water were added to each vial and the samples were shaken for 5 min on ice. Samples were then left at room temperature for 5 min to allow the separation of both phases. The absorbance of the hexane layer (upper layer) was measured in a 1-cm-path-length quartz cuvette at 503 nm blanked with hexane.

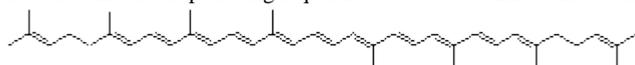


Figure 1. Chemical structure of lycopene.

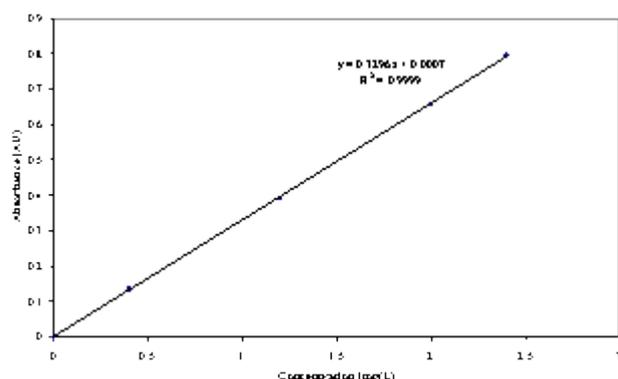


Figure 2. Absorbance versus lycopene concentration (mg/L) in hexane.

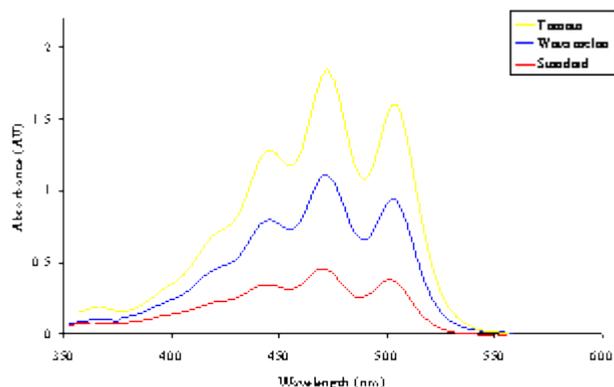


Figure 3. Spectra of a standard mixture of lycopene in hexane and hexane extracts of two of the analyzed samples (a watermelon and a tomato).

Statistical Program. For data treatment and evaluation the statistical package Statistica 6.0 from StatSoft Inc. (Tulsa, OK, USA) was used.

Results and Discussion

Based of different published research works that can be found in the scientific literature [4, 5, 6], we have carried out with our students of analytical chemistry a practical class that consists on the determination of lycopene in different types of samples by using a very simple spectrophotometric method as well as the statistical analysis of the results. For this purpose, the method described in the experimental section and taken from [4] was followed. The proposed method uses a much lower amount of organic solvents than conventional procedures. According to this

method, absorbance at 503 nm (A_{503}) has been selected to avoid interferences from other carotenoids present in the samples although the absorbance at this wavelength value is not the absorbance of the greatest of lycopene in hexane.

Several solutions of lycopene in *n*-hexane at different concentrations were prepared and absorbance was measured at 503 nm (concentrations tested can be in the range between 0 and 3 mg/L) after suitable calibration of the instrument with hexane. By appropriate plotting of the absorbance versus the concentration of lycopene the calibration graph shown in Figure 2 was obtained.

A good linearity with correlation coefficients of 0.9999 was obtained. After the calibration curve was obtained, the method described in the experimental section was applied to the determination of lycopene in both tomato and watermelon samples. The content of lycopene in the samples can be estimated by two methods. One of them (a theoretical method) makes use of the molar extinction coefficient of lycopene in hexane ($17.2 \times 10^4 \text{ M}^{-1} \cdot \text{cm}^{-1}$) determined in the literature [8]. In this case, the Lambert–Beer law can be described as:

$$\text{Absorbance at 503 nm } (A_{503}) = \varepsilon(\text{M}^{-1} \cdot \text{cm}^{-1}) \cdot b(\text{cm}) \cdot [\text{Lycopene concentration (M)}]$$

By properly substituting the molar extinction coefficient of lycopene in hexane ($17.2 \times 10^4 \text{ M}^{-1} \cdot \text{cm}^{-1}$) as well as the molecular weight (536.9 g) and by changing the units, the final equation will be

$$\text{Lycopene content (mg/kg)} = A_{503} \times 31.2/\text{g tissue}$$

While one method is based on the experimental data obtained by the students (calibration curve). In our case, from Figure 2 (and by appropriate substitution in the Lambert–Beer law equation) it can be found that

$$\text{Lycopene content (mg/kg)} = (A_{503} - 0.0007) \times 30.3/\text{g tissue}$$

The use of these two formulas in which the lycopene content is given in mg/kg is very useful to evaluate the lycopene content and to compare the data with those of the literature.

The lycopene content of each sample was then estimated using the absorbance measured at 503 nm and the sample weight. The proposed method has been shown to provide reasonable results for those foods in which lycopene constitutes at least 70% of the constituent carotenoids as, for instance, in tomatoes and watermelons; that is why the method was applied to the analysis of these samples. Figure 3 shows the absorbance spectra (in the wavelength region of interest, i.e. 503 nm) of a standard mixture containing 1.25 mg/L of lycopene in hexane as well as the hexane extracts of two of these samples (one corresponds to a watermelon sample and the other one to a tomato sample). As it can clearly be observed the spectra of both extracts and standards are very similar.

Table 1 shows the lycopene content of the analyzed samples by the use of both experimental and theoretical data. Good agreement for both was achieved with a relative error below 3%. Also, the content of lycopene determined by the students is very similar to those indicated in the literature for analogous samples [4, 5]. As an example, see for lycopene content in watermelons the works by Fish et al. [4] or Perkins-Veazie et al. [5] and for tomatoes the work of Markovic et al. [7]. Concerning the analysis of lycopene in watermelons, it has been stated in the literature that lycopene content varies widely among cultivators and with production season [5]. A comparison of the results we obtained with the data described in the literature as well as with methods developed by other researchers shows the students the need for an appropriate

Table 1. Lycopene Content Calculated by the Students, Using Both Experimental and Theoretical Data.

Samples	Lycopene content (mg/kg) using experimental data (fresh weight)	Lycopene content (mg/kg) using theoretical data (fresh weight)	Relative error (%)
Watermelon 1	63.1	64.9	2.77
Watermelon 2	46.6	48.0	2.91
Watermelon 3	52.9	54.4	2.76
Tomato 1	89.0	91.5	2.73
Tomato 2	84.0	86.4	2.78
Tomato 3	94.7	97.5	2.87

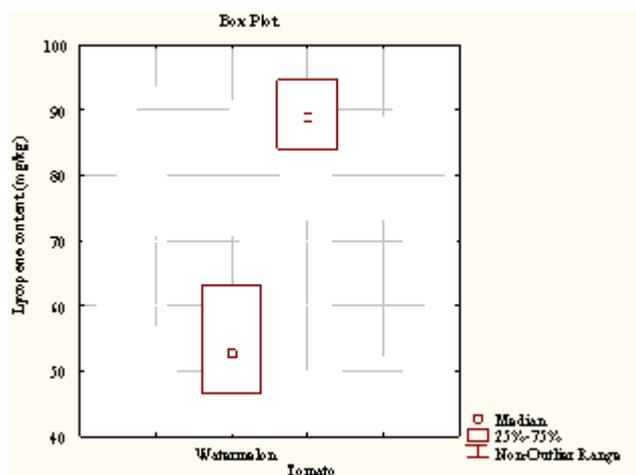


Figure 4. Box and whiskers plot of the content of lycopene in watermelons and tomatoes.

comparison of their results. As a result, another interesting practical approach for other practical classes could be the analysis of local and foreign watermelons, even the analysis of different varieties of watermelons or of watermelons at a different stage of maturation and a comparison to the data described in the literature. The same could also be done for tomato samples.

After the determination of lycopene content was carried out, we developed, as an introductory approach to data analysis, a box and whiskers plot (even with such a low number of samples) in order to show the students the utility of this tool for sample comparison. We introduced at this point the theoretical explanation of the plot tool. They could easily observe that the data concerning the content of lycopene in tomatoes is higher than that of watermelon samples and also that there is higher dispersion of the data in watermelon samples. The median could also be easily observed. The proposed method can be of a higher utility if the number and types of samples is high, which could be done if the class is large enough and different samples are analyzed by different groups of students. In this particular case, the presence of outliers can not be detected because the number of samples analyzed is very low, but with a higher number of samples it would easily show students a method for detecting data that does not follow normal behavior and, thus, show them that a study of the history of the sample or a revision of the analytical procedure for that specific samples is necessary. The application of these chemometric tools shows the students the need and advantages of statistical data treatment and that their analysis does not end with their numerical data.

Conclusions

We describe here, as a practical laboratory class developed with our analytical chemistry students, the fast determination of lycopene content in tomatoes and watermelons by means of a spectrophotometric method. Because the proposed method is relatively fast and requires low quantities of organic solvents (much lower than other procedures for the conventional extraction of lycopene) it is recommend for practical analytical chemistry classes. Students will learn a practical analytical methodology. The class can also serve as an introduction to data treatment or chemometric analysis.

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Appendix 5: Farmers Market Information





Calling all Bread Bakers, Cheese Makers and Food Creators

Growers and food producers are being asked to step out from the shadows and help give the Whitsundays a whole new 'food' identity and culture.

It is no secret the region wants a farmers market – with more than 400 survey forms already completed in support of one - now organisers need growers and food producers to step forward and show their interest, so plans can move forward.

A number of key food producers have already expressed interest but project manager Claire Dulieu, from Enterprise Whitsundays, knows there are many more out there who could reap the benefits of a regular farmers market in the region.

"We have been overwhelmed with the response to our survey asking people for their thoughts on a farmers market," she said.

"Now, we need to start the process moving forward with solid commitment from growers and food producers. Importantly, we need them to also complete a survey form, as their thoughts on where, how often, what day and what time a farmer's market should take place are obviously of utmost importance."

Ms Dulieu said people not currently making a product but who would like to, should register their interest, as a farmers market acts as a catalyst for food production in a region.

"Once the market is established we are confident more and more people will invest in the creation of a food product but we need people to step forward now and register their interest.

"If a farmers market is going to be successful and sustainable we need to ensure we have a strong and diverse range of products to offer buyers from day one.

"The Whitsundays are a prolific producer of many different fruits and vegetables just waiting to be turned into delicious products for local sale and we can help with that. We are also interested in hearing from cheese makers and bakers – anyone who creates a food.

"Stall holders can come from anywhere within driving distance of the Whitsundays, so producers from Townsville, Ayr, Mackay and Sarina are also welcome to get involved.

"Potentially, this farmers market could become huge and really give the Whitsundays a name as a food region with its own food identity and culture."

She said everyone's opinion mattered and urged everyone to fill out a survey form.

Forms are available online at www.qldfarmersmarkets.com.au/whitsundayssurvey or at the following locations (they can be posted to PO Box 479, Cannonvale, Qld, 4802 or dropped back to the location).

- Airlie Beach: Sushi Hi, Capers, Extreme Bean, BB's Cafe and Marino's Deli.
- Cannonvale: Cannonvale library, Goodness Gracious Health Foods, Enterprise Whitsundays office and Bowen Fruit Market (at Whitsunday Shopping Centre).
- Bowen: Council office, Bowen library, 360 on Flagstaff Hill and Food Freaks.
- Proserpine: Council office, Coconol, Colour Me Crazy and Akiah Elan.

For more information about the farmers market, or to register your interest as a stallholder, contact Claire Dulieu at Enterprise Whitsundays on 07 4946 0111 or projectmanager@enterprisewhitsundays.com.au

Ends

For more information about this media release contact Claire Dulieu at Enterprise Whitsundays on 07 4946 0111 or projectmanager@enterprisewhitsundays.com.au

Media for Farmers Market Project

Date	Channel	Description
24.5.11	ABC Townsville	Farmers market launch
1.6.11	WIN News	Farmers market launch
2.6.11	Sea FM	Farmers market launch
2.6.11	7 News	Farmers market launch
3.6.11	Prime Radio	Farmers market launch
	Whitsunday Coast Guardian	Survey & advertisement
	Whitsunday Times	Survey & advertisement
	Bowen Independent	Survey & advertisement
2.6.11	Townsville Bulliten	Farmers market launch
20.6.11	ABC Tropical North	Farmers market surveys
20.6.11	Prime Radio	Farmers market surveys
28.6.11	ABC Radio	Producers needed
29.6.11	Prime Radio	Producers needed
30.6.11	Scotty & Tiegs - Zinc FM	Survey, producers needed
30.6.11	Whitsunday Times	Producers needed
4.6.11	ABC Radio	Survey extended
15.8.11	Sea FM / Hot FM	Survey results - next steps
15.8.11	Prime News	Survey results - next steps
16.8.11	ABC radio news	Survey results - next steps
16.8.11	WIN TV news	Survey results - next steps
5.9.11	Sea FM / Hot FM	Stall Holders Forums
6.9.11	ABC Radio	Stall Holders Forums
8.9.11	Whitsudnay Times	Stall Holders Forums
8.9.11	Bowen Indipendant	Stall Holders Forums
8.9.11	Proserpine Guardian	Stall Holders Forums
12.9.11	ABC Radio	Stall Holders Forums
12.9.11	Townsville Bulliten	Stall Holders Forums
12.9.11	7 News	Stall Holders Forums
13.9.11	Win News	Stall Holders Forums
13.9.11	Zinc FM	Stall Holders Forums
13.9.11	Jan Jarrett Media team	Farmers Market update

Farmers market stalls call

THE time has come for anyone interested in taking a stall at the Whitsunday Farmers Market to step forward.

Already, more than 50 growers and producers of food products have expressed interest in becoming involved, but more are needed.

Forums are due to take place around the region so that anyone interested in running a stall can ask questions and receive help and guidance.

The Bowen forum is on next Wednesday.

Forum is on next Wednesday

Shane Stanley, the brains behind the successful Noosa Farmers Market and two other markets in Queensland, will be on hand to share his extensive knowledge.

Enterprise Whitsundays project manager Claire Dullieu

said the forums were an opportunity to get all interested food providers and growers together to assess where they were at and how they could be assisted to them ready for the market.

"This isn't just for people already in business but for everyone who has ever thought about producing a food product and selling it at the market," she said.

"They don't have to be established. We have opportunities for people to share available horticultural land and use fully-

equipped commercial kitchens at very low cost."

Ms Dullieu said a wide range of products as wide as possible was wanted for the market to give consumers a good choice.

"This is a fantastic opportunity for anyone who has ever thought about making a food product to get on and do it," she said.

So far, makers of cakes, muffins, ice cream, pasta, muesli, chocolate, honey, fruit drinks and relishes have stepped forward.

Meat and seafood will also be

sold at the market and providers of hot takeaway food are also being sought.

The market is likely to rotate around the region.

The Bowen forum will be held next Wednesday at 4pm at Cafe 360 on Flagstaff Hill.

To attend the forum, register by telephone on 4946 0111.

Or e-mail projectmanager@enterprisewhitsundays.com.au

Refreshments will be provided.

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PAGE 6 - WEDNESDAY, SEPTEMBER 7, 2011

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Stallholders meet for farmers market

Details of the proposed Whitsunday Farmers Market have been revealed at forums designed to engage potential stallholders.

More than 30 growers and food producers attended the forums, which were held in Proserpine and Bowen on Tuesday, September 13 and Wednesday, September 14.

Enthusiasm and interest was running hot as the potential stallholders were given tips and insights into how to run a successful business through the farmers market, including product packaging, marketing, Government requirements and customer service.

It was also revealed at the forums that the proposal being put forward to Whitsunday Regional Council is for a weekly farmers market, on a weekend morning.

This was by far the most popular option according to the results of the survey carried out in June/July this year, which saw more than 1,000 residents have their say.

“The objective of the forums was to get all the stallholders in the room and present the plans and see what they thought,” said Shane Stanley of Queensland Farmers Markets, who is the consultant to Enterprise Whitsundays, which is spearheading the initiative.

“We also wanted to educate growers about what a farmers market is, so they can start to prepare now for next year. In addition to the growers and producers who attended, we had many more who expressed an interest but were unable to attend on the night.

“We are very excited about the range and variety of products being put forward for the market so far.”

Mr Stanley stressed that still more stallholders are needed and urged anyone thinking about growing or making a food product to get in touch.

He said the feedback at the forums was “all very positive” with potential stallholders offering up some useful comments. It was also suggested that the market rotate around the region, including Proserpine, Bowen and Airlie Beach.

“Everyone agreed that a farmers market was a great thing for the region and, as for the exact details, everyone’s comments have been taken on board.”

Enterprise Whitsundays and Queensland Farmers Markets are due to meet with Whitsunday Regional Council in the next few weeks to brief them on all aspects of the proposed market.

Once everything is agreed with council, Enterprise Whitsundays will be able to make a formal announcement about the plans.

Enterprise Whitsundays project manager, Claire Dulieu, said a farmers market would be a very strong contributor to the sustainable economic development of the region.

“Once it is established, the market will provide a solid platform for a lot of businesses with opportunities for many industry sectors including tourism,” she said.

“Not just opportunities for stallholders, but also for transportation companies, entertainers, restaurants and wholesalers.

“It will also heighten awareness of the Whitsundays food culture and provide a tourist attraction for the region, as well as a fantastic facility for locals. A farmers market is a very important community asset, economically, socially and environmentally.”

For more information about becoming a stallholder at the farmers market, contact Claire Dulieu at Enterprise Whitsundays on (07) 4946 0111 or email projectmanager@enterprisewhitsundays.com.au

Ends

Editor’s Notes:

A survey was carried out in June/July this year, asking Whitsunday residents for feedback on plans for a farmers market.

More than 1,000 survey forms were completed with an overwhelming majority of respondents in favour of a farmers market. Top-line results of the findings were released at the forums, with the full report due to be issued to the public soon.

For more information about becoming a stallholder at the farmers market, contact Claire Dulieu at Enterprise Whitsundays on (07) 4946 0111 or email projectmanager@enterprisewhitsundays.com.au

Media release

June 3, 2011

Farmers Market Support is Growing

A farmers market in the region has been given a big 'thumbs up' although the jury is still out on exactly where it should be located.

The idea for a farmers' market was first mooted last year and since then, funds have been received from the State Government to carry out a feasibility study into the viability of such an attraction.

Now, both residents and farmers are being asked for their opinions through a survey, which is being conducted right across the region.

The survey was launched on Wednesday (June 1) at an industry event held at Whitsunday Gold Coffee Farm, in Proserpine.

Questions such as where the markets should be held, how often, on which days and at what times are being put to people, so the end product is precisely what the region needs.

A separate survey for farmers will also establish who wants to be involved.

Claire Dulieu, project manager with Enterprise Whitsundays, which is spearheading the initiative, said local growers had supported the concept of a farmers market from the outset.

"It would not be possible without the growers, who fully believed in the concept from the beginning, and the fact we need a farmers market has really taken shape in the last year," she said.

"A farmers market is a shop front for producers – they can try new things – and it will also help them connect with one another.

"A farmers market will also really contribute to the Whitsundays becoming known as a great fresh produce region, which will be good for tourism."

Ms Dulieu said the concept initially started with the Made in the Whitsundays regional brand, which now had 40 members, all of whom were keen to see a farmers market start up.

"We have a lot of talented people in the region that we need to show off and a farmers market will really enhance our food culture in the region.

"The survey that we have launched will help to shape the farmers market – we are only going to do it once and we have to do it right - and we look forward to it becoming a reality."

Consultant Shane Stanley, who runs three successful farmers markets in Queensland through his company Queensland Farmers Markets, said the project would not happen without the support of consumers and producers.

"We are starting something very special and the enthusiasm here has been second to none," he said.

“The passion is certainly here and it’s all moving along very nicely.”

He said a farmers market was about supporting the many growers in the region.

“Farmers can make a good living from it – it’s about adding another dimension to what they are already doing. If we can support our own industries, everything will grow from there.

“Consumers will be getting a better, fresher product and supporting the regional economy at the same time.”

Once the surveys are in – the deadline is June 30 – the results will be compiled and recommendations put together.

Residents and farmers can access the survey forms either through their local paper or via the website: www.qldfarmersmarkets.com.au/whitsundayssurvey

For more information about the Whitsundays Farmers Market contact Claire Dulieu at Enterprise Whitsundays on 07 4946 0111 or projectmanager@enterprisewhitsundays.com.au

What they said on the day:

The survey launch was held in conjunction with a mini farmers market, with local producers offering guests a taste of their produce.

Some producers used it as an opportunity to trial new ‘value add’ products, such as the Bowen Tomato Company’s sundried vegetable mix using zucchini, capsicums and tomatoes.

“We have had a really good response to our products so we will move forward with them....it’s been really good to get local feedback. We would definitely sell our products at the farmers market, if it happens.” Lynley Van Lathum, Bowen Tomato Company.

Rebekah Allan, owner of Angel Foods, which produces gluten-free cakes and muffins for both the retail and wholesale trade, said a farmers market was a “fantastic initiative”.

“I would definitely be in support of it and it would increase my business exponentially.”

Producers/retailers present at the farmers market survey launch:

- Coconol – produces pure coconut oil for both internal consumption and external use
- Biolicious – organic sprouts and micro greens such as wheat grass, cress and silverbeet
- Whitsunday Hydroponic – Lettuce and herbs
- Whitsunday Beefalo and Berkshire Gold pork – organically reared beefalo and pork
- Master Butchers Whitsunday, local handmade sausages
- Bowen Mango Sorbet Company
- Angel Foods – gluten-free muffins and cakes
- Whitsunday Gold Coffee
- Capers – Localvore menu
- The Bowen Tomato Company – sundried tomatoes, mangoes and value added products
- Fruits of Whitsundays – fresh and pulped passionfruit
- Karen Higgins Citrus Fruits
- Bowen District Growers Association – fresh fruit and vegetables from farms in Bowen
- Whitsunday Organic Products – organic freshly toasted muesli

Stall holders to prepare for new Farmers' Market

The time has come for anyone interested in taking a stall at the Whitsunday Farmers' Market to step forward. Already, more than 50 growers and producers of food products have expressed interest in becoming involved with the Whitsunday Farmers' Market, but more are needed.

Forums are due to take place around the region, so that anyone interested in running a stall can ask questions and receive help and guidance – and be the first to know the detailed plans!

Shane Stanley, the brains behind the successful Noosa Farmers' Market and two other markets in Queensland, will be on hand to share his extensive knowledge, built up over many years. Claire Dulieu, project manager at Enterprise Whitsundays, which has been driving the farmers' market project, said it was a golden opportunity for anyone who had ever thought about making a food product – not just established manufacturers – to follow their dream.

"We have opportunities for people to share available horticultural land

and use fully equipped commercial kitchens at very low cost so if you have the motivation to become a stall holder there really is nothing stopping you.

The forums are an opportunity to get all interested food providers and growers together so we can assess where they are at and how we can assist them to get ready for the market," said Ms Dulieu.

"This isn't just for people already in business but for everyone who has ever thought about producing a food product and selling it at the market – they don't have to be established.

"We hope that these forums will be a way for us to engage with people and help them get started. Shane Stanley has a wealth of knowledge not only about farmers' markets but also about

marketing food products and he will share that knowledge at the forums, through a presentation.

"We have received an enormous amount of interest already from growers and food producers but we still need more. We want as wide a range of products as we can for the market, to give consumers a good choice. This is a fantastic opportunity for anyone who has ever thought about making a food product to get on and do it."

So far, makers of cakes, muffins, ice cream, pasta, muesli, chocolate, honey, fruit drinks and relishes have stepped forward. Meat and seafood will also be sold at the market and providers of hot takeaway food are also being sought.



Growers and producers - database

Company Name	Firstname	Surname	Products	Email Address	Location
Ab Rural	Angelo	Licciadello	Rural Supplies	aliciadello@abrural.com.au	Ayr
Aldabra Nursery			Plants	andrea@pdlandscapes.net	Strethdickie
Allensleigh Produce	Peter	Chauntler		allensleighproduce@bigpond.com	
Angel Foods	Rebekah	Allan	Gluten free cakes and muffins	angelfoodsetc@gmail.com	Proserrpine
Arabon Seafoods	Terry	Must	Coral trout, bugs, prawns, reef fish	arabonseafoods@hotmail.com	Bowen
Bamboo Whitsunday			Bamboo	bamboman@bigpond.net.au	Cannonvale
Biolicious	Theresa	Fischer	Organic sprouts	cowry3@gmail.com	Brandy Creek
Black Gold Farms	Janice	Jones	Fresh Meat	info@blackgoldfarms.com.au	Ayr
Born Farms	Leanne	Born	Grower	koorelah@koorelah.com.au	Bowen
Boutique Bites	Liz			boutiquebites@gmail.com.au	
Bowebn Hibiscus Farm					Bowen
Bowen Farmer	Rod	Eatough	300 acres gourmet tomatoes	saeatough@bigpond.com.au	
Bowen Mango Sorbet	Patrick	Martin	Frozen mango	sylviemartin97@hotmail.com	Bowen
Brak Pak	Craig	Brackley	Grower	brakpak@westnet.com.au	Bowen
Burdekin Shire Council	Tony	Vaccaro	Economic Development	tony.vaccaro@burdekin.qld.gov.au	Ayr
Cakes in Costume	Georgie	Madden	Cakes	georginamadden@aol.com	Cannonvale
Carbon	Irene	Bailey	Seedlings	biota@westnet.com.au	Gregory River
Coconol	Carolyn	King	Coconut Oil	carolyn@coconol.com.au	Proserpine
Cold Rock Icecream	Grant	Spivey	Icecream	grantandshell@bigpond.com.au	Airlie Beach
Dobes Tomatoes	Janelle	Dobe	Grower	rjdobe@westnet.com.au	Bowen
E.A & K.M Higgins Lemons & Limes	Karen	Higgins	Citrus Fruit	andynkaren@westnet.com.au	Calen
Euri-Gold Farm	Cheryl	Williams	Grower	dalryan@harboursat.com.au	Bowen
Fruits of Whitsunday	Tony	Kelly	Passionfruit	info@fruitsofwhitsunday.com	North Gregory
Glencarin Cheese	Lindy	Althaus	Cheese	althaus8@bigpond.com.au	Proserpine
Good Fortune Bay Fisheries	Ben	Lawes	Farmed baramundi	admin@gfbfisheries.com	Bowen
Green Trees	Karl	Carlson		carlson1@westnet.com.au	

Whitsunday					
Heliconia	Linda	Tesanovic	Cut flowers	koke.t@live.com	Sugarloaf
Hillside Turf	Jason	Barrett		hillside_turf@bigpond.com	
Isavale Freah	Maria	Jones	Grower	nmjones7@bigpond.com	Bowen
Jurgens Produce	Jamie	Jurgen	Grower	jurgensproduce@bigpond.com	Bowen
Lemon Myrtle farms	Brian	Milgate	Orgainc lemon myrtle & vegetables	brian-milgate@hotmail.com	Cedar Creek (Palmgrove)
Mackay Regional Council	Cherrie	Hughes	Community Services	cherrie.hughes@mackay.qld.gov.au	
Marino's Deli	Marino	Roberto	Pasta	marinos.deli@bigpond.com	Airlie Beach
Master Butchers Whitsundays	Don	Cameron	Sausages and burgers	mbw69@bigpond.com	Cannonvale
Party Cakes Whitsunday	Vhari	Kelly	Cakes	info@partycakeswhitsunday.com	Cannonvale
Phantom Produce	Carl	Walker	Grower	carlwalker7@bigpond.com	Bowen
Plants Whitsunday	Matt	Stokes		sales@plantswhitsunday.com.au	
Proserpine Orchid & Foliage					
ProsVegas Sugar Estates	Ali	Simpson	Sugar Cane Juice	-	Proserpine
Reef Line Fishery	Kelly	Morgan	Reef Fish	kellymorgan6@yahoo.com.au	Mackay
Stackelroth Farm	Belinda	Williams	Pumpkind & small crops	belindawilliams2@bigpond.com	Bowen
The Bowen Tomato Company Pty Ltd	Paul	Hocking	Sundried tomatoes, mango	paul@tbtc.com.au , quality@tbtc.com.au	Bowen
The Mad Hatters Tea	Stacey	Philipson	Tea	smphilipson@gmail.com	Proserpine
Turner Farms	Campbell	Turner	Grower	turnerfarms@westnet.com.au	Bowen
Whitsudnay Seafood House	Matt Fitzgerald		Fresh seafood	whitseafood@bigpond.com	Cannonvale
Whitsunday Beefalo & Berkshire Gold	Christina	della Valle	Orgainc prok and Beefalo	christina@beefaloaustralia.com	Proserpine (Preston)
Whitsunday Garden World	Steve			gardenworld@whitsunday.net.au	
Whitsunday Gold Coffee	Ali	Simpson	Coffee	sales@whitsundaygold.com	Proserpine
Whitsunday Hydroponic	Ros	Shim	Salad, herbs	lok_shim@hotmail.com	Brandy Creek

Produce						
Whitsunday B&B	Organic	Janet	Keppke	organic museli, tea, pesto etc	info@whitsundaybb.com.au	Airlie Beach
		Anna	Fraser	Smoked ocean trout & barramundi	anna2511@aapt.net.au	Cannonvale
		Anthony	Hoffman	Bread / Pies	hoffman@bigpond.com	Airlie Beach
		Bill	Wills	Ginger, banannas		2 Dent Street Walkerston 4751
		David	Johnson	Aquaculture, hydroponics, orchid, saffron	david@educationvoyages.com	
		David	Silver	dried mango, nuts, berries, jams	lynne_yongao@yahoo.com	
		Erin	Long	Organic		
		Geoff	Henning	Chilli	geoff.henning@rabobank.com	
		George	Bollen	Shallots, banannas, sweet potato, casava	PO Box 1046 Bowen 4805	Gee Dee Road, off Bowen Collinsvi
		Jan	Goodman	Cakes	jgoodman1@dodo.com.au	Bowen
		June	Kirk	Cakes / Biscuits	-	Bowen
		Jeremy	Robinson	Tropical fruits	purchasing@whitprov.com.au	
		Jod	Lade	macadamia nuts	alan.jodi@bigpond.com	Mt Marlo, Proserpine
		Joh & Karole	Schreiber	Produce	whitsunfarms@bigpond.com	
		John	Kirk	Vegetables Mixed	jquirke001@msn.com	Ayr
		John	Murphy	Vegetables & Flowers	eliflowers@live.com.au	Bowen
		John	Hold	Lettuce, hers, taro		873 upriver road proserpine
		John	Zelenka	Pineapples	jzelenka@austarnet.com.au	
		Julie	Cardiff	Economic Development	juliecardiff@mackay.qld.gov.au	
		Kaye	Oliveri	Achacha Fruit	karleneoliveri@bigpond.com	Giru
		Kerri		Capsicum, chilli, zucchini	rkayslagoon@bigpond.com	
		M	Everem	Vegetables & Fruits	jamal@activ8.net.au	Giru
		Mark		Beef Jerkey	mark-shan@iinet.net.au	Conway
		Mike	Vance	Vegetables	mcproduce@hotmail.com	Wulguru
		Ninian	Stewart-Moore	Lamb & Mutton	ninian@dunluce.com.au	Dunluse Hughenden
		Robyh	Gough	Pork & Lamb	gough.66@bigpond.com	Charters Towers

	Shane	Johnson	Mangoes	cathyshane@aol.com	Ayr
	Sue	Flowerday	Herbs	flowerdaze59@bigpond.com	
	Tim & Marriane	Savage	Organic Veg 7 fruit jams	timarie@harbousat.com.au	Wulguru
	WF	Jensen	Mangoes & vegetables	-	Giru
	Wynn	Carnahan	Eggs / Hot food (pies) / Jams etc		North Gregory
	Debbie	McDonald	Pre prepared food hot and cold	debra@dspaustralia.com.au	Mt Julian
	Daniel	Doellinger		sharkman007@bigpond.com.au	Cedar Creek (Palmgrove)
	Sharon		Sunflowers		
	Jane		Gerberas		
Ballantyne's Strawberriars	Alan / Marg		Fresh strawberries & value add products	zulu@bordnet.com.au	Camerons Pocket
Spice Blendz	Patrick & Maree	Moroney	Spice mixes	spiceblenda@yahoo.com.au	
Pacific Blue			Fruit Wine	cellardoor@pacificbluwinery.com	Condon
Kemp Meats			Meat	kempmeats@skymesh.com.au	Sarina



Director of Queensland Farmers Market Shane Stanley launches the Whitsunday Farmers Market survey: 1/6/11



Enterprise Whitsundays CEO, Andrei Koeppen conducting an interview regarding the Whitsunday Farmers Market project with WIN News: 1/6/11



Potential Farmers Market stallholder Biolicious show off their produce at the media launch: 1/6/11 (left to right) owners of Biolicious Paul & Theresa Dukes, Danielle Seymour from Tourism Whitsundays, Rachael Kitschier from Tourism Queensland

Farmers' market gains momentum

The Whitsundays is another step closer to having its first farmers' market, with information forums held for growers and food producers in Proserpine and Bowen last week. More than 30 potential stallholders attended the forums

where it was also announced that the proposal before Whitsunday Regional Council is for a weekly farmers' market, on a weekend morning. This was by far the most popular option according to the results of a survey conducted in June/July this year, which gave more than 1,000 residents the chance to have their say.

"The objective of the forums was to get all the stallholders in the room and present the plans and see what they thought," said Director of Queensland Farmers Markets, Shane Stanley, who is the consultant to Enterprise Whitsundays, at the forefront of the campaign.

Mr Stanley said the feedback at the forums was "all very positive" with suggestions for a rotating market to be held at Proserpine, Bowen and Airlie Beach.

"Everyone agreed that a farmers' market was a great thing for the region and as for the exact details everyone's comments have been taken on board," he said.



TO MARKET: Whitsunday MP Jan Jarratt with Director of Queensland Farmers Markets Shane Stanley and Enterprise Whitsundays Project Manager Claire Dulieu, championing fresh local produce at Capers last week.

Tourism, Manufacturing and Small Business Minister Jan Jarratt also met with Enterprise Whitsundays last week to "check in" on how the farmers' market plan was progressing.

Ms Jarratt said the Whitsunday Farmers' Market aimed to encourage growers to "think outside the square about how they can improve or diversify their business and add value to their produce".

"The Whitsundays boasts an amazing array of fresh food and this idea will help showcase locally grown and made products to residents and visitors alike. Ms Jarratt said the Department of Employment, Economic Development and Innovation (DEEDI) had provided \$100,000 in funding toward the project under the Queensland Regional Development Initiative. Enterprise Whitsundays also received \$15,000 funding in March under DEEDI's Tourism Projects Pre-feasibility Grants program to prepare a business plan and undertake market research.



Stall Holders Gather for Farmers Market

The time has come for anyone interested in taking a stall at the Whitsunday Farmers Market to step forward. Already, more than 50 growers and producers of food products have expressed interest in becoming involved with the Whitsunday Farmers Market, but more are needed.

Forums are due to take place around the region, so that anyone interested in running a stall can ask questions and receive help and guidance – and be the first to know the detailed plans!

Shane Stanley, the brains behind the successful Noosa Farmers Market and two other markets in Queensland, will be on hand to share his extensive knowledge, built up over many years.

Claire Dulieu, project manager at Enterprise Whitsundays, which has been driving the farmers market project, said it was a golden opportunity for anyone who had ever thought about making a food product – not just established manufacturers – to follow their dream.

“We have opportunities for people to share available horticultural land and use fully equipped commercial kitchens at very low cost so if you have the motivation to become a stall holder there really is nothing stopping you. The forums are an opportunity to get all interested food providers and growers together so we can assess where they are at and how we can assist them to get ready for the market,” said Ms Dulieu.

“This isn’t just for people already in business but for everyone who has ever thought about producing a food product and selling it at the market – they don’t have to be established.

“We hope that these forums will be a way for us to engage with people and help them get started. Shane Stanley has a wealth of knowledge not only about farmers markets but also about marketing food products and he will share that knowledge at the forums, through a presentation.

“We have received an enormous amount of interest already from growers and food producers but we still need more. We want as wide a range of products as we can for the market, to give consumers a good choice. This is a fantastic opportunity for anyone who has ever thought about making a food product to get on and do it.”

So far, makers of cakes, muffins, icecream, pasta, muesli, chocolate, honey, fruit drinks and relishes have stepped forward. Meat and seafood will also be sold at the market and providers of hot takeaway food are also being sought.

Forum Details:

Refreshments will be provided at the forums, which will take place as follows:

Proserpine: Tuesday, September 13, at 4pm, at the Metropole Hotel

Bowen: Wednesday, September 14 at 4pm at Café 360 on Flagstaff Hill

Please register to attend the forums by:

Phone: (07) 4946 0111

Email: projectmanager@enterprisewhitsundays.com.au

Editors Notes:

A survey was carried out in June this year, asking Whitsunday residents for feedback on plans for a farmers market.

More than 1,000 survey forms were completed with an overwhelming majority of respondents in favour of a farmers market.

Top-line results of the findings will be released at the forums, with the full report issued to the public soon afterwards.

For more information about becoming a stallholder at the farmers market, contact Claire Dulieu at Enterprise Whitsundays on (07) 4946 0111.

-Ends-

For more information about this media release contact Claire Dulieu at Enterprise Whitsundays on (07) 4946 0111.



Vote is in for Farmers Market

The people of the Whitsundays have spoken when it comes to a farmers market for the region, with the recent survey revealing overwhelming support for the concept.

A staggering 1,140 consumer responses were received during the five-week survey period, in June and July this year, with 99.9 per cent of respondents in favour of a farmers market.

“The response to the survey was fantastic – almost four per cent of the population had their say – and we want to say thank you to everyone who completed a questionnaire. Your opinions really do matter,” said project manager Claire Dulieu, from Enterprise Whitsundays, which is spearheading the initiative in conjunction with Queensland Farmers Markets.

“Due to the very positive response from all towns in the region, we are considering a rotating farmers market, with the market held in a different town each week.”

Ms Dulieu said the next step would be to discuss the different location options with Whitsunday Regional Council.

A full report with all the results of the survey – including what day and what time the farmers market should be held – will be made available on the website shortly.

Consultant Shane Stanley, of Queensland Farmers Markets, has been analysing the survey responses. Mr Stanley is the brains and energy behind three farmers markets in Queensland, including the hugely successful Noosa Farmers Market, and he has been working closely with Enterprise Whitsundays, as well as with growers and producers, on the Whitsundays project.

“The response to the survey has been phenomenal and we thank everyone for their input,” he said.

“A farmers market is a great community asset and it must reflect the wishes of the community – and of course the growers and food producers who will be selling their products there.”

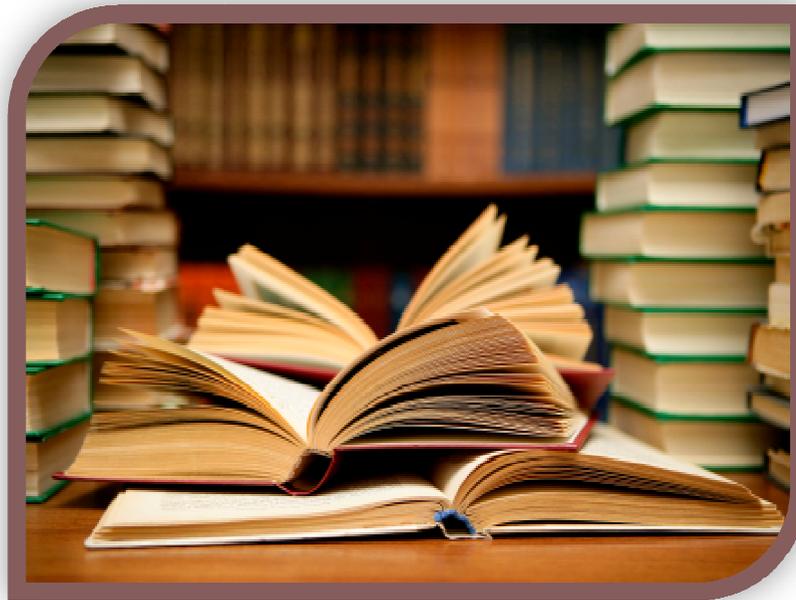
Mr Stanley said interest from growers and food producers had been fantastic, with scores of people expressing a desire to become involved.

As well as fruit, vegetables, herbs, plants and cut flowers, the farmers market would also sell locally made food products.

Anyone interested in selling fresh produce and plants or making a food product can call Enterprise Whitsundays on 07 4946 0111 or email projectmanager@enterprisewhitsundays.com.au

For more information about this media release please contact Claire Dulieu on 07 4946 0111.

Appendix 6: Research Library Information (Samples)



Specialty Crops for Pacific Island Agroforestry (<http://agroforestry.net/scps>)

Farm and Forestry
Production and Marketing Profile for

Banana and Plantain

(Musa spp.)

By Jeff Daniells, Lois Englberger, and Adelino Lorens

USES AND PRODUCTS

Global consumption of banana and plantain is about one trillion individual fruit each year. They are either consumed raw when ripe or cooked when hard, green, mature or at various stages of ripeness and represent one of the most significant sources of food energy in the Pacific. Banana leaves are commonly used as table mats and plates. They are also used for wrapping some foods before or after cooking. Banana blossom, also called bud or bell, is consumed as a cooked vegetable dish. The pseudostem (or “trunk”) is also used throughout the Pacific to line traditional above- and below-ground ovens together with banana leaves placed

over the food to keep it dirt-free. Fibres are extracted from the stems and leaves and used for various purposes. There are many medicinal uses that are important for banana. The fibre of the pseudostems and the juice of the stem are used in various treatments, such as for concussion, muscle ache, broken bones, cuts, burns, and fevers. Eating banana can also be used to clear fish bones that are caught in the throat.

Commercial production worldwide

Bananas and plantains represent the largest fruit crop in terms of both world production and trade. Total world production in 2006 was 113 million metric tons (MT). Almost



Top left: Many varieties of bananas are available at Pacific island farmers markets, such as this one in Apia, Samoa. Top right: A ripe bunch of ‘Ney Mannan’, also known as ‘Ice Cream’ bananas, Kealakekua, Hawai’i. Bottom left: Boiled bananas are a substantial component of many meals in parts of the Pacific, as in this Solomon Islands dish. Bottom right: Bananas are important in the diet of babies in the Pacific and can be given as a complementary food to breast milk after the age of 6 months. This photo shows a child enjoying ‘Karat’, a Fe’i banana of Pohnpei.

17 million MT were marketed in world trade in 2005, valued at about US\$5 billion. During this period about 980,000 MT were produced in Melanesia, Polynesia, and Micronesia but only 120 MT were exported. An insignificant amount was imported (FAO, n.d.).

In 2005, Hawai'i produced 10,000 MT of bananas for local consumption and imported 5,900 MT (NASS 2009).

BOTANICAL DESCRIPTION

Preferred scientific name

Musa species. All of the edible bananas belong to the *Eumusa* section of the genus *Musa*, except for the Fe'i bananas, which belong to the *Australimusa* section.

Family

Musaceae

Common names

The word banana refers to all members of the genus *Musa*, whilst plantain refers to a subset of bananas. The term plantain may be used in different ways, but usually is applied to fruits that are starchy when ripe and are almost exclusively cooked for consumption. Bananas apart from plantains can be eaten cooked and are also consumed uncooked when ripe.

In the discussion below, banana is used to refer to all plants of the Musaceae family. In some parts of the Pacific islands, there is a separate term for Fe'i bananas, those with upright bunches, and another term for non-Fe'i bananas.

The names listed below are only some of many used in the Pacific for banana.

Pacific islands

Chamorro, Guam, Northern Marianas: *chotda*, *aga'* (ripe banana)

Chuuk: *uchu*

Cook Islands: *meika*

Fiji: *leka*, *jaina*

French Polynesia: *meika*, *mei'a*

Hawai'i: *mai'a*

Kiribati: *te banana*

Kosrae: *usr*

Maori: *maika*, *panama*

Palau: *tuu*

Pohnpei: *uht*

Samoa: *fa'i*

Solomon Islands: *ba'u* (Kwara'ae), *husi* ('Are 'Are), *huti* (Rennell & Bellona), *sou*, *huki/fuki* (non-Fe'i varieties), *toraka* (Makira, Fe'i varieties)

Tonga: *siaine* (introduced varieties), *hopa* (native)

Yap: *dinaey*, *p'aw*

Other languages

French: *le bananier*

German: *die Banane*

Spain, Latin America: *banano* (plant), *platano*, *platanero* (plantain), *guineo* (dessert banana)

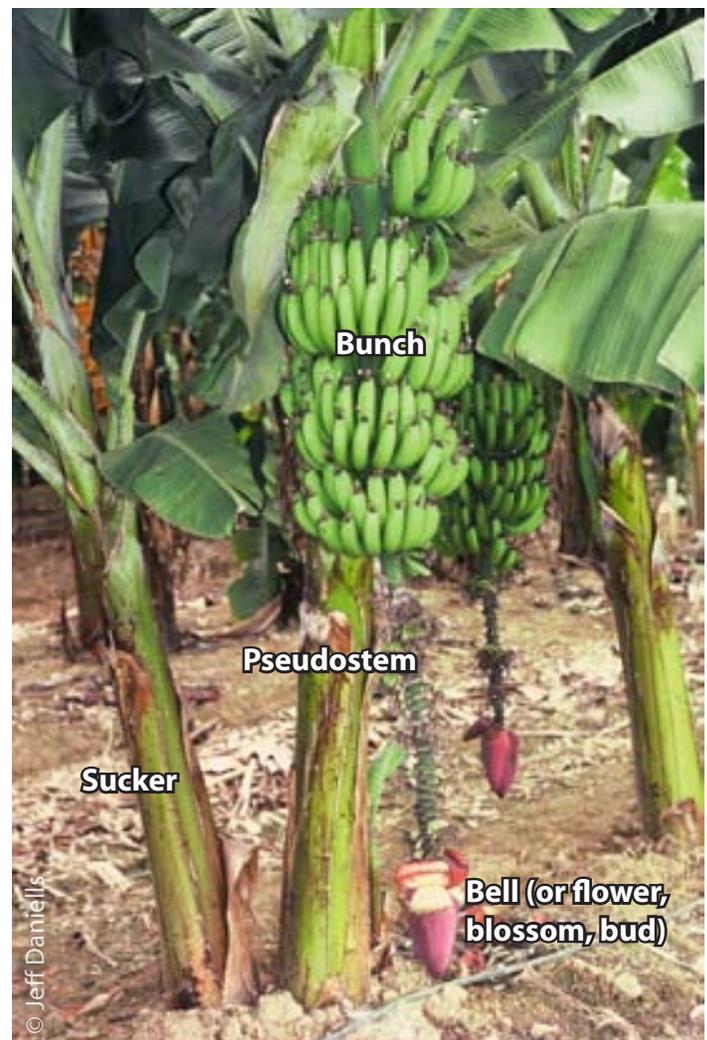
Indonesia: *pisang*

Philippines: *saging*

Mexico: *barbaro*, *zapotele*

Brief botanical description

The banana plant is a giant perennial monocotyledonous herb, which usually grows in height from 2–9 m. A mature banana plant consists of a basal rhizome with roots and suckers, a pseudostem with leaves, and a bunch with fruit. The pseudostem is made up of overlapping leaf sheaths with new leaves and finally the true stem bearing the terminal inflorescence growing up through the centre. The pseudostem usually supports a canopy of 10–15 large leaves. Flowering can occur at any time of the year, depending on plant maturity. The basal flower clusters (hands) are female and form the fruit bunch. Distal flower clusters are male, do not pro-



Cavendish banana with four plant parts labeled.



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Top left: Bananas are the largest herb in the world. *Musa ingens* is a wild seeded species which grows in the highlands of New Guinea and reaches about 18 m in height. Top middle: The Fe'i banana 'Toraka Gatagata' is prominent in Makira (Solomon Islands). Banana variety collection curator Dorothy Tamasia is pictured. Top right: Several Fe'i varieties from Solomon Islands. Aibwo and Suria were found to be alternate names for the same variety after this photo was taken. Bottom left: Some of the diversity of bananas. Bottom middle: Several seeds in fruit of the PNG variety 'Tainga' are shown. However, for most cultivated varieties seeds are relatively rare and depend on a fertile pollen source being nearby. Bottom right: Ripe hand of Cavendish bananas.

duce fruit, and are commonly deciduous. Banana bunches are mostly sub-horizontal to pendulous except for several members of the Australimusa section which have upright bunches. The fruit of cultivated varieties develop parthenocarpically, i.e., they develop without the stimulus of pollination. They are also relatively infertile and only rarely contain seeds.

Banana bunches can have up to 20 hands and take 2–6 months to reach maturity after flowering. Bunches at harvest weigh from 5–50 kg depending on variety and environmental conditions. Individual fruits can number up to 300 on a bunch and are usually from 15–30 cm in length and 50–300 g in weight. The peel of mature banana fruit is usually green and ripens to a yellow colour, but in some cases is orange, reddish or red-brown. Fruit flesh color ranges from whitish to cream, yellow, yellow-orange, and deep orange.

DISTRIBUTION

The primary centre of origin is thought to be Malesia (Malaysia, Indonesia, Philippines, and Papua New Guinea). Bananas are now cultivated throughout the tropics and in certain areas of the subtropics.

ENVIRONMENTAL PREFERENCES AND TOLERANCES

Bananas generally grow best in a wet tropical climate. They can be grown on a wide range of soils provided there is good drainage and adequate fertility and moisture. The best soils are usually deep, well drained, water retentive loams with high humus content. Volcanic or alluvial origin is preferred. Soil pH of 5.5–6.5 is desirable.

GROWTH AND DEVELOPMENT

Each plant produces a series of leaves, about 40 in total, followed by a terminal inflorescence. Plants produce lateral

Table 1. Elevation, rainfall, and temperature

Elevation range	lower: sea level upper: 2,000 m
Mean annual rainfall	lower: 500 mm upper: Produces when many other crops fail because it is too wet
Rainfall pattern	Uniform rainfall is preferred for production.
Dry season duration	Because bananas store a significant amount of water within the plant, they can survive extended periods of drought (3–6 months), but yield and fruit quality usually diminish if rainfall or supplementary irrigation is not supplied within 2 weeks of a soaking rain.
Temperature	Bananas grow best between 20°C and 30°C. The optimum for dry matter accumulation is about 20°C and for the appearance of new leaves is 30°C. Banana growth processes just about cease near 10°C. Temperatures above 38°C cause growth to stop and leaf burn is common. Chilling damage can occur in the plant and fruit once temperatures drop below 13°C. Frost causes death.

shoots (suckers) from the underground rhizome leading to the next crop, a process that can go on indefinitely. Initiation of the inflorescence occurs after the plant has produced about 30–40 leaves. Recent evidence suggests that bananas are facultative long-day plants, i.e., long photoperiods promote flowering but are not essential for it. Thus flowering and subsequent harvest can occur at any time of the year so long as plant establishment and development is scheduled accordingly. At lower temperatures and when soil moisture is limiting, the development process slows. To produce larger bunches of good quality fruit, the number of suckers selected for ratoon (resprout) crops is usually limited to 1–4 depending upon the original spacing at planting.

Flowering and fruiting

The sequence from planting to harvest usually takes from 9 months to 2 years, with slower growth in cooler climates. Some varieties require a longer period from planting to harvest, for example, some Fe'i varieties, generally take 2 years or longer. Subsequent ratoon crops usually take a further 7–15 months.



Top left: Bananas can be grown in a wide range of environments, as shown here around homes in the Sepik Wahgi Divide north of Banz in the PNG highlands at an elevation of 2,000 m. Bottom left: Underpeel discolouration due to chilling damage. Right: Banana clump showing stems of successive ratoons at various stages of development.

AGROFORESTRY AND ENVIRONMENTAL SERVICES

Agroforestry/interplanting practices

For subsistence purposes bananas are commonly intercropped with a range of other naturally occurring and cultivated plants such as papaya (*Carica papaya*), coconut (*Cocos nucifera*), kava (*Piper methysticum*), breadfruit (*Artocarpus altilis*), Marianas breadfruit (*Artocarpus mariannensis*), yam (*Dioscorea* spp.), sweetpotato (*Ipomoea batatas*), aibika (*Abelmoschus manihot*), and cassava (*Manihot esculenta*). Any variety can be used in agroforestry systems. 'Karat' and other Fe'i banana varieties of Pohnpei, appear to thrive under some shade of breadfruit trees and in some situations do better if replanted each year. If not properly managed, however, competition for water, nutrients, and light can lead

to low yields. The more pest resistant varieties can thrive for many years in such systems without the need for replanting.

Environmental services provided

Banana plants establish quickly and are used in various parts of the world as shade during the establishment of crops that are sensitive to excessive sun. Crops such as cacao (*Theobroma cacao*), coffee (*Coffea* spp.), mangosteen (*Garcinia mangostana*), and kava benefit from shade during the establishment period. Bananas can be used as windbreaks that produce a useful crop, but for stronger wind events such as cyclones bananas offer little protection and are readily blown over by strong wind. Bananas grow well on steep lands but require a shade tolerant cover crop such as perennial peanut (*Arachis pintoii*) if they are to be considered useful in the control of erosion. Banana plants are aesthetically pleasing with their broad leaves and sometimes very attractive



Top left: Banana-coconut intercropping in Samoa. Top right: Bananas intercropped with giant swamp taro (*Cyrtosperma chamissonis* [often considered syn. *C. merkusii*]) in Palau. Bottom left: Mixed agroforest of banana with cassava (*Manihot esculenta*), cocoyam (*Xanthosoma* sp.), fig (*Ficus carica*), and other fruits in Hawai'i. Bottom right: 'Karat', a Fe'i banana rich in provitamin A in Pohnpei.



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Top: Bananas intercropped with coffee in PNG highlands near Mt. Hagen, providing useful shelter (wind and shade) for the coffee. Note traditional bunch covers made of natural fibers. Middle: Banana providing shade for cacao trees in Kona, Hawai'i. Bottom: Variety 'Santa Catarina Prata' providing windbreak for papaya in Hāna, Hawai'i.

colours, and are a quintessential component of any tropical garden landscape.

Advantages and disadvantages of growing in polycultures

Bananas are well suited to polyculture/permaculture systems. This is evidenced by their ubiquitous presence in polyculture systems. How well they perform depends on crop management to ensure spacing associations and nutrient inputs are suitable. Bananas grow quickly and can produce either food or economic returns within 12 months of planting in a polyculture or other system. This quick growth can also provide valuable shade and wind protection to more sensitive species. Regular deleafing of the lower senescent leaves of the banana plants can also provide valuable mulch/weed control for other species. As for many crops including several different banana varieties, a polyculture system is likely to be more robust in the face of pest and disease threats.

PROPAGATION AND PLANTING

Bananas are usually propagated from suckers and bits (pieces of corms with attached growing points), but export-type commercial plantings more commonly use tissue-cultured plantlets. In the Pacific, very large suckers are the normal planting material and are usually established once the wet season has begun. Vigorous young suckers that still have narrow leaves ("sword suckers") are preferred and are dug from existing plantings using a sharp tool such as a narrow bladed shovel. This type of planting material is the most robust, and is not easily damaged by pigs and chickens. However, banana planting materials are vulnerable to free-roaming pigs, particularly Fe'i varieties as 'Karat'. Large suckers also compete better during establishment in a shaded agroforestry setting. One important drawback of this method is that roots and attached soil are not normally removed from the base of the sucker so pests such as burrowing nematodes, are readily transferred to new planting sites.

CULTIVATION

There is considerable diversity of bananas. Types such as Fe'i, Maoli/Popoulu, Iholena and various cooking bananas of Papua New Guinea and the Solomon Islands have their centre of diversity located in the Pacific and have risen to considerable prominence. Common varieties that arrived after Western contact include 'Cavendish' and 'Mysore'. Black Sigatoka resistant varieties such as 'Kluai Namwa Khom' ('Dwarf Pisang Awak') have become quite important in recent years in the Cook Islands and Samoa following introduction during the course of development projects.



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Top left: Typical planting using “island style” banana suckers. Top middle: Banana sucker for planting material plus narrow pointed shovel suitable for digging it out. Top right: Pest and disease-free tissue-cultured plants ready for field planting. Middle left: Wind damage is the single most important cause of yield loss in bananas. Middle right: Bamboo props for bunch support in Samoa. Bottom left: Plastic bunch covers in Hawai'i. Bottom right: Traditional bunch cover of dry leaves in PNG.

Basic crop management

Once bananas successfully pass the establishment phase, the management required to get a crop is relatively minimal. Their efficiency at producing food energy relative to energy inputs is better than most other herbaceous starchy staples. The more vigorous varieties can produce for year after year with very little input. However, yield and fruit quality benefit greatly by ensuring ample water, nutrients, and the control of pests, diseases, and weeds.

Some varieties have weaker pseudostems and/or are more prone to pests of the corms and roots. This leads to loss of yield when plants fall over in strong winds. Supporting the bunches by propping or tying them can be a good investment. For commercial production, banana bunches commonly have bunch covers (polyethylene, paper, or leaves) applied to prevent damage from insect and vertebrate feeders. However, the value of this practice depends on the pests present and the requirements in external appearance for a particular market/use.

PESTS AND DISEASES

Susceptibility to pests/pathogens

Pests and diseases are major constraints to production wherever bananas are grown in the Pacific. Black Sigatoka/black leaf streak (*Mycosphaerella fijiensis*), bunchy top (vi-

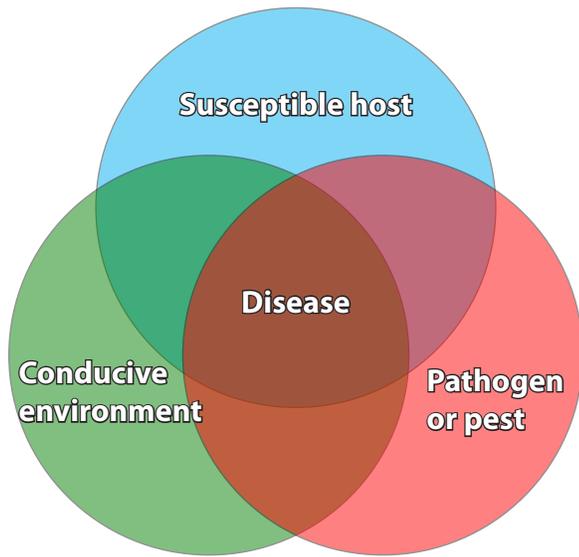
rus), burrowing nematode (*Radopholus similis*) and scab moth (*Nacoleia octasema*) all cause major yield losses in the region. There are also numerous other pests and diseases which can cause serious damage in some environments and for certain varieties. Also of major concern to sustainable production is the further spread of diseases such as bunchy top and Fusarium wilt and the entry of exotic pests and diseases such as blood disease, tropical race 4 Fusarium wilt, and banana skipper (*Erionota thrax*). In some locations fruit flies can cause serious damage to mature and/or ripening bunches but the application of bunch covers eliminates this problem. In-depth coverage of all these diseases and pests is given by Jones (2000) and Gold et al. (2002).

Sustainable methods for preventing and treating problem pests and diseases

Management of pests and diseases in an effective, efficient, and environmentally friendly manner is best understood using the conceptual framework of the disease triangle. The disease triangle illustrates the paradigm that the development of disease or pest damage caused by a biotic agent requires the interaction of a susceptible host, a virulent pathogen or pest, and an environment favourable for disease development/pest damage. Elimination or alteration of any of these three factors inhibits the ability of the pest/disease to do harm. Different pests and diseases differ in the manner in which they respond to the environment and



Left: Marasmiellus rot is a common problem in very wet climates and can be confused with other wilt diseases such as Fusarium wilt. Middle: Bunchy top is a major virus disease present in several countries of the Pacific. Right: Black Sigatoka is a major cause of reduced yields in the Pacific.



Disease triangle, illustrating the three factors required for a disease to be present.

characteristics of the host. Hot, wet weather favours leaf diseases like black Sigatoka, while hot, dry weather can favour mite damage. Some varieties including FHIA hybrids from the breeding program in Honduras are highly resistant to many pests and diseases, but not to all. Every variety has its own set of advantages and disadvantages and growers must assess what works best for their needs. Many pests and diseases are spread in infected planting material, so obtaining planting material from a clean source is an integral part of any control measure.

DISADVANTAGES

Bananas (plantains included) are the world's fourth most important food crop after rice, wheat and maize. They are

popular because their advantages far outweigh their disadvantages. That said, the most notable problem for bananas is their susceptibility to wind damage and this is the single largest cause of yield loss in banana worldwide. This is especially relevant to the many Pacific countries in the cyclone-belt. Despite their susceptibility to wind damage, some varieties of bananas are quickly able to produce another crop within about 9 months of a severe wind event without the need for replanting.

Potential for invasiveness

Most bananas are not considered to be invasive. However, wild seeded species have the potential to be spread via foraging vertebrates and can become invasive.

COMMERCIAL PRODUCTION

Postharvest handling and processing

Commercially grown bananas are normally harvested when they are mature but still hard green and transported to the market. For some international markets, the bananas may be artificially ripened. This has several benefits including (i) hard green fruit are less subject to mechanical damage/bruising during transport to the market (ii) fruit quality is generally improved as fruit fly damage and fruit peel splitting is eliminated (iii) fruit can then be uniformly ripened with ethylene gas (1,000 mg/l), which greatly facilitates marketing. The storage life of both unripe and ripe fruit is enhanced at cooler temperatures above 13°C to prevent underpeel discoloration and associated poor external fruit appearance due to chilling injury.

About half of the bananas produced are eaten raw when ripe as a dessert fruit, although some ripe bananas are cooked



Current location of bunchy top and Fusarium wilt in the Pacific region, two major banana diseases that can be managed and contained by the enforcement of agricultural quarantine restrictions. Pink = bunchy top, yellow = Fusarium wilt.

and prepared in various recipes. The other half are cooked, usually by frying, boiling, roasting, or baking. Processing of bananas is relatively uncommon because the fresh product is available year round. Processed products including chips (crisps) and dried green and ripe bananas have considerable potential but are still relatively uncommon.

Methods of processing that can be done to add value at a community or farm level

Advantages of processing bananas include:

1. Avoiding waste during production gluts. One large banana bunch alone at the household level is far more than the average family can consume fresh, so there is often excess available for drying, freezing, etc.
2. Turning the fruit into more valuable products, e.g., flour from dried green fruit, banana figs, banana juices, sweets, jam, and ice cream.
3. Increasing the quantity of fruit consumed by increasing the range of possible banana products and also replacing

other food items such as wheat-based flours, lollies, and dairy-based ice cream.

Ripe bananas, whole or sliced, can be dried with electric dehydrators or solar dryers on a small scale. They are also well suited to freezing and eating like an ice block/ice cream with various coatings. Homogenized frozen ripe banana is surprisingly creamy without the addition of dairy products. Deep fried chips can also be made on a small scale but because of the frying process their overall nutritional value is decreased. Other processing that can be considered at a community level are jams and vinegar.

Banana “figs” are simply ripe bananas that are dried. Dried bananas are healthy snack foods, providing energy, vitamins and minerals with no unhealthy added ingredients, such as fat, salt, or sugar. Varieties producing sweet fruit and slender fingers, such as ‘Pisang Kelat’, known as ‘Daiwang’ in Pohnpei, have been shown to be excellent for producing banana figs. They can be dried in a solar dryer and if there is good



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Top left: Bananas can be dried with solar energy (in drier climates) or with forced air heating units. Top middle: “Banana figs,” bananas sliced lengthwise and dried. Top right: ‘Karat’ banana with coconut jam made in Pohnpei. Bottom left: Chips made from two types of bananas are packaged up for sale as attractive snacks. Bottom middle: Banana chips made from three different Fe’i (Toraka) bananas on Makira, Solomon Islands. Bottom right: Chocolate-covered frozen banana makes a tasty dessert treat.

sunny weather, the fruits may be sufficiently dried after about 4–5 days. The directions are as follows:

- Select a variety with a thin fruit. With good hygiene, peel bananas and place in a dryer or dehydrator. Large fingers can be sliced lengthwise to speed the drying process.
- Dry the fruits for about a week, or until they are about one-third of the original size. If a solar dryer is used for the first day and there are rainy periods, a dehydrator or oven at low temperature can be used to complete the drying process.
- Serve the “banana figs” as snacks. These are good for school lunches, workshops, or gifts.
- Store in airtight plastic bags or other containers with lids. If dried properly, the bananas can be stored without refrigeration for several weeks.

For the preparation of banana flour, select green fruit, cut into 2 mm thick slices, place in a dehydrator for about 5–6 hours at 60–65°C until crispy, or dry with a solar dryer. The dried slices can then be ground in an electric grinder and resulting flour used in common recipes such as pancakes mixed 1:1 with wheat flour.

Product quality standards

Bananas that are sold for export must be of a high standard and relatively free of blemishes. They must meet product specifications of size and appearance for the retail outlets where they will be sold. Minimum quality requirements for bananas in international trade are set by Codex Alimentarius for which there are three classes for overall appearance and degree of defects/blemish. It is essential in all three classes that any defects do not adversely affect the quality of the edible flesh. A common problem in the past in the Pacific has been ensuring management systems are in place so that banana fruit reaches the marketplace while still hard green.

Storage requirements and shelf life

If bananas are exported, it can take up to 3 weeks from harvest before they reach the market. Therefore, they must have sufficient greenlife (the period after harvest for which the fruit stays in a hard green condition) to survive this journey. No postharvest treatment can improve upon the inherent greenlife, but treatments can reduce the rate of decline. In general, the earlier the harvest, the greater is the fruit greenlife, but any gain in greenlife must be balanced against the loss in bunch weight (5–10% per week). A key to profitable banana growing is to maximize yield without premature ripening occurring. Under some circumstances fruit may be harvested early to capitalize on temporary high market prices. Maximum greenlife for a particular finger diameter (grade) at harvest is achieved by trimming excess hands

from the bottom of the bunch soon after flowering and ensuring that inputs such as water, nutrients, and pest control are optimal.

Bananas are usually consumed within a few weeks from the day of harvest, with no long-term commercial storage possible, unlike citrus and pome fruits. It is possible to delay the onset of ripening by a few weeks using modified atmosphere storage with high carbon dioxide (5%) and low oxygen (2%) and with ethylene absorbents, such as potassium permanganate, but because banana fruit is available year round there is usually no advantage in such storage methods. However, in places where refrigeration is too expensive or not available, these storage techniques may be valuable for export.

Once the fruit ripens, the period over which it may be eaten, its shelf life, is relatively short. It is usually of the order of 2–10 days depending upon variety and ambient temperature. The perishable nature of banana is associated with its high rate of metabolism. The rate of respiration during the climacteric (ripening phase) can be as much as 30 times higher than that of apples. Lower temperatures will reduce the metabolic rate. A reduction of 10°C usually halves the rate. Chilling injury occurs when the fruit is kept for a long period below 13°C.

Recommended labeling and packaging

Fruit packaging and labeling requirements vary greatly depending on the country of production and the markets in question.

For export, recommended packaging is in new fibreboard cartons (18 kg capacity or less) with ventilation holes for temperature control. Polyethylene film liners in the carton help to reduce fruit moisture loss in transit. Sheets of polyethylene between the hands of fruit can minimize rubbing damage. Transport life can be enhanced by packing all the fruit in a sealed bag under partial vacuum and by incorporation of an ethylene absorbent (e.g., potassium permanganate).

Required labeling includes exporter identification, fruit name and variety, country of origin, and official inspection, including phytosanitary certification, where appropriate. Requirements for domestic markets are far less demanding and vary greatly. Often bananas are just sold as whole bunches without any particular labeling.

SMALL SCALE PRODUCTION

Bananas are ideally suited for homegardens and are probably grown and cultivated in more gardens throughout the Pacific than any other single plant species. Bananas easily fit into the landscaping of gardens and produce a crop that can be consumed as well. They are well suited to polycultural systems and can contribute significantly to the income from

a small property within 12 months of planting (longer for some varieties), and continue to do so with relatively modest inputs. The nutritious and tasty fruit of banana is eaten by people of all ages and health conditions. The relative importance of banana as a staple in the diet depends largely on the ethnic background.

Adding value

Dried bananas and banana chip production make good cottage industries. If refrigeration is available, frozen banana and banana-based ice cream can make viable products. These processed products have a long shelf life and can be stored and sold over time to add diversity to farm sales.

Nutrition

Bananas can be eaten raw and ripe as a snack, dessert, or cooked at various stages of ripeness, including while still green and starchy as well as half-ripe and fully ripe. It is a major starchy staple in countries such as Papua New Guinea and Samoa. As a snack they are convenient, hygienic, and readily available. The soft texture of ripe bananas makes them an excellent food for the very young and old alike. Green bananas are rich in resistant starch. Research has recently shown that resistant starch acts as fiber, providing protection against diabetes. Ripe bananas, in particular those that are deep yellow or orange are rich in provitamin A and other carotenoids. Foods rich in provitamin A carotenoids help protect against vitamin A deficiency disorders



Top left: Preparing green bananas for cooking in Samoa. Top right: Banana chips are made by deep frying thin slices of green fruit, which is easily done on a small scale. Bottom left: A typical Maoli/Popoulu banana, a unique and culturally significant type of banana in the Pacific. Bottom middle: The Fe'i banana 'Asupina' has attractive orange flesh and is a rich source of beta-carotene. Bottom right: Bananas have considerable cultural significance throughout the Pacific, such as here where they figure prominently in display component of the "Houra" feast on Makira (Solomon Islands).

(vulnerability to infection and night blindness) and anemia, whereas carotenoid-rich foods help protect against certain cancers, heart disease, and diabetes. Bananas also contain substantial amounts minerals and vitamins; for instance, potassium, which is important for muscle relaxation, and vitamin C. Bananas also are rich in tryptophan, which is converted in the body to serotonin, a mood-enhancer, leading to recent information that bananas may be helpful as a “happy” food.

Import replacement

Raw and processed bananas as a snack/dessert are a cheap and nutritious alternative to sweets, ice creams, and other highly processed imported foods. As a starchy vegetable, bananas can help replace imported rice, wheat, and maize, which are rapidly escalating in price with the current world food crisis.

YIELDS

Expected range of yields per plant

Yields depend upon variety and the environment, which includes the crop management system. In commercial planta-

tions, Cavendish (AAA) bananas can yield up to 70 MT/ha (40 kg/bunch × 1,750 plants/ha), while Pome (AAB ‘Lady Finger’/‘Brazilian’) bananas can yield about 25 MT/ha (29 kg/bunch × 875 plants/ha). In polycultures, bunch weights will usually be less, but this is largely dependent on the level of inputs.

Recommended planting density

In monocultures, Cavendish bananas can be grown at about 1,750 plants/ha, while a density of about 875 plants/ha is more appropriate for those in the Pome subgroup, which are taller. Only a fraction of this density of banana plants is used in a polyculture system.

MARKETS

Local markets

The best market prospects for bananas are domestic. The more people who are employed outside of the agricultural sector, the higher demand will be at roadside stands, farmers markets, and retailers. There is potential for sales to restaurants and hotels, particularly for the tastier varieties, and those with cultural significance. The latter include varieties

Table 2. Nutrition comparison (100 g edible portions)

Food Items	Kcal	Fibre (g)	Calcium (mg)	Potassium (mg)	β-carotene equivalents (µg)	Riboflavin (mg)	Niacin (mg)	Vitamin C (mg)	Vitamin E (mg)
Ripe banana common varieties (white-fleshed, raw)	100	0.8	11	241	46	0.08	0.7	17.3	0.4
Ripe banana, cream-fleshed, raw/cooked	na	na	na	na	85–205	na	na	na	na
Ripe banana, yellow-fleshed, raw/cooked	na	na	6.5	269	232–892	na	na	na	na
Ripe banana, yellow/orange-fleshed, raw/cooked	na	na	68.6	253	565–2473*	0.47–14.30***	22.6	na	1.55
Ripe banana, orange-fleshed, raw/cooked	na	na	na	na	1450–8508**	1.76	na	na	na
Ripe cooking banana, fried, flesh colour not specified	265	2.3	6	610	149	0.02	0.6	12.0	2.2
Sweet biscuit	451	2.0	31	103	6	0.02	1.6	0	0.3
White rice, boiled	123	0.8	4	10	0	0.01	0.6	0	trace

References: The data for white-fleshed banana most likely refer to a Cavendish variety. These data and those for biscuit and rice are from Dignan et al. 2004. The data on varieties with cream, yellow, yellow-orange, and orange flesh are from bananas grown in Pohnpei and Kosrae, FSM.

Note: Age, gender, biological state, and activity levels are among the factors determining Recommended Dietary Intakes (RDI). For a non-pregnant, non-lactating female 19-65 years of age, the RDI per day are: calcium 1000–1300 mg; potassium 50–140 mg; vitamin A 500 ug Retinol Activity Equivalents (RAE); riboflavin 1.1 mg; niacin 14 mg; vitamin C 45 mg. Conversion of vitamin E 7.5 mg (Dignan et al. 2004). Note that beta-carotene equivalents divide by 12 RAE.

* These data are from ‘Karat’, a Fe’i banana from Pohnpei, FSM, which has a yellow-orange flesh when ripe. The levels are thought to vary due to several factors, including different methods of sending them to the laboratory, ways of sampling and storage, analysis, as well as the ripeness, stage of maturity and time of harvest.

** These data are from ‘Utin Iap’, another Fe’i banana from Pohnpei that has orange flesh when ripe.

*** Rich content of riboflavin (vitamin B₂) has been found in certain Fe’i bananas, in particular ‘Karat’, and to a lesser degree, ‘Utin Iap’, from Pohnpei. Newer findings on Solomon Islands bananas also indicate that Fe’i varieties are rich in riboflavin (Englberger et al. 2010).

in the Maoli/Popoulu subgroup, which are excellent if fried when ripe and served as a dessert. The Fe'i bananas, which include the famous 'Karat' variety, also make delicious desserts, especially when prepared in earth ovens and served with coconut cream, according to traditional recipes. There are numerous dessert bananas depending on the location, which can be eaten uncooked when ripe, for example, 'Sucrier', 'Cavendish', 'Gros Michel', 'Red', 'Mysore', 'Silk', 'Pisang Raja', and 'Pisang Awak'.

Maoli/Popoulu and Fe'i bananas are unique to the Pacific and with a bit of imagination would appeal to a higher end market in restaurants and hotels.

Export market

The potential for export of bananas from Pacific island countries is extremely limited. Countries such as the Philippines and Ecuador have much cheaper costs of production. The market for certain processed banana products is also likely to be very limited, because products like banana chips and dried bananas are produced much more cheaply in several

Asian countries. There may be potential for export of some varieties of Pacific island bananas, such as the Fe'i types (e.g., 'Karat', 'Utin Iap') that offer novelty and health benefits due to their rich content of carotenoids and riboflavin.

There has been a sizeable, but erratic, export of banana from Pohnpei to Guam, reaching 33.7 MT in 2004. Of the 3,977,914 MT of fresh bananas imported into the U.S. in 2008, none was imported from any Pacific island (NASS 2009). FAO data suggests only 120 MT were exported from Niue in 2005, with no other Pacific island country mentioned.

Speciality markets

Countries such as the Philippines also export some niche varieties, so the opportunity is only there while markets are very small and not of interest to larger players. An opportunity exists for some of the particularly nutritious varieties, especially if importation controls on supply are possible to ensure a sustainable and profitable market.



Top left: Small market in Pohnpei with bananas figuring prominently can be a good source of income for small family farms. Bottom left: The true stem of the banana grows up through the middle of the pseudostem, then flowers to produce the bunch. If the pseudostem is cut low enough when harvesting the bunch, the large section of true stem makes a useful handle to balance the bunch whilst carrying (Fe'i bunches pictured). Right: Variegated plantain bunch in Madang market, PNG.

BANANAS FROM MAKIRA, SOLOMON ISLANDS

Carotenoid-Rich Varieties

Yelo an orens banana an toraka blo Makira
Olketa helti tumas

Grow and eat orange- and yellow-fleshed banana varieties to help protect against:

- Malaria
- Diabetes
- Heart disease
- Certain cancers
- Vitamin A deficiency (infection and night blindness)
- Anaemia (weak blood)

Grow an *kaikalm olketa* yelo an orens banana fo *folem olketa siki olsem*:

- Malaria
- Suga
- *Siki blo hat*
- *Samfala kaen kansa*
- *Siki blo no enaf Vitamin A (olsem infekson an ae blaen fo naet)*
- Wiki blad



Note:

- μg (microgram) is a weight measure (one millionth of a gram). The amounts given here are per 100g.
- After you eat food containing Beta-carotene, it can be changed in the body to Vitamin A, to protect health.
- Orange and yellow colour in fruit and vegetables shows that there is Beta-carotene; darker colour flesh has higher amounts.
- Beta-carotene values are only listed for bananas that have been analysed in a laboratory at USF.
- Bananas are richer in Beta-carotene when they are ripe. Some photos are of green bananas as the ripe ones were not available when the photos were collected.

Rice 0 μg
Beta-carotene



Toraka Ailwa/Soria
3945-2172 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Orange



Toraka Fagofaga
3428 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Orange



Huki Ropa
1324 μg Beta-carotene
Section: Eumusa
Group: AAF
Flesh colour: Yellow



Toraka Gogogata
605 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Yellow/Orange



Toraka Panwa
526 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Orange



Toraka Baubaunio
333 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Yellow



Huki Matawa
296 μg Beta-carotene
Section: Eumusa
Group: AAB (Maoti/Papouli)
Flesh colour: Yellow



Huki Twitlie
Beta-carotene not analysed
Section: Eumusa
Group: AAF
Flesh colour: Yellow



Huki Agoa
Beta-carotene not analysed
Section: Eumusa
Group: AAB (Hollima)
Flesh colour: Yellow



Huki Raesi
215 μg Beta-carotene
Section: Eumusa
Group: AA (Sierini)
Flesh colour: Yellow



Toraka Wareware
166 μg Beta-carotene
Section: Australimusa
Group: Fc1
Flesh colour: Cream



Ai samoa
58 μg Beta-carotene
Section: Eumusa
Group: AAA (Carenaholi)
Flesh colour: White

Note: The Beta-carotene values are from the same study (2004) as in the text.

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Left: The variety ‘Mangaro Akamou’, a Maoli/Popoulu-type. Bananas like this are popular and unique to the Pacific, such as here in Cook Islands. Right: Bananas are diverse in their characteristics and add much to any tropical fruit display.

Domestic supply for tourist markets including restaurants and hotels could be further developed, supplying locally grown, certified organic traditional varieties. Many Pacific islands would be better able to tap this market by adapting their cuisine to better match the expectations of their customers.

Branding possibilities

Branding helps identify the goods of a seller and differentiate them from those of others. It is about creating the perception that a product best meets potential buyers’ needs.

Pacific branding should capitalize on the region’s reputation as a place of romance, peace and tranquility, to which the customer will be “transported” if he or she buys and eats such products. Since the products are associated with pristine surroundings, the emphasis should be on producing them organically. Thus there are real opportunities to promote the perception of their health benefits.

Since the Pacific is home to some unique banana varieties, including those in Fe’i and Maoli/Popoulu subgroups, there is the opportunity to promote them as unique traditional varieties that also happen to be exceptional functional foods, rich in beta-carotene and riboflavin.

Potential for Internet sales

Due to the perishable nature of fresh bananas, there are limitations on the distance that products can travel without significant reduction in quality. Thus, Internet sales depend on freight services that can deliver quickly and inexpensively. Processed bananas do not have the same limitations as the fresh product. Most banana varieties dry well and all

are a little different from one another. Carefully marketed, 5–10 different varieties could be sold separately to develop a variety of interesting products. For example, ‘Goldfinger’ (FHIA-01) sliced in half and dried for 30+ hours produces a crisp product that is cream in colour (not brown because oxidation does not occur as for many other bananas).

EXAMPLE SUCCESSES

The Family Farm, Hāmākua, Hawai’i Island

Chris Yuen and Noelie Rodriguez started producing certified organic bananas on 0.6 ha in 1995. They learned about producing high quality bananas from friends. Almost all of their production is sold in local health food stores, with small quantities shipped to Canada together with other tropical fruits that they produce.

In order to maintain cosmetic quality and avoid sun scalding, the bunches are bagged in the field. They also have a system for keeping track of the age of bunches so that harvesting is done at an optimal time. Postharvest processing includes cutting into clusters, washing and drying, labelling, and boxing. Bananas that are shipped to Canada are boxed hard green and shipped right away, whereas bananas for the local market are ripened on a drying rack, as they sell better with a little yellow color. Great care is taken to deliver fully mature fruit free from blemishes.

The Family Farm primarily targets the certified organic market. The bananas are clearly labeled with the farm name and their organic certification. Although they do not have a way to quantify how much their organic label adds value to sales,



Banana plants at The Family Farm, showing bagged bunch and colored flagging tape for keeping track of the age of bunches.

they feel the label is important to distinguish their bananas in the marketplace. It also gives them access to health food stores.

The Family Farm has established long-term relationships with its customers. Additionally, Yuen and Rodriguez have found that it is important to deliver their product consistently over time. By having reliable production, they are set apart from hobby farmers in the eyes of the buyers, and can count on receiving a fair price.

The farm's biggest challenge is weed control, which involves much more labor than on farms that use herbicides. A secondary challenge is competition from cheap banana imports. Many consumers who buy imported bananas are unwilling to pay higher prices of the local organic bananas. Unfortunately, they are mostly unaware that organic bananas are more flavourful, free from pesticides, and have a much smaller carbon footprint than those produced overseas.

Hana Farms, Hāna, Maui, Hawai'i

In the small, remote community of Hāna, Hana Farms has developed a business model based on value-added products. About 3 years ago, the owner/operators of Hana Farms recognized that a great deal of fruit was going to waste in their area. Their business model is oriented toward bringing value to their community by purchasing fruit from local growers. Therefore, in addition to production on their 3 ha farm, Hana Farms makes use of large quantities of bananas and other tropical fruits from neighbouring small farms and home gardens. In practice, this means they purchase hundreds of dollars of fruit from local producers on a daily basis.

The company currently has 12 workers and a large number of local suppliers. Their primary product is banana bread and they also produce a popular banana-coconut curry hot sauce, as well as a range of other products. They consistently sell out of their breads and other fresh products at their



Hana Farms roadside stand along the well known Hāna Highway is the main outlet for their value-added products.

retail roadside store and via Internet sales. Recently, they have been developing plans to expand sales to other parts of Maui by establishing other retail locations.

Hana Farms believes that their locally-based product line and high quality ingredients make them unique in the marketplace. They also think that their community-based business model is appreciated by their customers because it strengthens the local economy in their remote area.

The biggest challenge is to grow their business in the current economic climate, where capital investment is difficult to obtain. However, they also appreciate the lessons learned in slow expansion based on reinvestment of profits only, rather than relying on borrowing.

Banana Joe's Fruit Stand, Kilauea, Kaua'i, Hawai'i

The Halasey family purchased their 2.5 ha farm in late 1970s with the goal of starting a family farm enterprise. They started planting banana in 1980 and selling fresh bananas at retail the year after. In order to add value to their product, they built a dehydration facility in 1981. By 1984, they were producing Banana Joe's Dried Banana Strips and wholesaling retail-size packets to Kaua'i stores. They continue to dehydrate fruit to this day. In 1986, they opened Banana Joe's Fruit Stand on the their farm, which gave them the ability to sell their fresh and value-added banana products directly to consumers.

Today, Banana Joe's sells fresh and processed products from their own farm and from other local producers. Currently, they produce banana chutney and jam, chocolate dipped frozen bananas, and smoothies and frosties (frozen fruit put through a juicer) made with 'Apple' banana (AAB, Pome). Other value-added products include dried fruit, jams and jellies, salad dressings and mustards, herbed vinegars, a range of baked goods, goat cheese, and macadamia nuts.

Most of their sales are through their fruit stand, with some limited mail order and wholesale sales. Their locally-grown product line differentiates them in the marketplace. Additionally, they specialize in particular varieties of fruit unique to their area.

FURTHER RESEARCH

Potential for crop improvement

Despite considerable efforts of banana improvement programs, banana production still depends almost entirely upon a limited number of landraces selected from the natural germplasm. It is only in recent years that modest numbers of hybrids from the breeding program in Honduras (e.g., 'Goldfinger') have been distributed and begun to be popularized. Such hybrids have been specifically bred for disease resistance including black Sigatoka. However, growers should not be under the illusion that hybrids will solve



Joe Halasey in front of Banana Joe's Fruit Stand in Kilauea, Kaua'i, Hawai'i.



The resistance of 'Goldfinger' to black Sigatoka has broken down in Samoa.



Left: Community groups are an important vehicle for reciprocal transfer of information and the general advancement of community gardening knowledge and welfare. Right: Only virus-indexed, tissue-cultured banana plants can be guaranteed free of pests and diseases.

all their problems. Experience has shown that resistant varieties cannot be relied upon in the fight against pests and diseases. It should become normal to use integrated management practices when growing a resistant variety to prevent a breakdown in resistance.

Improving potential for family or community farming

Control of pests and diseases in bananas at a commercial level is made much more difficult by poor control in nearby backyard plantings. In order to reduce pests and diseases in commercial and backyard plantings, community gardening associations need to be established to facilitate a partnership between community, government and business. This would increase the capacity of growers to better manage



“Let’s go local” campaign billboard in Pohnpei aims at increasing consumption of locally grown, healthy foods.

their banana plantings. The associations might also lead to improved marketing, greater awareness of health issues, and a general overall sense of community belonging. As an example, Pohnpei was included in a global health project, led by the Centre for Indigenous Peoples’ Nutrition and Environment (CINE), Canada, to increase local food production and consumption by targeting an entire community. It did it under the banner of “Let’s go local” as its campaign slogan. This intervention used an inter-agency, participatory, multiple method approach and showed significant improvements after a 2-year period, including an increased number of banana varieties and frequency of banana consumption. This approach could be adapted in communities in other Pacific island countries and to improve awareness of health issues and the relationship between health and local food production and consumption.

Genetic resources where collections exist

New varieties can bring new opportunities but it is extremely important to ensure that planting material obtained for their establishment does not introduce pests and diseases or lead to further spread of existing problems. Virus-indexed tissue cultured plantlets are necessary to guarantee freedom from pests and diseases. SPC’s Centre for Pacific Crops and Trees (CePaCT) in Suva, Fiji has a tissue culture collection of about 30 elite banana varieties available for distribution. A number of field collections also exist in various Pacific island countries but these sources may not be free of major pests and diseases.

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INTERNET

Bananas and plantains: <http://bananas.bioiversityinternational.org>

Farm and Forestry Production and Marketing Profile for Banana and Plantain (*Musa* spp.)

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**Farm and Forestry
Production and Marketing Profile for**

Ginger

(Zingiber officinale)

By Hector Valenzuela

USES AND PRODUCTS

Ginger is used throughout the world as a spice or fresh herb in cooking and a variety of other value-added products including flavoring in candies, beverages, liqueurs, ice cream, baked goods, curry powder blends, sauces, and various condiments. Ginger is also used in traditional medicine to treat several ailments including nausea, motion sickness, migraine, dyspepsia, and to reduce flatulence and colic. Young rhizomes that are harvested early are also used in pickles and confectionery.

Scale of commercial production worldwide

According to the United Nations Food and Agriculture Organization (FAO), global production of ginger in 2008 was over 1.4 million metric tons (MT), with major production in India, China, Indonesia, Nepal, and Nigeria. Major importing countries to the U.S. in 2007 included China, Brazil, Thailand, Costa Rica, and Nigeria.

Most ginger imports to Pacific island nations come from Fiji. Fijian ginger is preferred in the Pacific because of its flavor. Hawaii's ginger is also in demand because of its excellent quality.

BOTANICAL DESCRIPTION

Preferred scientific name

Zingiber officinale Roscoe

Family

Zingiberaceae



Left: Mature plant after flowering. Right: Washed and air-dried rhizome, ready for sale.

Non-preferred scientific names

Zingiber mioga Rosc. (Japanese ginger, a different species)

Amomum zingiber

Zingiber blancoi Massk.

Common names

Chinese: *geung*

Cook Islands: *kopakai*

English: ginger

Fiji: *cagolaya ni vavalagi*

Hawaiian: *ʻawapuhi Pākē*

India: *adrak*

India: *inchi*

Japan: *shoga*

Java: *san gurng, gung guung, san geong, atjuga*

Niue: *poloi*

Solomon Islands: *papasa*

Spanish: *jengibre*

Thailand: *khing*

Vietnamese: *gung*

Brief botanical description

Ginger is an herbaceous perennial, grown as an annual for its spicy underground rhizomes or stems. The plant has fibrous roots that emerge from the branched rhizomes. Closely grouped, unbranched, pseudostems or aerial shoots are produced from the rhizomes. The pseudostems reach a height of 50–120 cm. The simple, lanceolate, and smooth leaves are alternate and about 25 cm long. Ginger is asexually propagated from portions of the rhizome. The flowers of ginger are usually sterile and rarely set seed.

DISTRIBUTION

While the origin of ginger is uncertain, it is indigenous to the tropics, and some consider it to be a native of Southeast Asia. Ginger has been grown in India and China since ancient times, and by the first century traders had brought it to the Mediterranean region. Today ginger is grown in most warm parts of the world. Hawai'i and Fiji have been important producers in the Pacific.

ENVIRONMENTAL PREFERENCES AND TOLERANCES

Climate

Ginger is a warm-season crop adapted for growth in tropical and subtropical regions. It can be grown in areas that experience light frosts as long as the rhizomes are not exposed to freezing temperatures. Best growth occurs under moist conditions and temperatures of 25–28°C. Growth efficiency declines with temperatures above 30°C and below 24°C. Ginger grows well in full sun, but is also adapted to partial shade when grown in intercropping systems. Vegetative growth is promoted with long day lengths, and rhizome enlargement is promoted under shorter day lengths. Day length response varies among different ginger varieties.

Soils

Ideal pH is 5.5–6.5. Ginger requires a deep (25–40 cm), rock-free, sandy loam soil, high in organic matter with adequate drainage that allows for proper hilling of the crop.

GROWTH AND DEVELOPMENT

In Hawai'i ginger is normally planted in March. The crop may be harvested from December to May of the following year. The quality of the rhizomes that are harvested after May of the following year may be slightly reduced, compared to those harvested earlier in the year.

It takes about 6 weeks for shoots to emerge after ginger is planted. Vegetative growth is maximized until flowering begins in September–October. Flowering marks the beginning of rhizome maturity and increasing fibrous tissue development. Rhizomes are already somewhat large at the young stage and in Hawai'i the foliage does not begin to yellow until January of the year following planting.

AGROFORESTRY AND ENVIRONMENTAL SERVICES

In tropical regions ginger is often interplanted in agroforestry systems, such as between rows of coconut, fruit trees, or rows of crops that are trellised such as bitter melon (*Momordica charantia*), or beans. Ginger is adapted to agroforestry systems because it is moderately tolerant of shade.

Table 1. Elevation, rainfall, and temperature

Elevation range	lower: sea level upper: 1,500 m in tropical areas. In Hawai'i it has been grown at up to 600 m.
Mean annual rainfall	lower: 1,500 mm (lower yields) upper: 6,500 mm (under excellent drainage, ditches built around the perimeter of the field, and with proper hilling)
Rainfall pattern	Preferable steady rainfall during growing season, with drier period at the end of the growing season prior to and during harvest. Excessive rainfall and waterlogging may result in soil-borne diseases.
Dry season duration	Preferable 1–2 months prior to and during harvest.
Mean annual temperature	lower: 21°C upper: 30°C Best growth occurs when soil temperatures are about 25°C.
Maximum temperature of hottest month	35°C. The mean maximum may be around 28–30°C.
Mean minimum temperature of coldest month	21°C. Growth will not resume until soil temperature at a 15 cm depth is greater than 20°C.
Minimum temperature tolerated	0°C (if rhizomes are protected by soil, but rhizomes may go into dormancy).

Factors to consider when interplanting ginger with trees include shade levels (optimal level is probably about 25% shade), compatibility with the roots of the intercrop, and possible competition for nutrients.

In Kerala, India ginger was effectively used as an intercrop with the multipurpose tree *Ailanthus triphysa*, which is used in woodworking. Ginger is also intercropped under betelnut palms (*Areca catechu*) in India. Also in India ginger yields were increased compared to monoculture yields when intercropped with poplar (*Populus deltoids* 'G-3 Marsh'). However ginger yields were decreased when poplar trees were planted at very high densities, of 5 m × 3 m, resulting in over 53% shade (Jaswal et al. 1993). In China, while the yields of some intercrops such as beans and corn were decreased in agroforestry systems with *Paulownia elongata*, ginger yields were 34% greater than in the ginger monocultures (Newman et al. 1998). In the Philippines ginger has traditionally been intercropped with cash crops such as mung bean (*Vigna radiata*), sweetpotato (*Ipomoea batatas*), cabbage (*Brassica oleracea*), and sweet corn (*Zea mays*).

When intercropped with palms, sun loving short-season cash crops may be used as the first crops in a rotation, planted before the palms have fully developed. Shade-tolerant crops such as ginger may be planted as the second or later crops in the rotation, when the palms have grown and

reached a stage where they are providing more moderate levels of shade.

To maintain nutrient and moisture balance, leguminous hedgerows such as *Sesbania* spp., pigeon pea (*Cajanus cajan*), Sunn hemp (*Crotalaria juncea*), or *Leucaena* spp. may also be considered in agroforestry systems with ginger. The hedgerows may

- serve as windbreaks
- provide moderate levels of shade
- moderate temperatures on farms that experience hot temperatures
- attract beneficial insects by providing shade, sources of water and nectar
- contribute prunings that may be used as mulch for weed suppression and to conserve moisture.

Because ginger is often grown on sloping land to improve drainage during the rainy months, intercropping or agroforestry systems may be important to conserve fertility and valuable topsoil by helping to reduce erosion rates and nutrient runoff during ginger production.

PROPAGATION AND PLANTING

Ginger is asexually propagated from portions of the rhizome. The ginger plant does not produce true seeds. About 2,000 kg of rhizome “seed pieces” are required to plant a hectare of ginger, using seed pieces of 115–230 g in size. Each seed piece should at a minimum contain 3–4 eyes or nodal sections. The size of the seed piece does not affect final yields when ginger is planted early in the season. However, larger

seed pieces may result in greater yields when ginger is planted late in the season.

CULTIVATION

Variability of species and known varieties

Worldwide over 25 varieties of ginger are grown. Most varieties have not been properly characterized. Varieties differ in the size of the rhizome, flavor, aroma, pungency, color, and fiber content. Two main types are grown in Hawai‘i. The primary commercial variety is referred to as the Chinese type. This variety has large rhizomes, light yellow flesh, a slightly bluish core, and it is less pungent. The Japanese variety, which is grown on a smaller scale in Hawai‘i, has a deep yellow flesh color, a strong pungent flavor, and reaches a height of 45–90 cm. Popular varieties from other regions are referred to as Indian, Jamaican, Canton, Malay, Fijian, and African. Several popular varieties are grown in China.

Basic crop management

For an adequate success rate at plant establishment, it is important to establish the crop in a weed-free bed with proper soil texture. Proper soil fertility and moisture levels during the growth of the crop will be key determinants of crop quality and yields. Nutrient amendments provided by the application of organic or synthetic fertilizers may be applied to complement the natural fertility of the soil. Organic mulches, and rotations with green manures, or other cover crops can also improve and complement the fertility of the soil. An irrigation system, such as drip irrigation, may be



© Hawaiian Organic Ginger



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Left: Cutting healthy rhizome for seed. Right: Rhizome selected for seed in air-drying shed.

necessary to maintain proper soil moisture during the production cycle.

The planting of cover crops or leguminous green manure species prior to planting ginger may help to improve soil tilth, and legume green manures may provide additional nitrogen for the following ginger crop. Potential green manure crops include pigeon pea, Sunn hemp, cowpea (*Vigna unguiculata*), and soybean (*Glycine max*). If nematodes are a problem in the area, this may preclude the use of cover crops that host nematode species. For instance if the fields have a history of root-knot nematode infestations, then cover crops that also host root-knot nematodes are discouraged.

Special horticultural techniques

Proper soil and bed preparation are essential for ginger production. Prior to planting, soils are typically plowed to a depth of 45–60 cm. Lime is incorporated to adjust the pH and furrows are prepared in rows spaced about 150 cm apart. A hand tiller is often used to cut the furrows to a depth of 30–45 cm. Fertilizer or organic amendments are placed at the bottom of the furrow and incorporated prior to seeding. The ginger crop, as it grows from the bottom of the furrows, is hilled 3–5 times during the growing season, resulting in raised hill/beds, allowing for the proper development of the rhizomes. Hilling of the ginger row, which is done at 6 week intervals, allows for the rhizome to grow vertically. Hillings are often done by hand, even in commercial operations. Commercial growers fertilize ginger about three times during the growing cycle, beginning with shoot emergence and ending at the time of flowering, which marks the beginning of the rhizome maturing process. Late in the season, commercial growers increase the ratio of potassium fertilizer, with the goal of improving the glossiness of the rhizomes at harvest.

Advantages and disadvantages of growing in polycultures

Because ginger tolerates partial shade and has a year-long growing season, it is amenable to polyculture systems. Field arrangements in polycultures should be amenable to hilling of the ginger crop during the growing season. Hilling ginger with equipment may be problematic in polyculture systems. When both polycultures and mechanical tilling are desirable, farmers may consider planting the companion crops in alternate beds. By using an alternate bed arrangement, growers may still be able to till and hill the ginger beds during the growing season.

Growers should not intercrop or rotate ginger with solanaceous crops such as tomatoes, peppers, and eggplant, as these crops may help to build up levels of bacterial wilt in the field. Ginger may be rotated with grain crops such as corn or upland rice. Other possible crops for use in rotation



Top: Planting seed in prepared field in Hāmākua, Hawai'i. Middle: Field just after a hilling was carried out in Hāmākua. Bottom: Ginger crop maturing on the slopes of Mauna Kea, Hawai'i.

or intercropping include green onion, soybean, sweet corn, sweetpotato, and cabbage.

Intercropping and agroforestry systems are increasingly being recognized as low-input production systems that can help the small farmer reduce the risk of significant crop losses caused by pests, inclement weather, or unexpected downturns or competition in the produce market. Intercropping systems also provide several ecological services, such as improved nutrient cycles, and in some cases, reduced disease, weed, and pest levels in the farm.

Because so little research has been conducted with intercrops and such systems are very location specific, there are very few specific recommendations for the best crop combinations that can be utilized in ginger production. Farmers should select companion species that are known to be adapted to their particular location. Companion species should also be compatible based on their growth rate, canopy and root architecture, and incidence of pests attracted to each individual crop.

PESTS AND DISEASES

Susceptibility to pests/pathogens

Insect control in ginger is important because they may assist in the spread of diseases as well as damage the foliage and rhizomes. The Chinese rose beetle, *Adoretus sinicus*, is a serious pest of ginger in Hawai'i. Other pests include the lesser corn stalk borer (*Elasmopalpus lignosellus*), which damages shoots and stems during the dry season and the Ginger maggot (*Eumerus figurans*), which feeds on injured roots. Nematodes that affect ginger include root-knot (*Meloidogyne incognita*) and lesion nematodes.

Important diseases of ginger include bacterial wilt (*Rolstonia solanacearum*), bacterial soft rot (*Erwinia* sp.), *Fusarium* yellows and rhizome rot (*Fusarium oxysporum* f. sp. *Zingiberi*), and *Pythium*.

Preventing and treating problem pests and diseases

Soil-borne diseases are the principal limiting factor in ginger production. Two key techniques to manage diseases in ginger include 1) the use of clean seed material to prevent dissemination of bacterial wilt, *Fusarium*, and nematodes; and 2) planting in fields that are free of diseases. The use of clean seed will prevent the dissemination of bacterial wilt into new fields. Hot water treatment consisting of exposing seeds to a constant 50°C temperature for 10 minutes is effective in controlling nematodes. Hot water treatments are not effective for disease organisms that are already present inside the rhizome.

Bleach can also be used to surface sterilize the seed by dipping in a 10% bleach solution for 10 minutes (1 part commercial bleach to 9 parts water).

The use of rotations is necessary to prevent the build up of diseases. The use of organic amendments in the form of compost or organic mulch applied to build soil quality, organic matter, and promote microbial activity in the soil may also assist in suppressing soil diseases in ginger. Proper drainage and drainage diversion ditches are necessary to prevent the runoff of infected water sources into fields that are down slope from an infected field.

Planting ginger in intercropping systems may also assist in preventing the build up of foliage pests, and may promote the development of beneficial organisms. It is important that the crops used in rotation or in intercropping systems with ginger are not hosts to some of the same pests and diseases, such as nematodes or bacterial wilt.

DISADVANTAGES OF THIS CROP

A key problem with ginger production is that it is a relatively long-term crop, taking 10–12 months from planting to harvest. In terms of risk management for farmers, planting shorter season cash crops in intercropping systems with ginger may help to alleviate the risks of having a ginger crop occupy a large tract of land without any returns for almost a year.

Increased competition from China, and other global markets is also creating a challenge for small-scale producers of ginger. Farmers need to identify niche markets, and focus on producing a high-quality crop in order to compete with inexpensive foreign imports.

Bacterial wilt, a soil-borne disease, is a major limiting production factor in many regions. Once a field is infected with bacterial wilt, it may take many years before ginger can be grown there again. To prevent bacterial wilt incidence in their fields, growers need to follow strict sanitation practices (including tractors, machinery, and hand tools), conduct proper rotations with non-hosts, add organic amendments routinely, and clean the seed prior to planting (heat or bleach treatment).

Potential for invasiveness

Edible ginger is not known to be an invasive species.

COMMERCIAL PRODUCTION

Postharvest handling and processing

“Young ginger” refers to the rhizome harvested at an early stage after only 5–6 months of growth. Young ginger is a specialty product, valued for its low fiber content, and it is often pickled. Care should be taken to keep young ginger out of direct sunlight after harvest because it dehydrates quickly. For early harvest, growers may want to consider trimming the foliage of the plants 2–3 weeks prior to harvest to promote senescence and development of a protective abscission

layer between the rhizome and the pseudostem. This will minimize product injury during the harvest and handling process. Young ginger is sometimes sold with 15–20 cm of the stems and leaves still attached to the rhizomes. Young ginger, which normally commands a 50% greater price than mature ginger, may represent about 5% of the total ginger sold on a commercial farm.

Mature ginger is normally harvested after the foliage has turned yellow and dried down completely. At full maturity, the rhizomes are firm and glossy. Growers can promote an earlier senescence by trimming the foliage 2–3 weeks prior to the desired harvest date. After harvest, rhizomes are cleaned of soil and debris using water sprayed at high pressure. The rhizomes may also be cleaned with a soft brush or coconut fiber, and are then air-dried on screen racks. To allow all the exposed tissues to heal and become firm, the rhizomes are normally allowed to air cure under well ventilated conditions for a period of 3–5 days. Once cured, the rhizomes are graded and packed for shipping. Farmers normally keep 5–10% of their mature harvested ginger as seed for the next year's planting (normally a 1:20 seed to crop ratio).

Fusarium rot (*Fusarium* spp.) is a disease that can infect the rhizomes during the postharvest stages. Symptoms of *Fusarium* include discoloration of the vascular strands, and eventually the entire rhizome becomes brown and dry. To minimize the postharvest spread of diseases such as *Fusarium*, the rhizomes should be properly cured, ventilated, and stored at 12–14°C.

Methods of processing

As a fresh market herb and spice, ginger can be processed into a wide range of products. It is used in flavoring, pickles, herbal medicines, perfumes, beverages, and confectionery. While production for the fresh market may bring greater per weight revenues to farmers, processing products overcomes the issue of storage and the limited shelf life of the fresh product.

As noted above, ginger is harvested at different stages, depending on the product that is desired. The early harvest, from 5 to 6 months after planting, yields tender rhizomes with less fiber for use as candied products. The second harvest about 2 months later when plants are about 85% of their maximum size, yields rhizomes with the highest content of essential oils and oleoresins, used for the preparation of dehydrated products. The fully mature rhizomes obtained at the last harvest are used for drying and for grinding to produce powdered ginger.

Production for syrup and for the confectionery market requires early harvested ginger with a lower fiber content. Ginger that is not processed immediately is often preserved in brine. After it is drained from brine the ginger may be cut, graded by hand, peeled, boiled, and impregnated with sugar syrups to produce ginger syrup. Ginger that is harvested fully mature may also be peeled and dehydrated for further processing into ground ginger, or sold as sliced or whole dried ginger.

Upon extraction, the rhizome yields an essential oil that lacks the pungency of fresh ginger. The oil is used for flavoring and in perfumes. An oleoresin may also be extracted



Left: Harvesting mature ginger. Right: Freshly harvested ginger plant in “young ginger” stage, just after flowers are formed.

that preserves the pungency of ginger and is used for flavoring and for medicinal purposes.

Product quality standards

In Hawai'i ginger is graded according to standards established by the Hawai'i Department of Agriculture. Federal standards also exist in the U.S. for the grading of ginger. Grade A or No. 1 rhizomes should be large and thick, light brown to cream colored, and have a glossy appearance. Rhizomes should be free of bruises or blemishes, decay or injury from pests, or vegetative sprouts. In addition, the rhizomes should be fairly well matured, dry, clean, firm, and of reasonable size (113 grams or 4 oz, minimum). Grades No. 1, 2, 3 for ginger are equivalent to Fancy, Commercial, and off-grade classifications, respectively. In Hawai'i normally about 80% of the production by individual farms is sold as Grade A ginger. Young ginger is bright yellow and brown on the surface, has a glossy appearance, and has no sprouts.

Product storage requirements and shelf life

Ginger storage life is maximized if rhizomes are harvested at the proper stage of maturity, are cured properly and are free of diseases, nematodes, and bruises. If possible, ginger should be pre-cooled with forced-air or room cooling. Recommended storage conditions include temperatures of 12–13°C and relative humidity (RH) of 85–90%. Storage at 65% RH leads to dehydration and wilting. Storage temperatures below 12°C will cause chilling injury resulting in tissue softening and breakdown, decay, and skin discoloration.

Research in Hawai'i showed that the proper storage conditions described above prevented decay, physiological breakdown, sprouting, and surface discoloration for up to 6 months. Healthy rhizomes may be stored for as long as 6 to 8 months. With proper ventilation ginger may also be stored for shorter periods of time under ambient temperature, but yield and quality losses from shrinkage will be greater than under cold storage (Akamine 1969).

Ginger can be compatibly stored together with crops that require conditions of 13–18°C and 85–95% RH, such as cassava (*Manihot esculenta*), dry onion (*Allium cepa*), jicama (*Pachyrhizus erosus*), potato (*Solanum tuberosum*), pumpkin (*Cucurbit* spp.), sweetpotato, taro (*Colocasia esculenta*), and yam (*Dioscorea* spp.).

Recommended labeling and packaging

In the U.S., ginger is typically packed in 6.8 or 13.6 kg fiberboard cartons, or in 1.7 kg cartons with film bags.

Labeling and packaging is important because they are representative of the value and quality of the product. Packaging and labeling should be considered as key ingredients of the farm's marketing program and brand identity.

Each box should be properly labeled on a side or the top. The label may contain the name of the producer or produce dealer, address of the packer, name of the commodity, grade, and net weight, measure, or count. For marketing purposes, additional information may be placed on the labels or attached to the product such as specific variety, a logo with a brand name, region of origin, certifications (e.g., organic), nutritional traits, and even recipes.

SMALL SCALE PRODUCTION

Ginger is well adapted for production levels ranging from a few plants grown in a kitchen garden to small-scale production. Because it is a labor intensive crop, many small farmers may only be able to handle small-size plots for ginger production, ranging from a few 30 m long rows to 0.25 ha plots. Some farmers may be able to grow small plantings of ginger for sale to local restaurants, hotels, or for direct sale to consumers in the local farmers' market. Small farmers may also explore the possibility of forming a cooperative for sale of bulk volumes through a wholesaler or local distributor. For small farmers, it is always a good idea to identify potential buyers prior to planting a crop and to start with small plots. As they gain more experience and develop better relationships with their buyers, the planting areas can be expanded.

Adding value

Value added ginger products increase market opportunity for farmers. A certified community kitchen can be used to prepare a range of processed ginger products. Small-scale facilities may be amenable to the production of several processed products such as pickled, dehydrated, or candied ginger, instant tea, cookies, and wine (made from ginger peels).

Household use in the Pacific

Ginger is a popular garden and commercial crop grown and consumed on many islands of the Pacific. Commonly used as a spice in home cooking, it also is in high demand by local restaurants and health food stores, with organically grown ginger becoming increasingly popular. Certified organic ginger may be a new local and export market expansion opportunity for local ginger growers.

Statistics on ginger production and trade are scant in the Pacific. A USDA report on American Samoa indicated annual import volumes of 1,800 kg fresh ginger at a value of US\$16,000. Local production of ginger and sale at farmers markets in American Samoa was recorded at about 70 kg, at a value of about \$4/kg.

In 2007 Hawai'i produced about 1.3 million kg, which was less than 50% of the volume produced in 2003. Reported ginger yields in Hawai'i for 2007 were about 35 MT/ha. Total Hawai'i production has decreased over the past few years



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Value-added products that can be produced for local markets include flavored candies made from coconut or macadamia nuts and syrup.

because of drought, increased disease pressure, and because of greater competition from China.

Medicinal and nutritional value

Early Chinese and Sanskrit writers reported ginger's medicinal properties. It continues to be widely used today as an herbal medicine in Asia and the Middle East. Early writers in Europe also recited its benefits with respect to helping with digestion, vision, joints, gout treatment, and as an aphrodisiac. The ancient Chinese believed that ginger was a natural internal cleansing and purifying agent, an antidote for nausea, morning sickness, indigestion, and flatulence. Modern science has confirmed that ginger does help to relieve the effects of morning sickness.

One hundred grams of edible ginger contain approximately 9 g protein, 6 g fiber, 116 g calcium, 71 g carbohydrate, and 147 IU of Vitamin A (Farrell 1999).

Import replacement

Ginger is a healthy food that is used to add zing to dishes and to moderate strong flavors from meat and fish. It can also be used as a beverage and in tea. Thus, in addition to being sold as a cash crop, ginger also provides diversity to the household diet.

YIELDS

Expected range of yield per plant

Yields per plant range from 2 to 7 kg. Per plant yields of young ginger may be 1–3 kg, but fields grown solely for young ginger may be planted at twice the planting density (plants per unit area) compared with spacing for mature ginger production. Globally, large producers normally reach yields of 40–50 MT/ha, and some growers reach yields of up to 70 MT/ha. Because ginger accumulates a large bulk of its final weight during the later months prior to reaching maturity, early harvests result in lower yields.

Little research information is available with respect to yields obtained under organic farming conditions. However, based on a 4 year study, yields of ginger with the use of several organic fertilizers, including bokashi (specially fermented organic matter), chicken manure, composts, and bone meal, showed that yields with organic fertilizers were comparable to or greater than those obtained with chemical fertilizers (Valenzuela et al. 2005). Under commercial conditions it may be reasonable to expect that yield of ginger under organic conditions may reach 60–80% of the yields obtained under high levels of chemical fertilizer applications.

Recommended planting density

Planting distance between crops in Hawai'i is 120–150 cm between rows and 15–30 cm between plants within each

row. The rhizome pieces that are used as planting material are placed on the bottom of furrows that are 30–45 cm deep. After planting, the seed pieces are covered with 5–10 cm of soil. As the furrow is hilled 3–5 times during the growing season, the initial furrows will eventually be the hills by harvest time. The hills provide an ideal environment to promote the vertical growth of the rhizomes, and also make it more convenient to dig them out at harvest.

MARKETS

Local markets

Local outlets for the sale of ginger include farmers' markets, swap meets, subscription farming (or Community Supported Agriculture), small retail stores, wholesalers, restaurants, hotels, and health food stores.

Export market

The market for ginger exports has become more competitive over the past 10 years, as China has increased its volume of exports to the U.S. As a result of the competition, the area in ginger cultivation in Hawai'i has declined over the past few years. Ginger growers from the Pacific region should focus on producing a quality product for local markets before exploring the possibility of exports.

In 2007 the U.S. imported over 35,500 MT of ginger. China accounts for about 78% of total fresh ginger exports to the U.S., with other major importers being Brazil, Thailand, Costa Rica, and Honduras. In 2007 Japan imported over 85,300 MT, or 12.6% of the world's total imports. Other major world importers include Pakistan, India, and Malaysia. In 2006, Fiji exported over 1,100 MT of ginger at a value of \$3.2 million.

Fiji has exported ginger for many years. Imports to the U.S. from Fiji are available from July to December, while imports

from Hawai'i and Puerto Rico are from November to May. In recent years, Fiji has increased its shipments of fresh ginger to Australia.

Since the 1960s, Australia has produced ginger for processing, mostly as dried ginger syrup and crystallized ginger. Overall about 55% of the ginger grown in Australia is for processing, while 45% supplies the local fresh ginger market.

Specialty markets

Certified organic ginger is a premium product that may command a higher price, especially if sold to health food stores or to restaurants that cater to the visitor industry. In Hawai'i, value-added products from ginger are increasing in popularity. For instance, in Hawai'i organic ginger-based fruit beverages have increased in popularity over the past few years. For Hawaiian organic ginger to gain in popularity, the local ginger industry may have to develop a marketing campaign to develop a brand identity for organic Hawaiian ginger.

In the Pacific ginger has been identified among the crops that can be marketed as part of the growing organic farming industry. In addition to Hawai'i, other island nations where ginger has been considered a potential crop for organic production include Papua New Guinea, Samoa, and Vanuatu (Vinning 2008). However, there may be additional export or local markets for organic ginger in areas of high tourism, or for sale to health food stores.

In Samoa, an organic market was established in Apia in 2007. Ginger is among the products that have been certified for organic production. Market surveys in Samoa have shown that restaurants, resorts, and local residents have shown interest in organic foods. Organic ginger is also being produced in Vanuatu and in Fiji (Fay Bell 2009). Australia has also begun to market organically processed ginger products



Ginger relatives such as turmeric (*Curcuma longa*) (on left) galangal (*Alpinia* sp.) and may be suitable for new ginger markets where common edible ginger is already supplied in abundant quantities.

with exports to the United Kingdom, Germany, and other European countries.

Potential for Internet sales

Some Hawai'i growers are selling organic ginger directly to buyers and consumers over the Internet. There is a potential to develop a variety of dried and processed value-added products for ginger that are even more suitable of shipping than fresh ginger rhizome.

EXAMPLE SUCCESSES

Hawaiian Organic Ginger, several locations on Hawai'i Island

Owner Hugh Johnson moved to Hawai'i in 1990 and first grew 0.1 ha ginger together with avocados and pineapples in Puna. The first year was successful, but the following year the crop was devastated by bacterial wilt. From that time on, Hugh has regularly moved his ginger plots from site to site around Hawai'i island.

His main products are certified organic fresh ginger rhizome



Hugh Johnson has both open field plots and shade-house container cultivation, such as shown here. The container method may reduce the rate at which pathogens can spread from plant to plant.

and turmeric. Ninety percent of the crop is sold through a wholesaler, with the remaining sold directly to customers. Hugh grows several varieties of ginger, including one that he has developed through selection over the years. A part of the business is dedicated to high quality, certified organic seed sales shipped throughout the U.S. Another value-added product is dried rhizome, which accounts for about 5% of the total annual crop.

Because Hugh sells all the ginger he can produce, the company has a web site geared toward sharing ginger information, rather than marketing. Despite successes over the

years, the expense of production and the losses from pathogens through the years have made his business economically challenging.

Lotus Café, Kaloko, Hawai'i Island

When Howie Simon and his wife Chef Ladda Sai-Laor opened their restaurant in 2005, they discovered they could not buy certified organic ginger dependably and at an affordable price, so they began to grow their own. They cultivate about 110 m² each year and all of their annual production of about 450 kg is consumed in their restaurant or used for seed for the next year's crop.

Even though ginger cultivation is labor intensive, it is viable for Lotus Café because the crop is all used in value-added products such as in ginger-vanilla gelato, ginger lemonade, and chutneys mixed with seasonal fruits. Because most restaurants can't afford local, organic ginger, having their own supply allows Lotus Café to distinguish itself by offering dishes crafted using unique ingredients.

Because Howie and Ladda cultivate their own ginger (and many other fruits and vegetables) and sell it only via the



Howie Simon cultivates ginger for his restaurant in Kona, Hawai'i.

dishes they prepare in their restaurant, they have an advantage over farmers who sell ginger at wholesale or even at retail. The restaurant has the advantage of being able to afford to use fresh, organic ingredients.

According to Howie, the challenges of growing ginger include the high labor demand, the need for large quantities of compost, and the risk of disease that could severely limit yields for an entire production season.

ECONOMIC ANALYSIS

Expenses of production

In Hawai'i, field production practices account for about 30% of total production costs and harvesting accounts for about 25%. Overall, 75% of all the income received for growing ginger goes to production costs. Traditionally, a major production cost for conventional ginger farmers consisted of chemical fumigants for the control of soil diseases. However, some key fumigants are no longer on the market and farmers are now focused on planting ginger in disease-free fields. In a Hawai'i study published in 1999, the average profit earned (also referred to as gross margin, or receipts minus production costs) by ginger farmers was about \$18,500/ha (\$7,500/acre) (Fleming and Sato 1999).

When evaluating production costs and expected profits, another key variable that farmers should consider is risk. An economic analysis conducted in Hawai'i during the 1990s determined that ginger production had a relatively high risk of production compared to other commodities, because of price volatility and potential crop losses due to diseases. However, it should be kept in mind that many Hawai'i growers have relatively high production volumes with sales focused primarily on exports in a highly competitive market.

The economic picture may be different for other Pacific regions, as production volumes will likely be lower, with sales primarily focused on local markets. To establish successful ginger production programs in the Pacific, it is imperative that growers adopt strategies that will prevent the spread of bacterial wilt and other soil pests. Key strategies for disease management include using only clean seed (free of diseases), adopting strict sanitation practices, and preventing the spread of disease organisms from infected fields to new fields (through machinery, humans, or runoff).

FURTHER RESEARCH

Potential for organic crop improvement

Additional research is needed to explore the use of organic practices for ginger production. The use of cover crops, organic amendments, rotations, and other planting arrangements need to be explored to manage diseases and increase on-farm nutrient cycling. There is a need to identify pos-

sible crops as intercrops and for planting in rotation systems. New natural farming methods may have potential application for common insect and disease control.

Improving potential for family or community farming

Fresh and value-added market opportunities may be best explored on a community basis rather than by individual farmers.

Genetic resources where collections exist

Most ginger varieties are obtained from local sources and farmers.

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Specialty Crops for Pacific Island Agroforestry (<http://agroforestry.net/scps>)

**Farm and Forestry
Production and Marketing Profile for
Ginger (*Zingiber officinale*)**

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**Farm and Forestry
Production and Marketing profile for**

Lychee

(Litchi chinensis)

By Yan Diczbalis

USES AND PRODUCTS

The principal product derived from lychee is fresh fruit. In production areas where the quantity of fruit harvested exceeds demand, a range of processed products is produced that includes: whole in-shell and peeled dried fruit, processed and canned fruit, purees, and drinks.

World commercial lychee production is estimated to exceed 1.8 million metric tonnes (MT) with the bulk of world production occurring in China (1.0–1.3 million MT). Exporting countries include China, Taiwan, Thailand, South Africa, Mexico, Mauritius, and Australia. Export of lychee into the Pacific islands is minimal with Tahiti importing small amounts from Australia. New Zealand currently imports small volumes from Thailand and Australia. In Hawai'i, 2008 production was 105 MT which was sold at an average price of \$6.05/kg paid to the farmer (NASS 2009).

BOTANICAL DESCRIPTION

Preferred scientific name

Litchi chinensis Sonn.

Family

Sapindaceae (soapberry family)

Non-preferred scientific names

Non-preferred names include the following as reported by Galan Saucó and Menini (1989)

Dimocarpus litchi, *Euphoria litchi*, *Euphoria punicea*, *Euphoria sinensis*, *Litchi litchi*, *Litchi senensis*, *Nephelium dimo-*

carpus, *Nephelium duriocarpus*, *Nephelium litchi*, *Sapindus edulis*, *Scyotalia chinensis*, *Scyotalia litchi*, and *Scyotalia locacan*

Common names

Chinese: *li zhi*, *li zhi guo*, *lai gee*

English: lychee, litchi, lichee, litchee, leechee

Indonesia: *lici*, *litsi*

Philippines: *letsias*, *alupag-amo*, *licheas*

Portuguese: *lichia*

Spanish: *lechia*

Thailand: *lin-chi*

Tonga: *tava siaina*, *tava paelangi*

Brief botanical description

The lychee is a medium to large tree commonly growing to 12 m tall but some varieties such as 'Tai So' easily reach 20 m in height. Unpruned trees generally develop a spherical crown. Branching habit can be compact or relatively sparse and varies between varieties. Shoot growth occurs in successive flushes that are vegetative during summer and may be floral in winter if sufficient cool is experienced during early winter bud movement. The lychee is a terminal flowering plant and in most growing areas there are usually two vegetative flushes followed by one floral/fruitlet flush. The leaves of new vegetative flushes, dependent on variety, range from whitish green to pink to red and rapidly turn light green and then dark green at maturity. The leaves are arranged alternatively on the flush and are pinnately compound with elliptically shaped leaflets 7–12 cm long.

The flowers (3–5 mm wide when fully open) form on a terminal panicle and contain functionally female flowers and



Left: Lychee variety 'Kaimana' growing in South Kona, Hawai'i. Right: Fresh 'Bosworth 3' fruit for sale at local farmer's market in North Kona, Hawai'i.



Left: Honey bees are an important lychee pollinator. Right: Flowers and young fruits forming.

two types of functional male flowers, one with a undeveloped female organs and the other without. Flowers open in cycles of sex types. Male flowers usually precede female flowers. Overlap can occur within the panicle and between panicles to allow pollination to occur.

Lychee fruit takes up to 3 months to develop depending on variety and environment. The lychee pericarp (skin) develops first, followed by seed and then aril (flesh) development. Lychee skin has a rough texture comprised of many small pyramidal protuberances that flatten as the fruit matures. Fruit shape, skin protuberance characteristics, and seed shape vary with variety and are often used to identify varieties. Immature fruit are green in colour and develop a pink/red colour when mature. Lychee seeds are generally dark brown to black in colour with a shiny smooth coat. Seeds shape and size varies with variety and environmental conditions during fruit set and development. Large seeded varieties develop oblong to round seed 1–3 cm long and up to 1 cm wide. Popular varieties have a high proportion of shriveled (non viable) seed known as “chicken tongue,” which describes the shape of the seed. In rare cases seed can be almost entirely absent. The aril (edible flesh) is translucent off-white in colour and is sweet and juicy with a slight acid background depending on variety and fruit maturity.

DISTRIBUTION

Native range

The commercial form of *Litchi chinensis* (subspecies *chinensis*) originated in the moist tropical to subtropical forests of southern China and northern Vietnam. It can still be found in the wild in forests in Chinese provinces of Hainan Island,

Yunnan, Guangxi, and western Guangdong (Huang et al. 2005). Two other subspecies have been classified: *Litchi chinensis* subsp. *philippinensis* and subsp. *javensis*, native to the Philippine islands and the Malay Peninsula and Indonesia, respectively. Neither of the latter two subspecies is grown commercially.

Current distribution worldwide

Lychee is widely distributed throughout the world’s subtropical and tropical regions. Major centres of production are China, India, Vietnam, Taiwan, Thailand, Madagascar, Nepal, Bangladesh, and South Africa. Smaller production centres include Australia, South Africa, Israel, Mexico, Brazil, and USA (Hawai‘i and Florida). The lychee is sparsely distributed throughout the Pacific islands. In addition to Hawai‘i, minor production occurs in New Caledonia and Tahiti. A few specimen trees exist in Tonga.

ENVIRONMENTAL PREFERENCES AND TOLERANCES

Climate

The lychee is arguably a species most suited to subtropical climates, however production can successfully occur in tropical regions where sufficient winter cooling occurs to simulate flowering. Examples of tropical production locations where commercial production occurs include eastern Australia (16°S to 23°S); Hainan Island (China) 18°N to 20°N; South Africa (15°S); Hawai‘i (19–22°N). Early flowering varieties such as ‘Souey Tung’, ‘San Ye Hong’, ‘Feizixiao’, and ‘Kaimana’ have a lower requirement for winter cool to stimulate flowering and hence can flower and set fruit suc-

Table 1. Elevation, rainfall, and temperature

Elevation range	lower: sea level upper: 1,000 m
Mean annual rainfall	lower: 1,000 mm upper: 4,000 mm
Rainfall pattern	Lychee generally flourish in environments with summer rainfall.
Dry season duration (consecutive months with <40 mm [1.6 in] rainfall)	2–3 months without supplementary irrigation and 7–8 months with irrigation
Mean annual temperature	lower: 19°C upper: 23°C
Mean maximum temperature of hottest month	lower: 29°C upper: 37°C
Mean minimum temperature of coldest month	lower: 7°C upper: 17°C
Minimum temperature tolerated	0°C

cessfully in warmer growing regions. Areas that have a cool winter followed by relatively humid and warm spring/summer periods are preferred. Hot, dry weather during fruit development can be associated with fruit drop, browning, splitting, and poor fruit colour.

Lychee are generally produced in areas experiencing regular rainfall and high humidity, hence the coastal/wetter areas are suited to production. There are examples of lychee producing well in drier climates (e.g., Israel, India), however, irrigation is essential when rainfall is poorly distributed and less than 1,200 mm/year. Seasonally high rainfall coinciding with late fruit maturity and harvest coincide can lead to pre-harvest rots and postharvest problems.

Ideal climatic requirements are:

- Absence of strong, regular wind throughout the year
- No hurricanes (syn. cyclones, typhoons)
- Dry conditions pre-flowering to deter late autumn vegetative flushing
- Regular minimum winter temperatures less than 18°C to stimulate panicle emergence, frost free
- Increasing temperature and humidity during flowering and fruit setting
- Warm temperatures and moderate rainfall and humidity during fruit development and harvest
- High temperatures, rainfall, and humidity postharvest to simulate rapid flush development post pruning.

In a maritime environment such as Hawai'i Island, experience and observation shows that better locations for lychee tend to be leeward areas that receive a cool and dry winter. Elevations of about 30–330 m on the windward side of Hawai'i Island are acceptable, but on the leeward (Kona) side, lychee can produce well at elevations up to 500 m. If temperatures do not go below 18°C during the flower in-

duction period, flowering is very poor (Mike Nagao, pers. comm.).

Soils

Lychee tolerates a range of soil types. Acidic (pH 5.5–6.5), well drained deep soils with good structure, water holding capacity, and organic matter are ideal for vegetative growth. In production regions where temperatures are higher than ideal during autumn and winter, tree productivity may benefit from planting on less ideal soils, which leads to a reduction in vegetative vigour. Poorly drained soils should be avoided unless mounding or extensive drainage infrastructure are provided. Seasonally flooded soils have been associated with “sudden death” in young trees. Likewise, soils high in soluble salts or areas where irrigation water is high in salt should be avoided.

GROWTH AND DEVELOPMENT

Lychee trees are generally clonally propagated by marcotting (air-layering) or grafting to ensure that the fruit variety characteristics are maintained. Young trees require 2–3 years of growth before flowering and fruiting with full production generally occurring 5–6 years of age. In many climates, lychee can be biennial in production capacity with productivity closely linked to climate. Trees undergo a series of successive vegetative flushes during the wet summer months prior to a dormant stage during a drying and cooling autumn. If conditions during the cool season are conducive to flowering (mean daily temperatures below 18°C) the next flush will be reproductive with flowers developing on a terminal panicle. If insufficient cool weather occurs during bud development the winter flush will be vegetative or a mix of vegetative and reproductive.

Following successful panicle emergence, flower development, anthesis and fruit set, fruit development takes 90–120 days depending on variety and climate. Harvest occurs in late spring to mid summer.

Lychee trees take 2–3 years to flower when propagated clonally. Flowering occurs during late autumn to early winter depending on variety with late varieties generally requiring more cold for floral induction. Trees raised from seedlings can take up to 6 years for flowering to occur. Fruit development occurs during spring a period of increasing temperature and humidity with fruit maturity occurring in late spring to mid summer.

AGROFORESTRY AND ENVIRONMENTAL SERVICES

Agroforestry/interplanting

Lychee may be part of mixed fruit tree gardens throughout villages in Thailand, Laos, north Vietnam and southern

China, however, commercially it is generally planted as a monocrop. Various vegetables can also be interplanted with lychee when trees are young and there is ample space between them.

Environmental services provided

Lychee provides no major environmental services other than providing fruit. It may be used as an avenue tree. In SE China, ancient trees, approximately 1,000 years of age, are identified and protected as national monuments.

PROPAGATION AND PLANTING

Lychee is commonly propagated by air-layering (marcotting) or via grafting techniques. Air-layering is relatively easy and several hundred air-layers may be produced per day by an experienced propagator. Grafting requires more specialized skills and is most frequently utilized as a propagation technique in China. The varieties 'Tai So' and 'Wai Chee' are commonly utilized as seedling stock. For plant germplasm acquisitions and transportations, scion wood is the preferred vehicle to minimize inadvertent transportation of disease and insects.

Outplanting

Traditionally, air-layers were potted up for 3–4 months prior to field planting following removal from the mother tree when an adequate root ball has formed. Recent commercial practices in Australia suggest that direct planting of air-layers into a well prepared site with irrigation available is a viable technique, saving time and money. Tree guards are used to protect the newly planted marcotts while they establish. Heavy doses of fertilizer should be avoided in the first 6 months following planting. Organic and slow release fertilizers are preferred until the root development is well established.

CULTIVATION

Variability and known varieties

There are well over 400 lychee varieties identified in China, and 50 varieties identified in India. Despite the large gene pool available, the bulk of production in most countries is based on only a few varieties. Popular varieties for a range of growing locations are shown in Table 2.

Basic crop management

Basic crop management includes:

- Prune as soon as possible after harvest
- Fertilize and irrigate to ensure rapid production of new vegetative flushes
- Withdraw irrigation and fertilizer following maturity of the second vegetative flush. In warmer growing



Top: Lychee picking using aluminum picking ladders, secateurs and picking bags. Middle: Lychee picking using a motorized hydraulic picking ladder (cherry picker). Bottom: Squash plant (*Cucurbita* sp.) growing in the space around a young lychee tree. The lychee was planted on the edge of a coffee orchard in Kona, Hawai'i.



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Left: Young lychee tree direct planted as a marcott. Note use of shade/wind protection, synthetic weed mat, drip tube, and Wynn cassia (*Cassia rotundifolia* cv. Wynn) as a permanent ground cover. Right: George Wahday, whose family introduced several named lychee varieties into Cairns (northern Australia) in 1918.

areas such as Hawai'i, fertilize and irrigate for the development of the first flush immediately after pruning. This ensures a drop in leaf nitrogen, which assists in promoting flowering.

- Girdle (cinch) main trunk and/or branches on matured growth to reduce the chance of late flush.
- Control late, unwanted autumn flush by tip pruning and or using chemical pruning agents (e.g., Ethrlyl)
- Fertilize and irrigate following floral initiation to ensure panicle development
- Prune panicles in fruit setting shy varieties such as Feizixiao.
- Maintain irrigation and fertilizer inputs during fruit development with emphasis on potassium inputs in the later half of fruit maturity
- Netting trees or bagging fruit for protection against fly foxes and birds. Bagging fruit may also be used to protect mature fruit from fruit fly infestation and increase fruit quality.
- Allow fruit to mature on the tree before harvesting. Use a taste test to determine maturity.

Special horticultural techniques

In growing regions where temperatures are not consistently cool enough to stimulate flowering or late autumn rains induce a late, unwanted flush, a range of techniques have been developed to improve flowering.

Girdling (cincturing), the removal of a small strip of bark (1.5–4 mm wide) in a full circle or spiral pattern is the major technique used to control late flush emergence and improve flowering and subsequent fruit set. Physical or chemical

methods to remove late emerging flush are also commonly used.

Table 2. Some popular lychee varieties, their country of origin and where commonly grown.

Variety	Country of origin/selection and (regions where commonly grown)
'Bombai'	India
'Bosworth 3' ('Kwai Mai Pink')	Australia (Hawai'i)
'Brewster'	Florida
'Calcutta'	India
'Chakkraphat'	Thailand
'China'	India
'Dazao' ('Tai So', 'Hong Huai', 'Mauritius')	China (Thailand, South Africa, Florida, Israel, Australia)
'Feizixiao' ('Fay Zee Siu')	China (Taiwan, Australia)
'Floridian'	California (Israel)
'Groff'	Hawai'i
'Guiwei' ('Kwai Mai')	China (Taiwan)
'Heiye' ('Haak Yip')	China (Taiwan, Hawai'i, Florida, Australia)
'Huaizhi' ('Wai Chee')	China (Australia)
'Kaimana'	Hawai'i (Australia)
'Khom'	Thailand
'No Mai Chee'	China (Taiwan)
'Sah Keng'	Taiwan (Australia)
'Salathiel'	Australia
'San Yue Hong' (3 month red)	China (South Africa)
'Shahi'	India
'Souey Tung'	China (Australia)

Advantages and disadvantages of growing in polycultures

Lychee lends itself well to polycultures where the tree can be incorporated into a broader production and subsistence system. Other trees such as coffee or small crops such as pineapple and vegetables can be grown in between the lychee trees. The crop diversity offered in this situation is excellent where a year round food and fruit supply is desired. One or two lychee trees can be more than adequate to supply a family and offer income opportunities.

PESTS AND DISEASES

Susceptibility to pests/pathogens

Lychee is susceptible to a range of pests and diseases. Commonly experienced insect and mite pests include:

- Erinose mite (*Aceria litchi*)
- Leaf and flower eating caterpillars
- Fruit borers
- Fruit spotting bugs
- Mealybugs

- Scale
- Leaf miners
- Leaf feeding beetles and weevils

Common fungal problems include:

- Anthracnose (Pepperspot)
- Flower blight
- Root rot
- Postharvest fruit rots

Common vertebrate pests include:

- Birds
- Bats (flying fox)

Before introducing lychee trees to a new region, ensure that the material is free of erinose mite. A number of pre-export sprays of insecticide (dimethioate and or wettable sulphur) are required. Following importation, a prerelease period in quarantine (3–9 months) will allow material to be inspected for introduced pests that can be eliminated before plants are established in the field.



Top left: Mature fruiting lychee ('Bosworth 3') grown under permanent netting in north Queensland. Top right: Mature lychee trees regrowing following a heavy top prune. Bottom left: Bird damage on fruit that was not bagged or protected with netting. Bottom right: Bagging fruit is a way to improve quality and net profits.

Sustainable methods for pest and disease prevention

Netting is commonly used to deter fruit-eating birds and bats. In Australia, the majority of growers use temporary and permanent netting systems to prevent predation by birds and bats.

Copper fungicides are commonly used to control anthracnose and flower blight. Regular pre-harvest application can minimise the incidence of postharvest rots.

Insecticides are occasionally required to deal with severe outbreaks of insect or mite pests. Pesticide labels must always be followed.

As a cleansing spray of the tree trunk after pruning or protective sprays on shoots just prior to flushing, wettable sulfur has been observed to reduce and prevent erinose mite damages to leaf, flower, and fruit.

It is critical to maintain even soil moisture as fruit matures. Heavy rain on a water stressed orchard frequently results in fruit splitting. A simple way of maintaining even moisture is to retain a clean layer of leaf mulch around each tree.

DISADVANTAGES

Lychee is not an ideal crop for warmer tropical areas that do not experience a period of cold temperature required to induce flowering. Early varieties such as 'San Ye Hong', 'Souey Tung', 'Kaimana', and 'Feizixiao' may be more suited to warmer growing areas.

Fresh fruit shelf life is relatively short. Fruit postharvest life is short (5–7 days) unless moisture retention and cooling technology is available. Fruit dehydration and enzymatic process in the pericarp (skin) contribute to skin browning. Brown fruit have low visual appeal yet internal fruit quality may still be acceptable.

Potential for invasiveness

There is minimal potential for invasiveness. Although lychee seeds germinate readily, young seedlings require care to establish and flourish.

COMMERCIAL PRODUCTION

Postharvest handling and processing

Lychee fruit are best eaten fresh and fruit postharvest life is relatively short. Fruit browning due to the rapid rate of moisture loss from the fruit following harvest and the commencement of enzymatic browning are two major postharvest factors. In rural Asian growing regions, lychee is usually picked, packed, and sold on the panicle (stem) in the local community. Fruit postharvest life is not an issue where fruit is rapidly consumed at the local level.

In commercial production environments where fruit have to be transported to distant markets or the rate of consumption does not match the supply, fruit postharvest technology is critical to successful marketing.

Lychee fruit are best picked early in the morning either on the panicle or as single fruit. The maintenance of a moist and cool chain is imperative to maintaining fruit quality. Fruit should be rapidly graded, removing damaged, split, insect-stung, and below grade fruit, ensuring that fruit are handled carefully and kept moist along the grading packing line. The use of hydro cooling (12°C) baths can rapidly reduce fruit temperature prior to packing. Fruit should be packed in polyethylene bags or similar material to ensure retention of high humidity around the fruit.

For short-term storage, fruit are best maintained at 10°C whereas for longer storage options a temperature of 5°C is preferable. Cooler storage options (1–2°C) have been assessed as part of fruit disinfestation programs, however, these temperatures should be avoided if not necessary for quarantine requirements because fruit quality can be compromised during storage at such low temperatures.

Processed products

Lychee fruit can be processed in many ways. Drying, in particular solar drying, is a potential low technology solution to dealing with production in excess of the demand for fresh fruit. Lychee can be dried at home in shell using a very simple drying box with mesh rack enclosing a commercial dehumidifier. At a medium setting of 7 or 8, fresh lychee fruit without stem and leaf can be dried sufficiently for storage in about 10 to 12 days (results vary with variety and fruit size). When properly dried, the skin will be brittle and crack when pressed. The intact dried fruit can be stored in a plastic bag for at least a year and retains good eating qualities. It is important not to use high heat for drying, which will give a charred and bitter flavor to the final product and over-dried aril is hard, stiff, and tasteless. Soft and pliable amber colored dried lychee aril is a superior product.

Home scale preserves and jams are also options. At a commercial scale, the cost of the technology and machinery involved becomes prohibitive for small scale producers.

Product quality standards

Industries in Australia, Hawai'i, and Florida have developed fruit quality standards for marketing purposes. These standards are generally developed for 1st and 2nd grade fruit. Fruit are deemed suitable for 1st grade if they are free of blemishes (abrasion damage, browning, pepper spot, and sooty mould). Fruit categorized as 2nd grade may have a small percentage of their surface area affected with one or two of the blemishes listed above. Both 1st and 2nd grade fruit must be free of fruit with split skin, pulled stems, insect stings/dam-



Left: Maintaining the wet chain prior to transporting fruit to the packing shed. Right: Typical postharvest handling machinery used by Australian lychee growers. It includes: manual destalking, grading, in-line hydro-cooling, and size grading.

age, and scale. Quality standards are best developed for the market where fruit will be sold. International Codex standards are also available (Codex Standard 196-1995).

Despite the development of fruit quality standards, during times of fruit shortage fruit quality becomes less important when market demand is high.

Product storage requirements and shelf life

The establishment of a moist and cool chain through the use of packaging and refrigeration can extend fruit life to 2 weeks. In production regions where cool storage is not readily available, fruit packaging (plastic bags, cling wrapped punnets) can help extend the shelf life of fruit for 5–7 days.

Fruit should never be stored loose (unpackaged) in cool, dry environments typically found in the grocery section of western style supermarkets.

Recommended labeling and packaging

Fruit packaging and labeling standards vary depending on country of production and market requirements. In Australia cling wrap, lidded punnets, or sealed polyethylene bags have been successfully used to market “retail ready” fruit.

The minimum labeling requirements for a local domestic market may include fruit name, grower identification and net weight of package. Labeling requirements become more strenuous for export markets.

SMALL SCALE PRODUCTION

Fresh lychee fruit is eagerly consumed by many people is well known for its flavor, juiciness, and texture. Lychee can be well suited, where favorable climatic conditions exist, to small-scale production particularly where there is no competition from large commercial orchards or cheap imported fruit. This is particularly relevant on Pacific islands, where air shipping has become very expensive.

Variety selection and plant spacing should be considered to allow high density planting. Recent plantings on commercial farms in Queensland are at densities of 600–700 trees/ha, which is considerably higher than a traditional density of 100–200 trees/ha. At high densities, yearly heavy pruning is undertaken after harvest to keep the trees small.

Small-scale value-adding

The real value of lychee is for its fresh fruit, particularly in a market that is not oversupplied. The production of lychee for processed product is unlikely to be economic unless high volumes of fruit are available. However a number of specialty products have emerged from production regions where fruit is produced in excess to demand. These include lychee wine and or mixed tropical fruit wines with lychee as a base.

Use in the Pacific

The distribution of lychee in the Pacific is limited to island groups north or south of 20° latitude. Lychee does not per-



Left: A 375 g lidded punnet “retail ready pack” (variety ‘Feizixiao’). Right: A 5 kg box of lychee (‘Wai Chee’) packed in a perforated plastic bag at the Sydney, Australia, wholesale market.

form well in tropical zones. Hawai‘i and New Caledonia both have small commercial production areas that produce fruit for the local and tourist communities.

Nutrition

Lychee has a minimal contribution to the nutritional health of pacific communities given its limited distribution and commercialization in the Pacific. However, where it is produced it offers an important healthy fruit alternative to the community.

Import replacement

Where the crop can be successfully produced, it will contribute to reducing imports and also to boosting local crop production and marketing opportunities.

YIELDS

Expected range of yields per plant

Fresh fruit yields range from 5 to 20 MT/ha depending on variety, plant spacing, and growing climate. Individual tree yields can vary from 5 to 100 kg depending on variety, tree size, management, and seasonal influences.

Recommended planting density

Recommended density is from 200 (10 × 5 m) to 350 (8 × 3.5 m) trees/ha. However, in climates where cool to cold winter conditions occur, the more adventurous may wish to explore higher densities. For home gardens or polyculture situations a few trees 12–20 m apart may be more appropriate.

MARKETS

Local markets include roadside sales, farmers markets, retailers, restaurants, and agritourism opportunities. Export market opportunities in the Pacific are most likely limited to interisland trade where frequent, rapid, and inexpensive transport opportunities are available. Export markets into Europe, North America, and Asia are already well supplied by existing producing countries. Europe is well supplied by Madagascar, South Africa, Mauritius, and the Seychelles. North America (the mainland U.S.) has production in Florida and imports fruit from China and Mexico as well as from Hawai‘i. Canada imports the bulk of its lychee from China. In Asia, fruit is exported from early producing regions such as Thailand to China, Hong Kong, and Singapore. Chinese fruit are exported to Hong Kong and Singapore.

Specialty markets

Specialty market opportunities may exist depending on growing location and markets. In Australia and Hawai‘i, organic market opportunities are being explored by some producers. However, consumers may be reluctant to pay a price premium for organic fruit relative to cheaper alternatives. Insufficient information is available to comment on how these opportunities may be explored in the Pacific. Organic fruit still needs to meet importing country quarantine requirements.

Branding possibilities

Branding opportunities vary with the variety, growing location, markets, and the skill of the marketing personnel involved. There is no immediate opportunity that presents it-

self. However, in more developed commercial lychee growing regions there is a trend to grow small seeded varieties with a better flesh-to-seed ratio, as these fruit command a higher market price.

Potential for Internet sales

Internet sales potential exists, however, order fulfillment must be firmly linked to regular, rapid, and inexpensive freight connections. Fruit sales on the Internet must meet importing country quarantine requirements.

EXAMPLE SUCCESS

Love Family Farms, Captain Cook, Hawai'i

Ken Love had a passion for lychee since his childhood when he tasted preserved lychee in Chinese restaurants in Chicago. When establishing a farm in Hawai'i in the 1980s, he planted lychee together with a diversity of other fruit crops.

When in season, Ken sells fresh lychee. The varieties he sells include 'Kaimana', 'Groff', 'Kwai Mi', 'Bosworth', 'Brewster', 'Emperor', and 'B3'. By bagging fruit in the field, he has little damage from insects and birds, and therefore a much higher quality product that is sought after by consumers.

To serve his customers in the off-season, Ken preserves fresh lychee in a simple syrup (sugar, pectin, and calcium water) and bottles it for sale. The preserves are made in small batches with all the fruit preparation done by hand. The process takes more time than citrus marmalade, and is not profitable. However, having the preserved lychee available increases rapport with visitors to his booth at the farmers market, which helps sell other fruits.

Ken also freezes whole lychee to keep on hand for visitors to try. Freezing is a simple process that can be done on any farm. Ken washes the fruit and seals it in freezer bags prior to freezing. When thawed, lychee that has been frozen retains much of its flavor and texture. Ken has also tried drying lychee, but thinks the taste is disappointing compared with fresh or even frozen lychee.

Ken sells his 100% locally grown and processed fruit preserves at farmers markets and on an Internet e-commerce site. He sells fresh fruit at farmers markets, to a local distributor, to grocery stores, and sometimes directly to hotels. Direct to resort hotel sales have grown tremendously with the increased awareness and advantages of good farmer-chef relations. He believes the best strategy is to have several outlets for his produce in order to diversify his markets and strengthen the local food economy.

ECONOMIC ANALYSIS

Expenses of production

Production expenses are highly variable depending on labour rates and input costs, which are dependent on the location.

In SE Queensland a gross margin analysis conducted in 2002 indicated the following variable costs for conventional production systems:

Costs	Amount in AUS\$/ha
Weed control	132
Pest and disease control	1,271
Nutrition	832
Irrigation	2,200
Canopy management	180
Harvesting and marketing	19,972
Total variable cost	24,587



Love Family farms lychee preserves for sale at farmers market.

The gross margin per hectare based on the above variable costs is AUS\$21,814/ha assuming a yield of 11.6 MT/ha and fruit valued at AUS\$4/kg.

Prices for lychee in production areas vary enormously. Retail prices range from \$7.70/kg to \$13.20/kg in Hawai'i. Low prices can be \$0.50/kg in China and \$3.00/kg in Australia. High prices for small seeded varieties on the cusp of the season can vary from \$10/kg in China to \$20/kg in Australia. However these high prices are not indicative of average returns, which are closer to the low price range.

FURTHER RESEARCH

Potential for crop improvement

Major crop improvement issues are regularity of flowering and fruit set and varietal improvement.

Improving potential for family or community farming

In a favorable production environment, lychee can add to the productive potential of family and community farms.

Genetic resources where collections exist

Extensive collections exist in China, Taiwan, Thailand, Vietnam, Hawai'i, and Australia.

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California Rare Fruit Association: <http://www.crfg.org/pubs/ff/lychee.html>

Purdue University Center for New Crops and Plant Products: http://www.hort.purdue.edu/newcrop/nexus/Litchi_chinensis_nex.html

Lychee postharvest information from UC Davis Postharvest Technology Research and Information Center: <http://postharvest.ucdavis.edu/Produce/ProduceFacts/Fruit/lychee.shtml>

Farmer's Bookshelf: Lychee. Department of Tropical Plant & Soil Sciences, University of Hawai'i at Mānoa: <http://www.ctahr.hawaii.edu/fb/lychee/lychee.htm>

Specialty Crops for Pacific Island Agroforestry (<http://agroforestry.net/scps>)

**Farm and Forestry
Production and Marketing profile for
Lychee (*Litchi chinensis*)**

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**Farm and Forestry
Production and Marketing profile for**

Mangosteen

(Garcinia mangostana)

By Yan Diczbalis

USES AND PRODUCTS

Mangosteen is primarily consumed as a fresh fruit. The fruit is common delicacy and often referred to as the “Queen of Fruit” in Southeast Asia.

The volume of production in Thailand is increasing and fruit is now being processed into value-added products such as jam, candy, and wine.

In traditional communities, the fruit pericarp (rind) was used as an antibacterial agent and for curing diarrhea. The use of the fruit rind and or whole fruit as a medicinal/nutritional beverage has been a recent trend in western societies. Mangosteen extracts and processed products have now entered the worldwide health food and nutritional supplement market.

The timber, dark red in colour, is used when available in cabinet making and where a heavy durable wood is required.

Scale of commercial production worldwide and in the Pacific

Thailand is the world’s largest producer of mangosteen, producing approximately 240,000 metric tons (MT) annually, with exports recorded at 15,000 MT in 2006. Malaysia, Vietnam, and Indonesia are also major producers. Most people enjoy mangosteen and the fruit has a ready market in western countries where it is considered a tropical delicacy. Recent production in Central America is being exported into Europe. A modest commercial production occurs in Hawai’i, primarily for local markets. The fruit has a good postharvest life which is beneficial for export, although it is regarded due to lack of contradictory evidence as a potential fruit fly host.

NOMENCLATURE

Preferred scientific name

Garcinia mangostana L

Family

Clusiaceae

Non-preferred scientific names

None.

Common names

English: mangosteen, purple mangosteen, queen of fruit

Indonesia, Philippines: *manggis*

Thailand: *mang khút*

Vietnamese: *cây măng cụt*

Japanese: *mangosuchin*

French: *mangostan, mangostanier, mangoustan, mangoustanier*

BRIEF BOTANICAL DESCRIPTION

Mangosteen is a slow growing, pyramidal shaped evergreen tree growing up to 30 m (100 ft). The single stemmed trunk has symmetrical and alternatively opposite branches. The trees flush from terminal shoots 3–4 times per year. Young emerging leaves are red/pink in colour, turning light green and dark green as they mature. The flower buds protrude from between the terminal leaf petioles as small bulbous protrusions usually as single floral bud but also occur as double or triple buds. The flowers, having four sepals and four petals, are borne on short thick stalk. Mangosteen produces only female flowers. The tree has large thick, elliptic shaped leathery leaves.



Left: Perfect fruit on display. Right: 100% mangosteen fruit drink sold as “super fruit” nutritional supplement in a health food store. Kahalui, Hawai’i.



Left: Symmetrical and alternatively opposite branching in mangosteen. Note that internal secondary branches have been removed to facilitate air movement through the tree. Top right: Mangosteen shoot enclosed by the terminal leaf pair petioles (leaf stalks). Bottom right: New leaf flush.

DISTRIBUTION

Native range

Mangosteen is believed to be a sterile hybrid between *G. hombroniensis* and *G. malaccensis* (Yaacob and Tindall 1995). It was originally distributed in the Malay Peninsula and the eastern Indonesian archipelago and the island of Borneo.

Current distribution worldwide

The tree is widely distributed throughout Southeast Asia where it is an important commercial fruit crop. The crop is grown extensively in Thailand, Cambodia, Vietnam, Philippines, Laos, and Burma. Mangosteen is also widely distributed into northern Australia, India, West Indies, Central and South America, Africa, and Hawai'i. There are also claims of flowering and fruit specimens grown in greenhouses in England. Viable commercial production generally occurs within 10° of the equator but extends to 18°S on the east coast of Australia and 22°N in Hawai'i. Specimen plants exist throughout the Pacific, however, it is not widely commercialized in this region.

Relatives of mangosteen such as *G. hombroniensis*, *G. warrenii*, *G. livingstonei* are widely distributed (Borneo, Australia, and Africa). Many of the former *Rheedea* species in South America have been taxonomically reclassified as *Garcinia* species (e.g., *G. intermedia*, *G. madrona*, *G. braziliensis*, and *G. laterifolia*).

The Pacific is the home of a few important edible relatives, namely, *Garcinia pseudoguttifera*, *G. hollrungii*, *G. jaweri*, and *G. floribunda* (Walter and Sam 2002). *Garcinia dulcis* is commonly found in the Pacific following introduction as a fruit suited to village production. There are also native ornamental/forest species such as *heilala* (*Garcinia cessilis*), and *feto'omaka* (*Garcinia myrtifolia*) in Tonga (Chay et al. 2007).

ENVIRONMENTAL PREFERENCES AND TOLERANCES

Mangosteen prefers a warm and humid environment with well distributed rainfall and a 3–5 week dry season. The plant is native to the equatorial tropics. Young seedlings

prefer a high level of shade and young trees prefer moderate shade. Mature trees provided with adequate moisture and nutrients will grow, flower, and fruit in full sun if humidity remains high. Weibel et al. (1993) report that maximum photosynthesis in mangosteen occurs at low light levels similar to that observed in understory rainforest trees. In severe environments with high irradiance, e.g., the monsoonal tropics of Northern Territory, Australia, mangosteen struggles in full sunlight during the dry season even with adequate irrigation.

Soils

Mangosteen prefers deep, well drained soils with good moisture retention. The tree grows well on deep river loams. Soils should be high in organic matter. It has been observed to perform poorly on sandy soils low in organic matter. In North Queensland, trees have been grown on soils with a pH range of 4.8–7.6 and 1.5–7.9% organic matter.

GROWTH AND DEVELOPMENT

The mangosteen is a slow growing tree taking 2–3 years for seedlings to reach a stage where they can be planted in the field. Under ideal conditions of temperature, soil moisture and light, young mangosteens may produce 4–5 vegetative flushes per year, however, only 2–3 flushes is common. The leaf petioles of the terminal flush hide the growing tip. Vegetative and reproductive buds emerge through the joint between the two terminal leaf stalks.

Young seedlings and nursery trees require at least 50% shade. Newly planted trees also prefer shade provided artificially

Elevation, rainfall, and temperature

	lower: sea level
Elevation range	upper: 1,000 m (3,300 ft) in the tropics. Mangosteen will grow above 300 m [1,000 ft] in Hawai'i but not produce fruit reliably.
Mean annual rainfall	lower: 1,500 mm (60 in) upper: 5,000 mm (200 in)
Rainfall pattern	Mangosteen can thrive in summer, bimodal, and uniform rainfall patterns. Irrigation may be required where mean rainfall is less than 100 mm/month
Dry season duration (consecutive months with <40 mm [1.6 in] rainfall)	1–2 months
Mean annual temperature	lower: 22°C (72°F) upper: 28°C (82°F)
Mean maximum temperature of hottest month	lower: 23°C (73°F) upper: 35°C (95°F)
Mean minimum temperature of coldest month	lower: 15°C (59°F) upper: 25°C (77°F)
Minimum temperature tolerated	8°C (46°F)

(shade cloth and stakes) or by companion plants such as banana or shade tree species. Mature trees provided with adequate moisture and nutrients will grow, flower, and fruit in full sun.

All parts of the mangosteen contain a thick yellow latex which oozes from wounds. The latex, commonly known as “gamboge,” can compromise fruit quality if the fruit are injured by insects or high soil moisture levels promote latex rupture within the fruit.

Flowering and fruiting

In North Queensland, the earliest recorded age at which mangosteens have been observed to flower and fruit is 6 years with 8–10 years of age being most common. Ten years or longer is typical in Hawai'i. Flowering occurs at the shoot tip, generally after a rain free period of 3–4 weeks. In North Queensland, the main flowering occurs in November/December following 2–3 dry months. A minor flowering occurs in August in some seasons. Two flowering periods are commonly experienced in growing areas which receive a bimodal rainfall pattern. Fruit is ready for harvesting in 100–120 days after flowering, with the development period varying depending on temperature.

AGROFORESTRY AND ENVIRONMENTAL SERVICES

Mangosteen is often interplanted with other species because of the beneficial effect of shade on tree growth and yield particularly where soil moisture and nutrient supply may be limited. Mixed fruit tree gardens are common in traditional Southeast Asian village life where mangosteen has an important role. The tree is attractive, a visual and productive asset to any garden where sufficient room is available. It's dense crown, extending nearly to the ground, could be an asset as a privacy barrier in urban areas.

PROPAGATION AND PLANTING

Mangosteen is commonly propagated from its recalcitrant seed whose viability is limited to several days if allowed to dry. Seed should be cleaned and kept moist in a neutral substrate such as perlite, clean sawdust, or charcoal if storage is required for up to 2 weeks. Genetic research has shown that there are a number of different types, which results in small but perceptible differences in fruit and tree shape. Before ordering seed, the grower should be aware of fruit characteristics of the mother trees. Seeds should be sown in tall pots (>30 cm [12 in]) to allow taproot development to occur.

Wood from a bearing tree can also be grafted onto seedling rootstock. Such grafted trees tend to flower earlier, but fruit are smaller and tree vigor and shape is difficult to maintain.



Left: Week-old mangosteen seedlings. Right: A small grafted tree that is already bearing fruit. Rayong, Thailand.

Hence there are few if any advantages to grafting and it is not commonly undertaken commercially.

Mangosteen seedlings are notoriously slow growing. A porous but moist mix is important for good growth. In Australia, a mix of equal parts of sand, peat, and composted pine-bark is recommended. Regular use of foliar fertilizers and small amounts of urea or sulphate of ammonia can assist rapid development. Shade, water and nutrient management, and warm conditions are critical to rapid seedling development.

Well developed nursery trees approximately 100 cm [40 in] tall are preferred for planting out. Mangosteen needs particular care at planting. The roots are sensitive to disturbance and moving plants from the shade house environment to the open field requires a hardening off process or the provision of shade in the field.

Companion plants such as banana or other fast growing food crops can provide useful shade and protection for young field-planted mangosteen trees.

CULTIVATION

Variability of species and known varieties

Until recently, all mangosteen trees were considered to be identical because fruit and seed develop without sexual fertilization taking place. Studies in Malaysia (Bin Osman and Rahman Milan 2006) indicated that 16 of 830 mangosteen accessions collected were identified as being distinctly different. Growers in non-traditional mangosteen growing areas have noted that fruit and tree shape may vary depending on the seed source. Genetic finger printing studies (Sando et al.

2005) carried out in Australia showed that there were three distinct varieties growing in Australia. Only two of the varieties have fruited and the major difference in “Borneo”-sourced seed material is that the fruit are elliptical in shape and the trees have noticeably sparser foliage with upright branches. The more usual spherical fruit variety is preferred as it is considered more vigorous and the fruit are easier to pack.

Basic crop management

There are no special horticulture techniques required to produce mangosteen except the skill and experience required to raise healthy trees. Well managed, healthy mangosteen trees, clearly evident by appearance, will flower and fruit earlier and produce more abundant and larger fruit. Patience and



Entries in a “largest fruit” competition in Chanthaburi, Thailand. The largest fruit weighed 230 gm (8 oz), far larger than the average size for mangosteen fruit of 70–125 gm (2.5–4.5 oz).



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Top: A young mangosteen seedling planted with pigeon pea (*Cajanus cajan*), a leguminous tree for temporary shade. San Marcos district, Guatemala. Middle: Juvenile mangosteen trees with companion banana and artificial shade in North Queensland. Bottom: Young mangosteen seedling growing in the shade of an old rambutan tree it will eventually replace. Chanthaburi, Thailand.



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Young mangosteen trees that were originally established in commercial bananas and grown with palms as permanent shade. Far North Queensland.

continued regular management is crucial to the success of mangosteen production. At flowering and early fruit development, control of red banded thrips and mites is important if well presented, unblemished fruit are required for the market. Recommended basic crop management includes

- Irrigate, particularly when the monthly rainfall is less than 150 mm (6 in)
- Fertilize (foliar, inorganic, and organic) in small amounts regularly
- Ensure the area under the canopy is well mulched and weed free
- Maintain control of pests and diseases
- Control competition from shade trees or companion plants if present.

The management routine remains much the same for 6–10 years before flowering begins. Commercial fertilizer recommendations vary but rates for mature fruiting trees of 3–6 kg (6.6–13.2 lb) per tree per year of N:P₂O₅:K₂O (12:12:17) or similar are generally used.

Advantages and disadvantages of polycultures

Mangosteen is well adapted to being grown in a polyculture. The shade and other micro-environmental benefits (reduced wind, etc.) provided by companion species are of enormous benefit to early growth. Mangosteen can be an irregular producer in some environments, hence the addition of other species in the open space ensures that the plot of land remains productive with an added bonus when the mangosteen produces fruit. Fast growing banana and papaya are excellent companion plants that ensure early production as well as improving the microenvironment for young mangosteen trees.



Top: Mature mangosteen trees established and grown under permanent shade (*Albizia falcataria*) in Far North Queensland. Middle: A mixed orchard of mangosteen, rambutan, and durian. Rayong, Thailand. Bottom: Young tree interplanted with culinary herbs. Chanthaburi, Thailand.

PESTS AND DISEASES

Susceptibility to pests/pathogens

Mangosteen is moderately susceptible to a range of pests and diseases. Problems increase in suboptimal environments. Leaf eating pests (caterpillars, grasshoppers, beetles) can be a problem. Control is important, particularly for young trees where severe defoliation can slow development. Large mature trees are not as susceptible to this type of pest.

Fruit skin quality can be adversely affected by a mite and red-banded thrip. The rasping feeding action of these pests can cause scarring to the fruit surface, which, although cosmetic in nature, can greatly devalue the fruit for the fresh market.

A few diseases have been recorded in mangosteen. In North Queensland, *Pestalotia* sp. has been associated with canker development and shoot tip die back. This disease is seen more commonly where trees are growing poorly or have been severely sunburned following a rapid loss of shade. Applications of copper fungicides are recommended as well as improved water and nutrient management. Stem canker, algal leaf spot, and sooty mould can also present as problems.

Gamboge and translucent flesh, common imperfections that are not due to pests or diseases, tend to be a greater problem if fruit mature during very wet conditions.

Sustainable methods for preventing and treating problem pests and diseases

Ideal growing conditions and vigorous, healthy trees are the most sustainable method of preventing and treating pest and disease problems in mangosteen. Slow growing trees where growth is compromised are most susceptible to pest and disease problems.

Few pesticides are registered specifically for mangosteen. Commonly available insecticides and copper-based fungicides can handle most problems. Always read and follow pesticide labels.

DISADVANTAGES OF THIS CROP

The tree requires reasonably exacting conditions for it to grow and bear well. The long juvenile period is a constraint to commercial profitability. In North Queensland, gross margin analysis suggests that a mangosteen orchard does not have a positive return on investment within the first 20 years.

Potential for invasiveness

Mangosteen is not an invasive plant due to the special care required for seed germination and early seedling growth.



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Top left: Mangosteen fruit downgraded because of severe gamboge present on the fruit skin. Bottom left: Mangosteen fruit with internal gamboge most likely caused by rupture of cells following fruit fall. This damage is often not visually evident in whole, unopened fruit. Right: An internal gamboge rupture can usually be detected as a hard spot on the fruit skin.

COMMERCIAL PRODUCTION

Postharvest handling and processing

Mangosteen fruit are climacteric. Climacteric fruit can be picked from the tree when they are mature and will continue to ripen, whereas non-climacteric fruit must ripen fully on the tree prior to harvest. As mangosteen fruit ripen they change colour from yellow-green to pink, red, and then dark red to purple. The maturity stage of fruit is important when harvesting for commercial sale. Fruit has reached the ideal picking stage when it is pink to light red in colour. Fruit with more colour than this are ideal for local or immediate consumption.

Fruits are picked by hand using a specialized picking pole and bag. Dropped fruit should be avoided as they are more susceptible to internal damage.

Fruit should be washed, and the space under the calyx inspected for live insects, dirt, etc. This space is best cleaned using compressed air or a mild detergent solution. After cleaning, fruit can be sized and packed as appropriate for

the market and distance of travel. In Australia, plastic inserts with premoulded cups are used for shipping retail quality fruit. They are available in a range of packing densities to allow 24–42 fruits per 3 kg (6.6 lb) tray. Smaller retail-ready packs are also produced with 3–6 fruits on a plastic wrapped foam tray. Retail packs could also be made utilizing small cane or coconut weave baskets. Imperfect fruit due to external blemishes, but sound internally, can be sold in bulk.

Value-added processing

Mangosteen is primarily consumed as a fresh fruit, however it can be processed for the production of preserves, jam, and puree. The puree base has been successfully used in the production of sorbets and tropical fruit wines.

There is a new potential market for the whole fruit in the production of nutraceutical beverages. In Australia, the returns for this fruit have so far been below that achieved for sound whole fruit sent to the wholesale fresh fruit market.

Product quality standards

There are few quality standards available. In a market where there is little or no fruit available, quality is not as important for successful marketing. Where mangosteen is produced in relatively large volumes, quality standards have been formulated which take into account fruit maturity at picking,

fruit size, fruit colour, blemishes, and packing presentation. The Northern Territory Department of Primary Industry & Fisheries in Australia produced a quality standards chart with the assistance of other government agencies and tropical fruit growing associations (Lim et al. 1998). Suggested quality standards for 1st grade fruit include



Top left and right: Picking pole with special picking tool with bag to catch the fruit. Chanthaburi, Thailand. Bottom left: Newly picked fruit at ideal picking stage, mature but a few days from full ripeness. Bottom right: Fully ripened, washed and sorted fruit.

- Minimum weight of 70 g (2.5 oz)
- Fruit at the correct harvest colour to allow fruit to develop to full colour when ripe
- Fruit skin blemish free
- Area under the calyx free of dirt and insects
- Calyx undamaged and fresh green in colour
- Sized fruit packed individually

Product storage requirements

At ambient tropical temperatures fruit can easily be kept for 7–10 days before rind hardening or other quality deteriorations occur. Ripe mangosteen can be successfully stored at 5°C (41°F) at a relative humidity (RH) greater than 85% for 4 weeks from ripening. If storing at a lower relative humidity, the rind will rapidly harden making the fruit unusable.

Recommended labeling for products

Fruit packaging and labeling standards vary depending on country of production and market requirements. The minimum labeling requirements for a local domestic market may include fruit name, grower identification, and net weight of package. Labeling requirements become more strenuous for export markets.

SMALL-SCALE PRODUCTION

The tree is ideally suited for small-scale commercial or home garden production, if space allows for the relatively large amount of space an older tree can occupy. Mangosteen is present in the Pacific but it not extensively grown. It has a minimal contribution to the nutritional health of Pacific communities given its limited distribution and commercialization in the region. However, where it is produced, it offers an important healthy fruit alternative to the community. Where the crop can be successfully produced it will contribute to reducing imports and also to boosting local crop production and marketing opportunities.

Mangosteen is a promising tree crop for tropical Pacific islands, where soil and climatic condition exist which allow production and local high-end markets exist for fresh fruit, particularly in the visitor industry and restaurants. The tree fits well into a polyculture and the fruit is well liked by most people.

Nutrition

	Quantity per 100 g
Energy	76 kcal
Moisture	80 g
Protein	0.5 g
Fat	0.2 g
Carbohydrate	15 g
Fibre	5 g
Ash	0.2 g
Vitamin C	1 mg

Source: www.nal.usda.gov/fnic/foodcomp/

YIELDS

Individual tree yield varies widely with tree age and growing location. Average yields for 10–15 year old trees can vary from 40 to 70 kg (88–154 lb) per tree annually. High yields in excess of 150 kg (330 lb) per tree have been recorded. In a 2-year mangosteen production survey carried out in North Queensland the maximum yield recorded was 10 MT per hectare (4.4 T/ac) in a commercial orchard of 2,000 trees, which equated to 50 kg (110 lb) per tree (Diczbalis and Westerhuis 2005).

Recommended planting density

The recommended planting density is 6 m × 9 m or 7 m × 7 m spacing (20 ft × 30 ft or 23 ft × 23 ft). This allows about 50 m² (540 ft²) per tree.

In mixed orchards more room per tree is allowed with the space in between mangosteen trees filled with other crops.



Left: Mangosteen packed in a 28-fruit tray. North Queensland. Right: Example package labeling. Hāmākua, Hawai'i.



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Top: The calyx can harbor ants and other insects, and should be inspected and cleaned prior to sale. Middle: Typical method of cutting the fruit open for eating. Bottom: The scar pattern on the bottom of the fruit matches the number of sections inside the fruit.

In mixed plantings, tree spacing should take into account the size and shape of companion species.

MARKETS

Local markets

Mangosteen is appreciated by people from all cultures. As for any new fruit, customer knowledge is important if sales are to be successful.

Mangosteen would particularly lend itself to agritourism and island tourism as the fruit is relatively well known, attractive, and almost universally appreciated by those who taste it.

Export markets

Fresh mangosteen is a product with a relatively strong demand in North America and Europe. Supply and demand will strongly influence the price. Thai mangosteens have a strong presence in Europe from May to July and hence any new suppliers should consider supply times which do not clash with Thai production times.

Both North America and Europe have stringent import conditions covering food safety and pesticide residues. The U.S. also has stringent import regulations based on pest and disease quarantine issues and fruit may have to undergo costly quarantine treatments. The USDA has approved the importation of irradiated fruit from Thailand. This could impact both local and export markets from Pacific producers.

Specialty markets

Specialty market opportunities may exist depending on growing location and markets. In Australia and Hawai'i, organic market opportunities are being explored by some producers. However a recent comment from a grower in Australia suggested that the marketplace was reluctant to pay a price premium for tropical fruit and for organic fruit relative to cheaper supplies of alternatives. Insufficient information is available to comment on how these opportunities may be explored in the Pacific.

Branding possibilities

Branding opportunities vary with growing location, market and the skill of the marketing personnel involved. A geographic moniker, such as "Hawai'i grown," is an example branding strategy.

Potential for Internet sales

Internet sale potential exists, however, it must be firmly linked to regular, rapid, and inexpensive freight connections. Fruit sold via the Internet also must meet the conditions imposed by the quarantine authorities in the importing region.

EXAMPLE FARMS

Onomea Orchards (Jenny and Richard Johnson)

Onomea Orchards in Hāmākua, Hawaiʻi, has 39 producing mangosteen trees that were planted in 1990. It was the first in the U.S. to have commercial quantities of fruit in 2000. At 19 years old, the trees were 9 m (30 ft) tall. The fruit is hand-picked 2–3 times per week during the harvest season so that minimal numbers fall to the ground. After harvest, the fruit is soaked in a water bath with a little detergent to remove debris and any ants that may have taken residence under the fruit calyxes. Then the fruit is graded into first and second grade, with first grade being all hand picked from the tree, and free from blemishes. Most of their fruit is sold through the Hawaiʻi Tropical Fruit Cooperative, Inc., a farmer-owned coop that markets commercial quantities of tropical fruits including mangosteen, rambutan, longan, lychee, and starfruit. The fruit is pack in standards that have their own Onomea Orchards label, as well as the cooperative's name. In 2009, the retail price for first grade was \$16.50–17.60/kg (\$7.50–8.00/lb).



Richard Johnson standing under one of his 19-year-old mangosteen trees at Onomea Orchards.



Onomea Orchards mangosteen interplanted with starfruit.

Wailea Agricultural Group, Inc. (Michael Crowell and Lesley Hill)

The 110-acre Wailea Agricultural Group is located in Hāmākua, 14 miles north of Hilo at 75–180 m (250–600 ft) elevation. The farm currently has 2 ha (5 ac) planted in mangosteen. Many of the mangosteen trees were interspersed within existing productive orchards as replacements for trees that died or were not thriving, such as bananas and avocados. By planting them within an existing orchard, the seedlings had good wind protection and did not need to be established within an artificial wind shelter. The tree spacing is approximately 7.5 m × 10.5 m (25 ft × 35 ft). The owners believe in polycultures for biological and economic diversity. After harvest, the best grade of fruit is sorted and given a light cleaning with a cloth dampened with 10% bleach solution. All fruit is sold in Hawaiʻi to high-end restaurants, mostly through a large wholesaler.



A young mangosteen tree (on right) interplanted in an avocado field at Wailea Agricultural Group.

ECONOMIC ANALYSIS

Expenses of production

Production costs for mangosteen are not readily available. Malaysian data (Osman and Milan 2006) show that the major are associated with nursery material and planting costs and then the regular maintenance costs associated with irrigation, fertilizer, pesticide, and herbicide. Their economic analysis suggests that the payback period for an investment in a 10 ha (25 ac) mangosteen orchard of varies from 15 to 19 years depending on the sale price and other factors.

Mangosteen can be a profitable crop, but alternative income sources are required for the initial investment of land, trees, and irrigation infrastructure and for the long period of maintenance costs before fruit production begins. Income from companion-planted fast-growing species such as papaya and banana should be considered as part of the production model.

Expected income per tree

Mature trees yielding 50 kg (110 lb) per tree achieve a gross return of approximately \$500 per tree in Australia. In Thailand a similar yielding tree would give a producer a gross return of approximately \$50 per tree. The important difference, not immediately seen, is the cost of production. In countries where labour costs are low or where growers do not pay themselves a wage for their labour, returns may be sufficiently optimistic to justify production.

FURTHER RESEARCH

A shortened juvenile period is probably the single most important area for crop improvement. Grafting can result in an earlier crop but usually at the expense of tree shape and size. Also, fruit from grafted trees is generally smaller. Grafted trees may lend themselves to being grown at high density with trellising and artificial shade. Improvements and alternatives to grafting should be explored.

Genetic resources

There are no known formal collections, given the limited genetic variability in mangosteen. However, extensive plantings are maintained in research stations in Thailand (e.g., Chantaburi), Peninsula Malaysia, Sarawak, and Sabah. Prior to purchasing seed, a description of the fruit shape and tree productivity should be sought.

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OTHER RESOURCES

Internet

Australian Government Tropical Fruit Research Final Reports: <http://www.rirdc.gov.au>

Specialty Crops for Pacific Island Agroforestry (<http://agroforestry.net/scps>)

Farm and Forestry Production and Marketing profile for Mangosteen (*Garcinia mangostana*)

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Specialty Crops for Pacific Island Agroforestry

Update #2—Survey Results March 19, 2008

During January and February 2008, we conducted a survey to determine the most promising specialty crops for Pacific island agroforestry. We asked respondents to recommend crops that are economically, ecologically, and culturally sustainable for family farmers in the Pacific. There were 103 surveys submitted, including 10 surveys kindly completed by attendees of the Pacific Island Committee meeting in Rota February 19–23, 2008. We received surveys from a wide range of experts with knowledge of Pacific island plants, horticulture, and economic crops.

Respondents were based in American Samoa, Australia, Saipan, mainland U.S.A., Cook Islands, East Timor, Fiji, Pohnpei, Guam, Hawaii, Kiribati, Kosrae, Marshall Islands, New Caledonia, Palau, Samoa, and Yap. Many thanks again to everyone who contributed their time and knowledge.

We will be developing thirty-two Farm and Forest Production and Marketing (FFPM) sheets to support our region's food security and environmental health while expanding access to the marketplace for high quality food, fiber, and healthcare products. The 12–24 page FFPM sheets will provide extension-level, detailed information that will be available for free, unrestricted download from the Internet in PDF format.

I hope you will find the following results of interest. Several authors have offered to write the FFPM sheets, and we are actively looking for additional authors and reviewers. If you have any recommendations, we would be happy to hear them. Also, your comments are always welcome.

Aloha,
Craig

Craig Elevitch
Main web site: <http://www.agroforestry.net>
Specialty crops for Pacific islands: <http://www.agroforestry.net/scps>

50 top rated species in our survey by category

Spices

black pepper (*Piper nigrum*)
chili pepper (*Capsicum* spp.)
cinnamon (*Cinnamomum* spp.)
edible ginger (*Zingiber officinale* and related species)
turmeric (*Curcuma longa*)
vanilla (*Vanilla fragrans*)

Beverages/teas

cacao, chocolate (*Theobroma cacao*)
coffee (*Coffea arabica* and other spp.)
hibiscus tea, roselle (*Hibiscus sabdariffa* and others)

Fragrance/oil/garland

frangipani (*Plumeria rubra* and *P. obtusa*)
gardenia (*Gardenia* spp.)
maile (*Alyxia stellata*)
sandalwood, 'iliahi (*Santalum* spp.)
ylang ylang (*Cananga odorata*)

Fruits/Nuts

avocado (*Persea americana*)
banana and plantain (*Musa* spp.)
breadfruit (*Artocarpus altilis*)
citrus (including *Citrus sinensis*, *C. reticulata*, *C. hystrix*, *C. aurantium*, and *C. aurantifolia*)
guava (*Psidium guajava*)
lychee (*Litchi chinensis*)
mango (*Mangifera indica*)
mangosteen (*Garcinia mangostana*)
papaya (*Carica papaya*)
pineapple (*Ananas comosus*)
soursop (*Annona muricata*)
Tahitian chestnut (*Inocarpus fagifer*)

Cosmetic oil/wax

candlenut, kukui (*Aleurites moluccana*)
tamanu, kamani (*Calophyllum inophyllum*)

Fiber/thatching

screwpine, hala (*Pandanus tectorius* and other spp.)

Starch

banana and plantain (*Musa* spp.)
cassava (*Manihot esculenta*)
giant taro, 'ape (*Alocasia macrorrhiza*)
pumpkin (*Curcubita* spp.)
squash (*Cucurbita* species)
swamp taro (*Cyrtosperma merkusii*)
sweet potato (*Ipomoea batatas*)
taro (*Colocasia esculenta*)
yam (*Dioscorea alata* and other spp.)

Leafy vegetables

bok choy, tatsoi, etc. (*Brassica rapa* subspp.)
cabbage (*Brassica oleracea* Capitata)
edible hibiscus, bele (*Abelmoschus manihot*)
taro leaves (*Colocasia esculenta*)
winged bean (*Psophocarpus tetragonolobus*)

Medicinals

betel nut (*Areca catechu*)
kava (*Piper methysticum*)
lemon grass (*Cymbopogon citratus*)
neem (*Azadirachta indica*)
noni (*Morinda citrifolia*)
yam (*Dioscorea* spp.)

Biofuel/oil

candlenut, kukui (*Aleurites moluccana*)
coconut (*Cocos nucifera*)

Timber

bamboo (*Bambusa* spp., *Dendrocalamus* spp., *Gigantochloa* spp., clumping types)
coconut (*Cocos nucifera*)
koa (*Acacia koa*)
sandalwood (*Santalum* spp.)
tamanu, kamani (*Calophyllum inophyllum*)

Crafts

ti (*Cordyline terminalis*)

Animals

bees/honey

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Specialty crops for Pacific islands: <http://www.agroforestry.net/scps>

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**Farm and Forestry
Production and Marketing Profiles:
Highlighting value-added strategies**

Avocado (*Persea americana*)

Citrus (*Citrus* species)

Fig (*Ficus carica*)

‘Ōhelo berry (*Vaccinium reticulatum*)

Rollinia (*Rollinia deliciosa* and *R. mucosa*)

Surinam cherry (*Eugenia uniflora*)

Yam (*Dioscorea* species)

By Craig R. Elevitch and Ken Love

EXAMPLE CROP 1

AVOCADO

(*PERSEA AMERICANA*)

EVALUATING LOCAL PREMIUM VARIETIES

Avocados must have to come to Hawai'i with the first traders. It is estimated that there are currently well over 200 named types in Hawai'i, with wide variation in taste and other fruit qualities. This genetic diversity is a basis for development of specialty varieties with outstanding qualities.

Uses

Avocado fruit is consumed in various ways around the world. In the U.S., it is commonly used in vegetable salads and sandwiches. Guacamole, a Mexican dish made with avocado, lemon, and spices, is also very popular. Some eat avocado sweetened with sugar. In Brazil, avocado is commonly added to ice cream and milk shakes. Oil expelled from the flesh is used as a healthy oil in salad dressings and is also a constituent in cosmetics. Several parts of the plant are used in folk medicine

Agroforestry

The tree casts a dense shade, so its use is limited as an over-story species to shade-tolerant crops. Even so, a few avocado trees are commonly found in coffee orchards in Kona, Hawai'i. The productivity of the fruit for home use or sales outweighs the reduction in area for coffee cultivation. Avocado makes an acceptable component in a multi-row windbreak, where wind damage of fruit is moderated.

Markets

Avocados are commonly available wherever produce is sold.

In Hawai'i, unique as well as commercially selected varieties are available at farmers markets and food retailers.

Adding value

As with all fruit, offering perfect, unblemished fruit is essential for reaching the highest value markets. Selling varieties with unique characteristics such as nutty, rich flesh will attract higher prices. Locally developed varieties can have an advantage in the marketplace, especially for those who prefer to buy locally grown produce. Organic certification may give an advantage in certain markets, such as health food stores, but this advantage may not translate into higher prices. High-quality varieties that fruit off-season may also fetch higher prices.

Description

Avocado trees can reach 18 m (60 ft) or more in height, but trees are pruned to keep them shorter than 6 m (20 ft) for ease of harvesting. Avocado is the only important fruit in the laurel family (*Lauraceae*). There are three races, West Indian, Mexican, and Guatemalan, each with distinct fruit characteristics. Commercial varieties have been selected from each of these three races, as well as from hybrids between them. Most marketed fruit come from the hundreds of these natural occurring hybrids grown throughout Hawai'i.

Environment

Each race has different environmental tolerances, with the West Indian race more tropical (heat tolerant and cold sensitive) and the Mexican and Guatemalan races are more subtropical (more heat sensitive and cold tolerant). The tree requires well drained soils and waterlogging for more than a day can be fatal. Although drought tolerant, continual soil moisture is required for good fruit production. Fruit set is poor in extended wet periods, due to anthracnose.



Left: Coffee agroforest in Kona Hawai'i with avocado, lychee, banana, and mango. Right: In appropriate environments, avocado is an abundant producer.



Left: Kona, Hawai'i farmer Ed Kaneko displays fruit from a superior tree that he selected. Top right: Display of named varieties at farm festival in Kona, Hawai'i. Bottom right: Consumer taste test of four avocado varieties conducted by the University of Hawai'i.

EXAMPLE CROP 2

CITRUS (*CITRUS SPECIES*)

NEW LIFE FOR LOCALLY SUPERIOR VARIETIES

With numerous species and varieties of citrus planted throughout the Pacific, there are many opportunities to develop locally superior varieties. A good example is the Rangpur lime, which became naturalized in Kona, Hawai'i, and developed into a new recognized variety called "Kona" lime. With a unique flavor profile and unusual orange color, Kona lime is an excellent example of a specialty crop developed from a locally adapted variety of citrus.

Citrus species commonly found in the Pacific.

Species	common name	Size and spines
<i>C. aurantifolia</i>	lime	shrub/small tree to 4 m (13 ft), spiny
<i>C. aurantium</i>	sour orange	tree to 10 m (33 ft), short spines
<i>C. grandis</i>	pummelo	tree to 12 m (40 ft), spiny
<i>C. hystrix</i>	Kaffir lime	tree to 5 m (16 ft), short spines
<i>C. limon</i>	lemon	tree to 6 m (20 ft), stout spines
<i>C. macroptera</i>	wild orange	tree to 5 m (16 ft), spiny
<i>C. medica</i>	citron	shrub to 3 m (10 ft)
<i>C. mitis</i>	calamondin	tree to 12 m (40 ft), spiny
<i>C. paradisi</i>	grapefruit	tree to 15 m (50 ft)
<i>C. reticulata</i>	mandarin	tree to 9 m (30 ft), usually spiny
<i>C. sinensis</i>	sweet orange	tree to 12 m (40 ft), often spiny

Uses

All *Citrus* species are important for their fruit, which is eaten fresh or processed in numerous ways in cooked dishes, sauces, and beverages. The fruit is preserved in many forms including marmalade, jam, or candied. The pulp and other by-products from juice production are used as cattle feed. An industrial extract of grapefruit seeds and pulp is used to produce a potent topical anti-bacterial and fungicidal agent. Citrus is one of the most important honeybee forage plants in many parts of the world. Oils in the peel, leaf, and flower are used in cosmetics and as medicinals. Citrus species are important in traditional Pacific Island medicine.

Agroforestry

Citrus trees can be grown together with shade-tolerant crops such as coffee and vanilla with appropriate spacing to avoid over-shading. Citrus trees are very common in mixed perennial gardens around homes, where three to four species are often found for fruit, juice, flavorings, and as ornamentals. Thorny types may be useful for living fences, especially when trimmed as dense hedges.

Markets

Markets are found in all areas for fresh fruit. For unique varieties, farmers markets and restaurants may be most lucrative. For example, a specialty market for the orange-fleshed Rangpur "Kona" Lime (*Citrus* × *limonia* Osbeck) has recently been developed in Kona, Hawai'i among chefs. Citrus preserves are commonly found in farmers markets, grocery stores and in gift shops. Citrus trees loaded with bright color fruit are an essential component of agtourism or "you pick" destinations.



Left: Calamondin is grown throughout the Pacific and used for juice and preserves. Right: Sheep grazing to maintain ground cover in a citrus orchard in Queensland, Australia.



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© Ken Love



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Top left: Unique tasting or looking fruit can give a marketing edge. Bottom left: Kumquat marmalade with an informative label. Right: Kona lime juice has a refreshing taste and unique color for lime.

Adding value

Proper tree pruning can increase percentage of perfect fruit. Most citrus can be stored from 2 to 4°C (36–39°F) for up to 5 months. Building a regional identity for a unique variety, such as Rangpur “Kona” Lime, can add value by increasing recognition and therefore demand. Knowing the stories behind the different citrus types and varieties will help increase sales at farmers markets. For example, people appreciate the story of how pummelo was used by the Chinese as currency when trading with India in the 1400s.

Description

Citrus are shrubs to medium-size trees up to about 6 m (20 ft) in height, although some species can reach 15 m (50 ft). Rootstocks can greatly affect the height of grafted trees. Trees have thin, smooth, and gray-brown to greenish bark. Most species are single-trunked with very hard wood. Canopy widths range from slender to broad, depending on species. Many cultivated species are pruned so that the canopy is as wide as the tree is tall.

Environment

Suitable climates for citrus are the tropical and subtropical humid regions of the world. In the subtropics, citrus grows between sea level and 750 m (2450 ft) above sea level. In the tropics, citrus does well below 1600 m (5250 ft). Mean annual rainfall is 900–3000 mm (35–120 in). Without irrigation, 900 mm (35 in) per annum is typically needed for any significant fruit production. Optimum daytime temperatures are 25–30°C (77–86°F), but temperatures can reach 43°C (110°F) in Southern California and other citrus-growing regions. Citrus tolerates a wide range of soils, from almost pure sands to organic mucks to heavy clay soils (Rieger 2002). The trees do not stand waterlogged soils but grow well in freely draining soils.

Further information

For information on culture, pests and diseases, and yield, see Manner et al. (2006). For market and cost of production info, see Love 2007 (Rangpur and Kumquat).

EXAMPLE CROP 3

FIG

(*FICUS CARICA*)

VARIETY TRIALS

Believed to be indigenous to Asia Minor, the fig spread beyond the Mediterranean region before recorded history. Hiram Bingham first reported the fig in Hawai'i in 1825. There are about 1,000 varieties of figs worldwide, which are usually described by their size, fruit color, and leaf shape. The most common types found in Hawai'i are Brown Turkey and White Kadota. Currently, field trials are underway to select additional varieties with unique color, flavor, and texture in Hawai'i. The best of these varieties will become high-value specialty figs for the local fresh market.

Uses

Figs are generally consumed fresh, peeled or unpeeled. Fresh fruit is also used in many cooked dishes such as cakes and pies, pudding, and bread. Figs are also preserved in various ways such as dehydration, jam, and as whole fruits in sugar syrup. Off-grade figs have been roasted and used as a coffee substitute or fermented to produce alcohol. Figs are high in fiber that is good for lowering blood pressure and controlling cholesterol. Being high in fiber they also give a feeling of fullness, which can be useful for weight-loss diets. Figs are a good source of potassium and vitamin B₆. Fruit, leaves, and latex have been used in various folk remedies in Latin America.

Markets

The most promising markets in the Pacific are for fresh fruit sold in farmers markets, grocery stores, and restaurants. The most lucrative markets for newly introduced varieties with exceptional color and taste may be in the visitor industry, i.e., hotel restaurants and visitor gift boxes. Catering to chefs may also be a specialty market, as they often have special requests (such as for 80% ripe fruit), which can be filled as a unique product.

Adding value

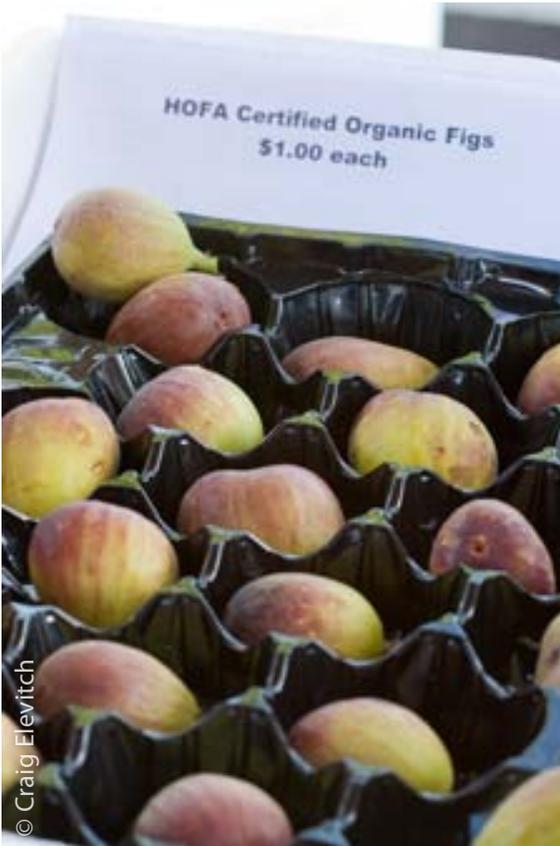
Figs lend themselves to a wide variety of value added products as noted under "Uses" above. Unblemished and optimally ripened figs have the highest value. This requires regular picking, preferably daily. Figs are fragile and should be placed in containers at the time of harvest so that they do not touch each other. Latex from the stem end should not be allowed to touch the fruit skin, as it will cause discoloration. Fully ripe figs are very perishable and should be chilled as soon as possible after harvest at $-1-0^{\circ}\text{C}$ ($30-32^{\circ}\text{F}$) degrees and 90–95% relative humidity for storage up to 30 days. Protection from birds by bagging fruit or netting the tree is essential to ensure unblemished fruit. Fruit fly traps may aid in reducing fruit fly damage where problematic. Matching variety to elevation and other environmental conditions is important to ensure reliable and high yields, in addition to fruit quality.

Description

In Hawai'i the tree grows rapidly and can achieve heights of 9 m (30 ft) or more. In many growing regions, figs are pruned severely after harvest to stimulate new growth for fruit production and to facilitate harvesting. Fig belongs to



Left: A well pruned tree with shiny objects placed to scare away birds. Right: Bagging fruit helps protect from bird and rodent damage.



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© Ken Love



© Ken Love



© Ken Love

Top left: Well displayed certified organic figs for sale a farmers market. Top right: High quality perfect fruit for high-end fresh market. Bottom left: Whole figs preserved in balsamic vinegar. Bottom right: Specialty fruit and nut cake based on fig.

the Moraceae family, which includes breadfruit (*Artocarpus altilis*), jackfruit (*Artocarpus heterophyllus*), and mulberry (*Morus* spp.).

Environment

Some types of figs are cultivated from sea level to over 1,500 m (5,000 ft) and can be grown in many microclimates.

The trees can grow in most soils with good drainage. They are tolerant of some salinity but do not like highly acidic soils. Figs are drought tolerant.

Further information

For information on fig culture, pests and diseases, yield, and cost of production, see Love (2007)

EXAMPLE CROP 4

‘ŌHELO BERRY (*VACCINIUM RETICULATUM*)

NATIVE PLANT DOMESTICATION AND VARIETY SELECTION

‘Ōhelo berry, native only to Hawai‘i, has not been domesticated until recently. A project undertaken by the USDA has developed types both for berry production and for ornamental use. As a native plant, ‘ōhelo berry has unique appeal to chefs and others who are always looking for specialty ingredients with a Hawaiian character.

Uses

‘Ōhelo berry is a small native Hawaiian shrub related to cranberry and blueberry. It is endemic to Hawai‘i, i.e., found nowhere else in the world. (Now being introduced to Oregon) The cranberry-like fruit is used primarily to make jam and jelly, but is also used in various dishes and baked goods. New markets for ‘ōhelo as an indigenous ornamental plant are also being developed.

Agroforestry

Because ‘ōhelo berry has only recently been brought into cultivation, there are no examples of integrating the plant in agroforestry systems. However, due to its natural tendency to colonize disturbed or exposed drier lava sites, it has potential to be grown as an understory crop in an open orchard on such sites.

Markets

‘Ōhelo berry is usually processed into jam or jelly and sold in farmers markets and grocery stores throughout Hawai‘i. One market is in higher-end restaurants who aspire to diversify their offerings by incorporating uniquely Hawaiian ingredients. The fruit is used both as a sweet and a savory at these restaurants.

Adding value

‘Ōhelo is sold unprocessed to hotel chefs and jelly makers, and is usually sold as preserves on the retail market. A wide range of products incorporating this fruit can be envisaged: sauces, flavorings, and fruit mixes. Its status as the only endemic Hawaiian fruit that is commercially used imparts a unique identity, which adds significantly to its value compared with similar exotic fruits.

Description

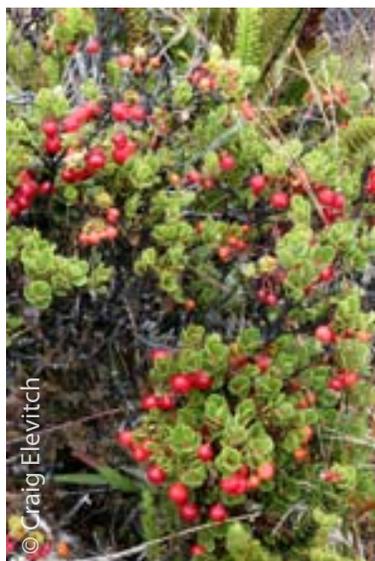
The small shrub reaches 10–130 cm (4–50 in) in height. Berries vary widely in color from yellow to red to dull black (Wagner and Herbst 1990).

Environment

‘Ōhelo berry is commonly found at 640–3,700 m (2,100–12,000 ft) on Maui and Hawai‘i islands, but also grows on Kaua‘i, O‘ahu, and Moloka‘i. It usually grows as a pioneer on exposed lava flows, such as alpine or subalpine shrubland (Wagner and Herbst 1990). When in season, Hawai‘i residents gathered ‘ōhelo berries from the National Parks and high elevations to process into jam, jelly and pie filling. Potential negative impacts of wild gathering activities may include spreading of invasive weed species, and competing for berries with the endemic nene goose (*Banta sandvicensis*).



© Craig Elevitch



© Craig Elevitch



Left: Beautiful flowers of ‘ōhelo berry. Middle: ‘Ōhelo berry shrub with ripe fruit. Right: The beautiful foliage of ‘ōhelo berry lends itself to growing this plant both for fruit and ornamental purposes.



Top left: A 6-year-old domesticated 'ohelo seedling at the Volcano field plot. Bottom left: The original 'Kilauea' selected in 2006. Right: Tissue culture plants of 'Kilauea'.

EXAMPLE CROP 5

ROLLINIA

(*ROLLINIA DELICIOSA* AND *R. MUCOSA*)

INTRODUCING A NEW TROPICAL FRUIT

Thought to have originated in Northern Brazil along the banks of the Amazon, rollinia is now found growing in all tropical locations and rapidly becoming a favorite with tropical fruit aficionados. By introducing this unusual looking fruit to consumers, it has good potential to become a popular specialty fruit in new markets.

Uses

The fruit, often described as having a caramel, lemon custard pudding flavor, is usually eaten out of hand. Rollinia fruit can also be made into sauces, ice cream, flan and other dessert dishes. It is often juiced in Brazil and sometimes blended with milk for a drink. It has also been made into wine. The wood is hard and used in canoes, boat masts, and other durable uses.

Agroforestry

In favorable environments, rollinia grows quickly and can bear fruit within 2–3 years of planting from seed or grafting. This makes it a good candidate for early yields in a multispecies planting with other fruits and nuts that take longer to begin production. Appropriately pruned to maintain canopy size (and facilitate ease of harvesting), the tree can make a good companion to shade-tolerant understory crops.

Markets

Farmers markets and health food stores are primary mar-

kets. This fruit is rapidly gaining favor with chefs and larger groceries featuring locally grown produce for the adventurous consumer.

Adding value

Commercial fruit is generally harvested mature and beginning to ripen, when it starts to soften and turn yellow. Care in handling is highly recommended, as the fruit protuberances and skin will blacken considerably when touched.

Description

The fast growing tropical tree can reach heights of 15 m (50 ft). Under ideal conditions, the tree can fruit as early as 2.5 years from the time a seed is planted. The fruit is highly inconsistent in shape and size. It turns from green to yellow when ripe. The milky white flesh usually contains black seeds averaging a 1.2 cm (0.5 in) in length. Some seedlings will produce fruit in 2–3 years while others will produce in 5–6 years. In many parts of Hawai'i, fruiting occurs year around when rainfall is abundant. Rollinia is in the Annonaceae family, which includes other popular fruits such as cherimoya, sugar apple, and soursop.

Environment

Rollinia prefers hot, humid climates. The tree thrives where rainfall is evenly distributed throughout the year. It does not tolerate cold or extended drought. It prefers deep, rich, well drained organic soil and benefits from copious amounts of mulch. Rollinia tolerates poorer and highly acidic soils as long as there is sufficient water. In Hawai'i, trees can be found from sea level to 900 m (3,000 ft).

Further information

For information about culture, pests and diseases, yield, and cost of production, see Love and Paull (2011).



Left: Rollinia fruit on tree. Right: The fruit protuberances blacken when handled, reducing consumer appeal.

EXAMPLE CROP 6

SURINAM CHERRY (*EUGENIA UNIFLORA*)

CHEF-DRIVEN DEMAND

Surinam cherry is a juicy, sweet-tart fruit generally considered “kid’s food” for picking and eating out-of-hand. In Hawai’i tasting trials of unusual fruits several years ago, chefs were attracted to the strong, resinous flavors Surinam cherry and began developing unusual dishes highlighting it. By developing a market among chefs over a few years, Surinam cherry has increased in price from \$1.25/lb to \$6.50/lb.

Uses

Surinam cherry fruits are usually eaten out-of-hand, but are also often processed into jam, jelly, and relish. The fruit can also be pickled and the juice is fermented in wine or vinegar. Some chefs use the fruit as a base for exotic curry. Whole fruit or pieces can be used in pie, pudding, salad, and ice cream. The leaves contain a pungent oil that repels insects. Infused or decocted leaves have several medicinal uses.

Agroforestry

The tree can produce fruit well even in partial shade, and due to its small stature, it makes a good understory tree. Surinam cherry is also planted in hedges, which, when regularly pruned, can become dense and serve as living fences or boundary barriers in edible landscaping.

Markets

Surinam cherry sold as fresh fruit is generally harvested when fully ripe as the fruit contains more sugar and less resin. The fruit is edible, somewhat firmer and less susceptible to damage, when the color is orange or orange-red, but has a more resinous flavor. Fruit harvested for processing can be picked as soon as it becomes orange. Chefs and jelly manufacturing companies have expressed a desire for fruit at this stage.

Adding value

Due to the quick degradation of the fruit at ambient temperatures, the faster it can move from field to refrigeration, the longer its shelf life. Fresh fruit packaged for the consumer should be in vented clamshell containers with no more than a double layer of fruit. Packed fruit should be even colored and inspected carefully for defects and possible infestation. Fruit that leaks juice should be discarded or kept for processing. Fruit harvested for sale to processors should be washed. Freshly picked Surinam cherry chilled within an hour of harvest can maintain its integrity in the produce section of a supermarket for up to 14 days.

Description

Surinam cherry is a large shrub that can achieve heights in excess of 8 m (25 ft), although due to its slow growth it can take decades to reach this height. It is often referred to as a tree. A member of the Myrtaceae family, the plant is related to guava, jaboticaba, mountain apple and other members of the genus *Eugenia*, which includes many edible species. There are two distinct variations found in Surinam cherry, a common red colored fruit and a less resinous dark purple to black, often sweeter fruit. It produces fruit in full sun or partial shade.

Environment

The Surinam cherry is a tropical that can be grown in tropical or sub-tropical regions. It can be grown at sea level up to 1,500 m (5,000 ft) in elevation. The plant has a long taproot and can survive periods of drought. The plant thrives in most soils but produces more fruit in deep loamy soil. It is intolerant of saline conditions.

Further information

For information on Suriname cherry culture, pests and diseases, yield, and cost of production, see Love (2007).



Top: Surinam cherry fruits on tree. Bottom: Enjoying a fresh, ripe fruit out-of-hand.

EXAMPLE CROP 7

YAM

(*DIOSCOREA ALATA*, *D. ESCULENTA*, *D. BULBIFERA* AND *D. NUMMULARIA*)

A PROMISING TRADITIONAL STARCH CROP

Yam is one of the most important staple crops of the Pacific and ranks among the top root crops in the tropics along with cassava (*Manihot esculenta*) and taros (*Colocasia* and *Xanthosoma* species). It has high potential for Pacific Islander markets as well as certain niche markets in other cuisine, such as in Japan, where certain varieties are highly valued.

Uses

Yams (*Dioscorea* spp.) are largely seasonal crops primarily cultivated for their edible tubers, which are consumed as a staple food. Although the most important species, such as the greater yam (*D. alata*), lesser or sweet yam (*D. esculenta*), and the thorny or wild yam (*D. nummularia*) produce large underground tubers, some species, such as the air yam (*D. bulbifera*) produce edible bulbils or aerial tuber-like structures that form on the above-ground stems. Most species and cultivars must be cooked by boiling, frying, or roasting prior to consumption to denature toxic alkaloids. In addition to consumption as a starchy carbohydrate in dishes, yam can also be processed into flakes or flour for storage and use in food preparation. Purple-fleshed varieties are used in ice cream and confectioneries. Yam tuber also makes suitable poultry and livestock feed. Parts of the plant are used



© Craig Elevitch



© Craig Elevitch

Left: Yam trellised onto a log leading to the canopy of a breadfruit tree in a Samoan agroforest that includes poumuli (*Flueggea flexuosa*), banana, and coconut. Right: Newly harvested yam in Tongan agroforest of giant taro (*Alocasia macrorrhiza*), and coconut.

in various folk remedies. The tubers are of great ceremonial significance in many areas of the Pacific, such as Papua New Guinea, Vanuatu, Fiji, Tonga and Pohnpei, where they are considered the most chiefly staple food. Because of their seasonal nature, yams are often the central focus of the traditional calendar, with the equivalent terms for year in Fiji and Tonga, *yabaki* and *ta'u*, being the names for the annual yam harvest in both countries.

Agroforestry

Yams are often grown within agroforestry systems throughout the Pacific. Yams generally have a 7–9 month growth cycle, at the end of which the vines die back and the tubers are harvested. Yam plants are commonly started in deep holes under raised mounds of well-worked, friable soil. They are also normally grown onto trellis made of tree branches, bamboo or other material and some varieties, particularly the thorny yam (*D. nummularia*), are often trellised onto trees such as breadfruit, using a long pole to guide the emerging yam shoots into the canopy. Because the vine dies back after a few months, it does not significantly reduce the vigor of the tree it is trellised into by shading.

Yams are very commonly interplanted with other staple food plants, supplementary food crops and a range of food trees and other multipurpose trees, many of which are pollarded or coppiced, but not killed to allow for regeneration. Yams, which require high quality soils, are normally the first crop in the succession of a shifting agricultural garden, which after harvesting are succeeded by taro, sweetpotato, or cassava before a plot of land is allowed to revert to fallow. In Tonga, yam is often planted in large intercropped communal gardens known as *toutu'u 'ufi*, where a landowner will allow a large number of farmers to use the land for planting yams, to be followed by other crops. The most common crop combinations in these *toutu'u* are a number of greater yam cultivars (*'ufi*), interplanted with taro (*talo tonga*, *Colocasia esculenta*), giant taro (*kape*, *Alocasia macrorrhiza*) and the Pacific plantain (*hopa*, *Musa* AAB group). The entire garden is normally planted within an existing coconut plantation with other scattered useful trees. Sweet yam (*'ufilei*), hibiscus spinach (*Abelmoschus manihot*) and pandanus are often planted along the borders.

Because yams require good soils and due to anthracnose wilt, the rose beetle and other diseases, yams, as suggested above are normally the first in the planting sequence and only occasionally planted two or more years in succession on the same plot of land.

Markets

Local farmers markets, retail stores, and restaurants are the primary markets, although an increasing amount of yam is exported to New Zealand from Tonga and Fiji, often through family networks. Markets may be developed for yam starch, flour, or flakes to be used in special diets. For example, starch grains of *D. esculenta* are particularly small, making them more easily digestible by people with digestive disorders.

Adding value

Avoiding mechanical damage when harvesting, handling, and transporting is important, as yam is susceptible to bruising, which limits longevity of tubers in storage and reduces the value of fresh product in the marketplace.

Description

Yams are perennial vines that are usually grown as annuals for their edible tubers and bulbils. The characteristically spiraling, winged or ridged stems, which can grow to 2–12 m long, typically twine and climb on other vegetation during the growing season. The strongly veined leaves are usually heart shaped. Tubers vary widely in size depending on species and variety. *D. alata* tubers range from cylindrical and up to 1.5 m in length, to stout, fingered or lobed. The flesh is white, cream, or purple.

Environment

Yam grows in tropical to warm temperate, frost-free climates. It prefers well-distributed rainfall of 1,500 mm. Although drought tolerant, even soil moisture is required for good tuber production. Optimum average temperatures during the growing season are 25–30°C. Yam does not tolerate water logged soils and thrives best in well-drained, fertile soil rich in organic matter.

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Specialty Crops for Pacific Island Agroforestry (<http://agroforestry.net/scps>)

Farm and Forestry
Production and Marketing Profiles:
Highlighting value-added strategies

Avocado (*Persea americana*), Citrus (*Citrus* species),
Fig (*Ficus carica*), 'Ōhelo berry (*Vaccinium reticulatum*),
Rollinia (*Rollinia deliciosa* and *R. mucosa*)
Surinam cherry (*Eugenia uniflora*), and Yam (*Dioscorea* species)

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Appendix 7: Media

Page 74 | Saturday, September 10, 2011

Sunshine Coast Daily
Weekend / Detours

Click on comment and
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and send PDF files.

Whitsundays setting sail as a culinary paradise, as well

FROM PAGE 71

Then food becomes very important and Daphneam won't disappoint, particularly for seafood lovers.

About 6.30pm, the boat comes in off the reef bearing fresh fish to be cooked for the evening meal.

There are a range of dining options, but don't miss signature restaurant Marnia's.

Each dish was cooked and prepared to surpass expectation.

Next on our itinerary was a visit to Airle Beach on the mainland where we were booked into the newly opened Peppers Coral Coast Resort and Spa.

To ensure a fabulous food experience beyond the ordinary, Peppers has combined with Master Chef Australia.

This means you can sit down and expect to experience the kind of food the professionals prepare on the popular television series.

Our three-course meal with



A HOLIDAY TO REMEMBER: The colourful underwater world; the Peppers Coral Coast delectable chocolate platter; Deja Vu's pizza with popcorn. PHOTOS: TOURISM QUEENSLAND AND KEVIN

Whitsundays Hydroponic Farm.

en Independent

TOP OF THE WHITSUNDAYS

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WEDNESDAY, SEPTEMBER 7, 2011

\$1.00 (GST inclusive)



Scene
about at
bullarama

Page 11



Miners
win a
thriller

Page 20



Cattle feeding on dumped tomatoes in a Bowen field, and Phantom Farms' Carl Walker, who would rather see his produce that does not quite make the grade fed to those less fortunate rather than be dumped.

Helping the needy Spoilt but okay to eat

CARL Walker is surprised at the amount of produce that is rejected as spoilt each week from Bowen farms.

"I lose between 1000 and 3000kg of produce each week because it is just not up to standard," the capsicums and cucumbers grower said.

"Usually, this is the produce you see dumped in the paddock and eaten by cattle . . . but 10 per cent of what

is dumped is perfectly fine to eat."

Mr Walker, who is also the president of the Bowen and District Growers Association, is now sending off the produce to Foodbank in Brisbane for "people out there with little or no money, mainly due to circumstances beyond their control"

Now he wants to get other farmers involved.

See story Page 7.

Supermarket rejects are okay for eating

Farmer does his bit to help less fortunate

By BETTY DOUGLAS

ONE Bowen farmer is doing his bit towards helping those less fortunate by sending excess produce to the Brisbane Foodbank.

Phantom Farms' Carl Walker, who grows capsicums and cucumbers, said what he sends down is reject produce that does not meet the market standard purely because it is blemished, mis-shapen or overripe.

"Usually, this is the produce you see dumped in the paddock and eaten by cattle," he said.

"But 10 per cent of what is dumped is perfectly fine to eat. I eat it myself.

"It is just not what the supermarkets want on their shelves."

Mr Walker, who is also the president of the Bowen and District Growers Association, said he had been thinking about doing something with this produce for about two years.

"Logistically, it has been hard to get organised," he said.

But now it's up and running, he is keen to see other local growers get on board.

"I have tried to get other farmers involved, but have been met with comments that if you give it (the produce) away, they won't buy," Mr Walker said.

"But I believe that there are a lot of people out there with little or no money, mainly due to circumstances beyond their control," he said.

"This would include a great number of children."

Mr Walker said he believed that



Phantom Farms' Carl Walker and John White from Bootooloo Produce load some capsicums bound for Foodbank in Brisbane.

if you offered these people fresh fruit and vegetables now, they would get used to eating them.

"When their circumstances change, then they will look to fresh instead of fast foods," he said.

Mr Walker said he was surprised at the amount of produce that was rejected each week.

"I lose between 1000 and 3000kg of produce each week because it is just not up to standard," he said.

"I find now that any excess I have after I process my order, I can send off to Brisbane to the Foodbank instead of tossing it away."

Mr Walker puts the produce

in plastic bins donated by Chep Australia.

When full, the bins are collected by Shane Winton, of Bootooloo Produce, and stored in their cold rooms until picked up by Lindsay Bros Transport for transportation to Brisbane.

Here the produce is collected by the Foodbank, then distributed to organisations such as Vinneys, shelters, soup kitchens and charities who do up food parcels.

Mr Walker's Phantom Farms is one of only 25 registered at Foodbank suppliers Queensland wide.

At the end of the current season, Mr Walker plans to travel to Brisbane to record the price of the produce from farmers, people most in need.

He said he hoped next year to get other farmers to participate as well as more transport companies.

"There are still some kind of things ironed out to make it easy for the produce moving," he said.

"As of now, everything is ironed out and all I have to do is send an e-mail to the Foodbank and I have bins ready to go and transportation is arranged."

Public Relations Log
Whitsunday Food Circle project
 June – December 2011

Date	Media Channel
1.6.11	Presentation to industry and media (farmers market launch)
20.6.11	ABC Tropical North
20.6.11	Prime Radio
28.6.11	ABC Radio
29.6.11	Prime Radio
30.6.11	Zinc FM
30.6.11	Whitsunday Times
4.6.11	ABC Radio
15.8.11	Sea FM / Hot FM
15.8.11	Prime News
16.8.11	ABC radio news
16.8.11	WIN TV news
22.8.11	Presentation to the Probus Club
5.9.11	Sea FM / Hot FM
6.9.11	ABC Radio
8.9.11	Whitsunday Times
8.9.11	Bowen Independent
8.9.11	Proserpine Guardian
12.9.11	ABC Radio
12.9.11	Townsville Bulletin
12.9.11	7 News
13.9.11	Win News
13.9.11	Zinc FM
13.9.11	Jan Jarratt Media team
13.9.11	Presentation to Proserpine growers and producers
14.9.11	Presentation to Bowen growers and producers
7.10.11	Presentation to community (70 people at Zonta event)
13.10.11	Presentation to Whitsunday Region Council

This article is from the September 2011 issue of *Australian Gourmet Traveller*.

TRAVEL | FEATURES

Have snow egg, will travel: 2011 Great Barrier Feast

The first leg of the 2011 Great Barrier Feast series saw Quay's Peter Gilmore take his award-winning show on the road. The results were mixing-bowl-lickin' good, says Frances Hibbard. It's midway through the second of the two masterclasses fronted by [Quay's Peter Gilmore](#) as part of the Great Barrier Feast series at Qualia on Hamilton Island and 120 people are focused, teaspoons poised and lips smacking expectantly, on a large mixing bowl making its way along the rows of seating.

The group sits captivated while Gilmore talks them through the processes required to create just one texture of Quay's famed eight-texture chocolate cake – a rich chocolate mousse formed by beating into submission a mix of single-origin dark chocolate from Venezuela, Valrhona milk chocolate, egg yolks, sugar and vanilla bean. But there's only so much food – particularly Gilmore's food – at which you can look and not touch. And that is how the most highly ranked Australian chef on the S. Pellegrino World's 50 Best list finds himself being shouted down, more or less, by a group determined to get their collective hands on that mixing bowl.

So, as the Hamilton holidaymakers begin to gather at nearby One Tree Hill – the island's best vantage spot – for the nightly ritual of oohing and aahing at the sun setting over this sliver of Great Barrier Reef paradise, Gilmore relinquishes the mixture for the guilty pleasure of the assembled Feasters, who load their spoons with ribbons of mousse and then look at one another with brow-raised delight at the first taste. And therein lies the unique charm of the Great Barrier Feast that has made it such a success. These thrice-yearly weekends bring leading chefs to north Queensland to share some of the secrets of their kitchens with people as fanatical about food as they are about tropical climes, plunge pools and private villas.

In an era when television, in particular, has elevated many chefs to rock-star status, getting to see and hear the likes of Gilmore talk candidly in person about their inspiration and ideas, watch Gilmore demonstrate (with intimidating ease, it must be said) four or five dishes from the Quay menu, and then taste some of his work during the boisterous showpiece dinner that follows is a genuinely exclusive, and exciting, treat. These Great Barrier Feast weekends already existed, albeit in a less sophisticated guise, when the Oatley family purchased Hamilton Island in 2004, but they were put on ice as the new owners set about designing the island's overhaul: then hotspot of '80s ostentation, now multilayered experience par excellence.

Key to that renaissance was the construction of Qualia, a five-star retreat on the island's north shore that is as laidback as it is luxurious. In 2009 the Oatleys added the striking Hamilton Island Yacht Club, a curvilinear stunner at the heart of the island (note to visitors: battered reef fish and twice-cooked chips on the club's relaxed Bommie Deck is definitely worth a golf-buggy detour); more recently they opened the adjoining Yacht Club Villas, two- and three-storey self-contained apartments with views across to Dent Island, home to the new Hamilton Island Golf Club. (All this investment has been amply rewarded: Qualia scooped the pool at the [2011 Gourmet Traveller Travel Awards](#), clinching Readers' Choice awards for Best Resort or Lodge and Best Spa, while the island itself won the Getaway Best Family Experience award.)

In 2010, the time was right to Feast again, and the event was re-launched with Tetsuya Wakuda, Bécasse's Justin North and Attica's Ben Shewry as headliners. In 2011, it's Gilmore, MoVida's Frank Camorra and the Royal Mail Hotel's Dan Hunter getting top billing. You eat, you drink, you marvel at what it takes to create dishes of Quay's calibre. (It's at about step number 15 in a pickled-vegetable salad which Feasters can re-create at home, Gilmore assures them – dehydrating then frying off a mixture of beetroot purée and pomegranate molasses – that the crowd breaks into peals of “Are you serious?” laughter.)

Hamilton Island's group special events manager Nicky Tindill (nee Oatley) says providing Feasters with this up-close-and-personal interaction with the chefs remains the weekend's raison d'être.

"We chose to develop the concept further because more Australians had embraced quality food and we are now celebrating our local chefs more than ever," says Tindill. "The direction we chose to take was more intimate than ever before, giving our guests access to what happens behind the scenes."

Indeed, bonhomie abounds at Qualia during a weekend of Feasting. Guests arrive on Friday afternoon, in time for Veuve Clicquot by the pool and a welcome dinner with the resort's executive chef, Jane-Therese Mulry.

Mulry, who worked for Marco Pierre White in London, kicks off proceedings with a four-course dégustation, its emphasis heavily on produce from the surrounding area. A "sprouted garden" amuse-bouche, hidden in a shot glass and thus initially believed by many to be part of their table's decoration, is eventually revealed to be an intriguing combination of sesame sand, mulched minted peas and garden sprouts. A robust main course has at its centre braised roasted beefalo, a cross between an Australian bovine and an American bison lovingly farmed at nearby Prosperine by Cristina Della Valle. ("She plays them music and uses no hormones, they're all grass fed; they are like her children.") It's presented with richly truffled Jerusalem artichoke and pickled pear. The Whitsunday beefalo is matched with a 2008 Robert Oatley Ovens Valley Shiraz by wine writer James Halliday, whose own tasting of 8500 wines a year makes him infinitely qualified for the job.

Getting to share the Qualia kitchen with Peter Gilmore is far less intimidating, and far more enjoyable, than Mulry expected. "It's actually been amazing... it's great for my team as there's some great guys in there [the kitchen] and they work hard so this is such a wonderful opportunity. It keeps you focused and it allows you to almost compare where you are in the industry."

For Peter Gilmore, taking his show on the road not only gives the increasingly busy chef some quality Whitsundays time with his family, but helps spread the Quay gospel of artistry, innovation and perfect execution. It also highlights a key aspect of life as a chef in this aforementioned television generation: the art of performance.

"It's part of the reality of being a chef these days. I've found that all I have to do is be passionate about what I'm passionate about. Some chefs are great talkers, some chefs aren't really that great at speaking or are uncomfortable in front of an audience, but I'm happy to get out there and do my talking, but also do my talking through my food."

And indeed, when Gilmore begins plating up for Saturday night's showpiece dinner, the crowd is all ears. Quay's mud crab congee with palm heart and split-rice porridge wins plenty of new fans ("It's the only dish I haven't been able to take off the menu and it's nice to use it up here where it's local product," says Gilmore), as does a new take on his famous pork and scallop signature: 12-hour-cooked pig jowl wrapped in a sheet of maltose crackling ("I came up with a brainwave of pretend, false crackling"), served with prunes macerated in Pedro Ximénez vinegar and cauliflower cream perfumed with prune-kernel oil, hints of marzipan just detectable on your palate.

The sweet pork vies with the winter-richness of poached partridge breast with foie gras pudding for title of crowd favourite. That said, a tropical-toned dessert dubbed Son of [Snow Egg](#) – the dish Quay "could have set up a drive-through just to serve" following its moment in the TV spotlight – also has the room in raptures.

By evening's end, Gilmore's obvious enjoyment of sharing Quay's story earns him the type of applause usually reserved for a *Twilight* premiere. And for encore? A second dessert of chocolate crumble, coconut cream and cherry compote, its textures all velvety perfection.

Could Gilmore be persuaded to open a Quay Mark II, perhaps on Hamilton Island? Sadly not, although talk of a more casual Sydney side-project ("Low Quay") still has the room atwitter. "Quay is looking at doing a sister restaurant where we have really interesting food and great produce, but maybe a more

casual, funky, young environment to serve that food, so I think you can do two restaurants well but when you go to more than that, up to seven or so, things get very difficult,” says Gilmore.

“You have to be in the kitchen at least four services a week. A lot of great ideas happen when you’re in the thick of it, when you’re working away on the pass. You don’t want to spread yourself too thinly, but you also want to make life interesting. Diversity is a great thing – you’ve got to mix things up.”
The next [Great Barrier Feast](#) weekend is on 2-4 December, featuring the Royal Mail Hotel’s Dan Hunter.

PHOTOGRAPHY GEORGE FETTING

Whitsundays setting sail as a culinary paradise, as well

FROM PAGE 71

Then food becomes very important and Daydream won't disappoint, particularly for seafood lovers.

About 6.30pm, the boat comes in off the reef bearing fresh fish to be cooked for the evening meal.

There are a range of dining options, but don't miss signature restaurant Mermaids.

Each dish was cooked and prepared to surpass expectation.

Next on our itinerary was a visit to Airlie Beach on the mainland where we were booked into the newly opened Peppers Coral Coast Resort and Spa.

To ensure a fabulous food experience beyond the ordinary, Peppers has combined with MasterChef Australia.

This means you can sit down and expect to experience the kind of food the professionals prepare on the popular television series.

Our three-course meal with executive chef Greg Devine was no exception and the Valrohna Chocolate Lovers' Plate ... words wouldn't do it justice.

Just think of a pot filled of rich, decadent pure chocolate and you'll have some idea.

It's fabulous going to a restaurant and eating a meal prepared for you in a kitchen with ingre-



A HOLIDAY TO REMEMBER: The colourful underwater world; the Peppers Coral Coast delectable chocolate platter; Deja Vu's pizza with popcorn; the Whitsundays Hydroponic Farm.
PHOTOS: TOURISM QUEENSLAND AND KATHY SUNDSTROM

dients you don't even see, but Airlie Beach has recognised the value in introducing people to the products on their plate before the meal begins.

Hence the Localvore tour.

Organised once a month by Capers restaurant, this guided bus tour takes in four local farms

where you'll get to see the food you'll later enjoy eating.

The tour combines picking lettuce at the Whitsunday hydroponic lettuce farm, admiring the amazing display of fruit and trees at Dave's to picking lemon myrtle from an open field and then finishes at Beefaloo and Berkshire

where you'll see the happiest beefaloo and pigs you could ever hope to eat ... oops ... meet.

There is more to the tour than just seeing the produce.

Locals who introduce their speciality add a whole new flavour to the experience.

The tour takes about two hours and then finishes at Capers with a superb meal incorporating the foods seen.

This is a fantastic excursion that opens your eyes to the value of farming. That it only costs \$69, including the bus trip, scones, tea a two-course meal and a glass of wine, is amazing.

Another culinary experience not to be missed is the Sunday afternoon long-lunch at Deja Vu.

For \$44.50, you eat eight courses over five hours while overlooking Airlie Beach and enjoying live music and good company.

I could take a page to write about each course, but one just cannot go unmentioned: the pizza, with wild bore, broccoli and popcorn.

After two days of over-indulgence, some of us were struggling to think of more food.

But the tour organisers saved the best for last: Hayman Island.

This newly reopened piece of paradise needs little introduction. It deserves every one of its five stars and could probably do with a few more added on. What could be Hayman's best-kept secret is in the kitchen at the Chef's Table.

For a price, executive chef Glenn Bacon will prepare a special meal for a small group of people.

It does cost about \$240 per person, but I promise you every mouthful is priceless.

Chef Bacon introduces each of his courses and the island wine expert specifically chooses the perfect spirit from his vast cellar to accompany each course.

The portions aren't big, but they

are just right and are to be consumed slowly, appreciating the detail in the preparation.

Each course is worthy of writing about, but I'm going to skip down to the fourth item on the menu: the Grainge fillet carpet bag.

It's not only the food that was sublime, the presentation was unsurpassed.

This dish was served under what looked to be a massive flower vase. Chef Bacon had the honour of lifting the "vase" so the aroma of the meat could quickly surface and saturate your nostrils.

I was hooked and I hadn't even had a bite.

That course was good. And then he brought the Frozen Hayman sloe gin martini, served in its own ice-castle.

Apparently they fill balloons with water, hang them in the deep freeze, pop the balloon and then carefully create a hole in which the ice-cream is inserted and then delivered to your table.

As you eat the ice-cream, the ice surrounding it slowly melts away. An incredible experience.

But it got better.

Next on the menu was the strawberry cheesecake implosion. Didn't sound too impressive and I was unexcited when an orange-sized white ball was placed in front of me.

Then chef Bacon came around with a red sauce (sorry, couldn't tell you what it was) and in front of me my white chocolate

ball imploded to reveal the strawberry cheesecake hidden within.

If that wasn't enough, the cheesecake was filled with space bubble stuff: you know, the candy kids love because it crackles in your mouth. I have never, ever eaten anything like it. But I would travel to Hayman Island purely to experience the Chef's Table again.

Plan a foodie holiday in the Whitsundays and you'll be grateful from the bottom of your gut.





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Part A – Industry Overview

December 2010

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development corporation
MACKAY ISAAC WHITSUNDAY

Agribusiness Education & Training Audit

Table of Contents

Acknowledgements	2
Steering Committee	2
Introduction.....	3
Overview	3
What is Agribusiness?	3
Agribusiness in Mackay-Isaac-Whitsunday	4
Sugar	4
<i>Complementary Crops</i>	4
Fruit and vegetable production	5
<i>Mango</i>	6
<i>Tomato</i>	6
<i>Capsicum and Chilli</i>	6
<i>Watermelon</i>	6
Beef production	6
<i>Challenges</i>	7
<i>Supporting Services</i>	8
Meat Processing.....	8
Cotton	9
Grain.....	10
Other	10
Emerging & related industries.....	11
Bio-based industrial products.....	11
Non-chemical pest control.....	12
Industry Advisory Groups/ Committees	13
AgriFood Skills Australia – Rural and Related Standing Committee	13
DEEDI – Rural Labour and Skills Strategy Industry Advisory Group.....	13

Agribusiness Education & Training Audit

Acknowledgements

Steering Committee

Many thanks are due to the members of the Steering Committee without whose knowledge of the agribusiness industry and willingness to offer guidance of this audit would not have been so reflective of current issues surrounding the Mackay-Isaac-Whitsunday region.

Chairperson Eddie Westcott (REDC Board member and local grower)

Janice Nelson (CANEGROWERS)

Jon Agnew (AgriServ)

Denise Kreymborg (Bowen and Gumlu District Growers Association)

Colleen Kleinschmidt (AgForce)

Bruce Drysdale (Farm HQ)

Cr. Don Black (Isaac Regional Council and local grazier)

Denise Neville (Department of Education and Training)

Agribusiness Education & Training Audit

Introduction

Overview

The Agribusiness Education and Training Supply Chain Audit aims to enable the Mackay-Isaac-Whitsunday region to understand and respond to increasing skills demands in one of its major commodity industries; agribusiness.

The overall project aims to establish strategic dialogue between industry and skills providers at key points in the region's education and training supply chain and will be conducted in four parts:

1. Part A – Industry Overview
2. Part B – Supply audit
3. Part C – Demand audit
4. Part D – Analysis & Recommendations

This report concludes the first part of the Agribusiness Education & Training Supply Chain Audit for the Mackay-Isaac-Whitsunday (M-I-W) region. It aims to provide an overview of the identified industries within the region.

Part B documents the availability of agribusiness training and education throughout the supply chain from primary school education through to industry training and tertiary qualifications.

Part C of the project will include a consultation process with the agricultural industry on emerging technologies, their current and future demands for skills and their level of satisfaction with training packages currently available.

Part D will include a strategy for the outcomes identified to increase the attraction of education providers in the gaps identified and/or information to increase the capabilities of current providers to meet market demands.

What is Agribusiness?

Agribusiness is the production of food, fibre, foliage and fuel through the use of biological systems including plants, animals, fungi and bacteria. It covers any operation or enterprise that produces and sells an agricultural product. The agribusiness supply chain includes producers, animal care, agronomists, researchers, processors, business bankers and transport logistics. Agricultural businesses are governed by strict government guidelines regarding environmental protection, resource management, animal care and management and food safety.

Agribusiness Education & Training Audit

Agribusiness in Mackay-Isaac-Whitsunday

The Mackay-Isaac-Whitsunday region is home to a diverse and significant agribusiness industry. Major commodities in the region include the production of sugar, horticulture, beef and grain.

Sugar

The largest agribusiness commodity in the region is sugar, which contributed more than \$273 million to the Mackay-Isaac-Whitsunday regional economy in 2009-10.

The Sugar industry in Mackay has the potential to increase and diversify its contribution to the local economy with new projects such as the cogeneration of electricity which will provide an additional electricity supply to the region, the construction of an ethanol plant for the supply of renewable fuel and the installation of a furfural plant.

Sugar production takes place in the Mackay Regional Council (MRC) and Whitsunday Regional Council (WRC) areas, predominantly around the centres of Mackay, Sarina and Proserpine.

After the damage to cane crops between Mackay and Proserpine by Cyclone Ului in March, Queensland's 2010 season was further set back, with crushing interrupted by rain and industrial action in some mills. The size of the season's sugarcane crop was around 30 megatonnes.

Assuming the long-term average 13.5 CCS and a price of \$475 per tonne of sugar, the value of the 2010 cane crop is around \$1.24 billion. However, predicted continuing wet seasonal conditions pose a major risk of further harvest interruptions, which would cause the value of the harvested crop to fall short of its potential.

QSL's 1 September forecast of the 2010 Seasonal Pool price is \$450 to \$510 per tonne; second only to their record 2009 actual price of \$508.77 per tonne, after a July 2009 forecast of \$440 to \$485 per tonne and actual pool returns of \$335 per tonne in 2008 and \$275 per tonne in 2007. Thus, despite the continuing strength of the Australian dollar, Queensland cane farmers can expect another good price outlook but due to the La Nina wet season during 2010/11 the predicted crop returns are set to be below expectation.

Complementary Crops

Breaking the sugarcane monoculture by growing other crops in rotation with sugarcane, has time-proven environmental and productivity benefits. Some farmers also opt to grow rotation crops that generate income.

Complementary crops are crops grown within a cane farming system. Crops that use the same land as cane crops are also known as break crops, green manure crops, green fallow and rotational crops. Most of these crops have a short growing season and are grown in the traditional fallow period of sugarcane.

Mung beans are crops with similar requirements. Mung beans have been tried in the Burdekin and Mackay sugarcane districts. They have a three-month growing period, which makes them well-suited

Agribusiness Education & Training Audit

to the sugarcane rotation. However, they are not a major crop as they tend to have problems with nematode infestation.

There has been widespread promotion of soybeans as a fallow crop in sugarcane. Substantial areas have been planted along the coast, primarily as a green manure crop in the wet tropics and central districts but there is an established grain industry in Bundaberg. Soybean crops for grain have a growing season of five months.

Kenaf and industrial hemp fibre crops fit well in the fallow period of sugarcane rotation, planted on spring rainfall and harvested in the autumn. Kenaf is currently grown in the sugarcane districts of Bundaberg and to a smaller scale, Mackay. The fibre has uses in rope-making, textiles and paper-making with future potential as a bio-plastic.

There is currently no processing plant in Australia. There is a large overseas market once a plant is established. The projected gross margins show kenaf to be a good economic option. As it is a relatively new crop, more knowledge about its agronomy and the best harvesting techniques is required. Trials of industrial hemp production have been conducted in the Mareeba, Mackay, Bundaberg, and Childers cane-growing districts.

Trials of industrial hemp have been conducted in the Mareeba, Mackay, Bundaberg, and Childers cane-growing districts. As it is a relatively new crop the agronomic knowledge is limited. There is no suitable tropical variety currently available and growers must meet legal requirements to grow the crop.

Forage sorghum and forage maize are complementary crops for rotation with sugarcane and can be made into hay or silage. There are small areas grown along the Queensland coast.

Sugarcane tops and trash also have potential as fodder and garden mulch. In the Burdekin district an industry is being developed looking at the pre-harvest removal of sugar cane tops to be sold as a forage base for cattle.

There is good demand, and high prices paid, for forage in periods of drought. The wetter areas in the north are able to grow rain-fed crops but will have more problems harvesting. The southern areas have good haymaking weather but require irrigation.

Fruit and vegetable production

In 2005-06, the region produced over 23,000 tonnes of capsicums and chillis and over 2,500 tonnes of eggplant as well as cucumbers, melons, tomatoes, zucchini, button squash and nuts. Regional producers also account for a significant portion of the total area in the State dedicated to tomatoes (52.8%), capsicums and chillis (43.9%) and eggplant (40.1%). Most of the horticultural production takes place around Bowen in the Whitsunday Regional Council area.

The Mackay-Isaac-Whitsunday horticulture industry is worth around \$400 million a year and is the largest winter crop growing region in Australia. The size of the horticulture industry in Bowen is the equivalent of the Gatton/Lockyer and Bundaberg regions combined.

Agribusiness Education & Training Audit

Horticulture is the largest economic driver in the Bowen region, employing approximately 3,200 skilled and unskilled workers each year.

Mango

The gross value of mango production is forecast at \$70 million in 2010–11, which is also reflected in DEEDI's final estimate for 2009–10 and 15 per cent lower than the 2008–09 revised ABS estimate.

More than 40 per cent of Queensland's mango production occurs in the Mareeba shire in Far North Queensland. A further 39 per cent of production occurs in the neighbouring Burdekin, Bowen and Townsville shires.

Tomato

Tomato GVP for 2010–11 is forecast at \$236 million, which is 31 per cent higher than DEEDI's final forecast for 2009–10 and 26 per cent higher than the 2008–09 revised ABS estimate.

Half of Queensland's tomato production occurs in the Bowen shire, with some production in the Isis shire around Childers. Due to the extreme wet conditions, the elevated height of the water table, root diseases and pest issues during 2010/11, the expected yield is predicted to fall short impacting the production volumes.

Capsicum and Chilli

The gross value of capsicum and chilli production in Queensland is forecast at \$120 million for 2010–11, which is 20 per cent more than DEEDI's final forecast for 2009–10 and 30 per cent more than the 2008–09 revised ABS estimate.

Reasonable water availability is likely to result in an increased volume of production across the State. There is, however, expected to be a slight reduction in production in Bowen over the next few months due to the follow on effect of the poisoning event.

As with tomatoes, the main areas for capsicum production are the Bowen and Isis shires. The main chilli production region is Bowen, with some also grown in the Stanthorpe region.

Watermelon

Watermelon production in Queensland in 2010–11 is forecast at \$44 million, which is one per cent lower than DEEDI's final forecast for 2009–10 but six per cent higher than the 2008–09 revised ABS estimate.

A third of Queensland's watermelon production occurs in the adjoining shires of Bowen and Burdekin in Central Queensland. Smaller pockets of production are in the Chinchilla and Rosalie shires on the Darling Downs, as well as in the Banana shire and Gatton shire.

Beef production

Queensland has Australia's largest beef cattle herd and is the nation's largest producer and exporter of beef. The combined gross value of Queensland's beef cattle production and meat processing sectors is expected to be worth an estimated \$4.5 billion in 2009–10. The majority of M-I-W's beef production occurs in the Isaac Regional Council (IRC) region.

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The M-I-W region is home to 1,273 cattle producers, 6% of Queensland's beef cattle enterprises, 1.2 million head of cattle and an abattoir located in Mackay. The Mackay region has three distinct land types (i.e. coastal, brigalow and spear grass country). The main production in the Mackay region includes:

- predominantly weaner production by small-scale breeding operations on the central coast, some finishing and some large-scale improved pasture production systems
- brigalow country cattle enterprises that are mainly breeding and finishing of Japanese ox production systems
- northern spear grass country systems that are mainly large-scale breeding and mixed store/finishing production systems with some cattle being sold to the live export trade.

At the farm gate level, beef cattle production is Queensland's largest agricultural industry. Queensland's gross value of beef cattle production is estimated to be about \$3.4 billion in 2009–10 (Department of Employment, Economic Development and Innovation 2010).

Beef cattle production occurs across all regions in Queensland. Cattle are mostly pasture-raised in the state's western districts, of which 70% are grass-fed. The remaining 30% are typically raised on pastures for around 17 to 21 months and then moved to feedlots to be grain-fed or 'finished' for between 2 and 4 months. Feedlots are concentrated in the major agricultural regions where they have access to adequate supplies of store cattle, grain and other feedstuffs.

In 2008–09, Queensland exported beef and veal to 79 countries with a value of about \$3.1 billion. The top three export destinations were Japan (about 50%), the United States (about 19%) and South Korea (about 12%). Queensland beef exports to these destinations were valued at approximately \$2.5 billion.

Challenges

The industry faces some challenges in the next few years. These include the changes in the world economy and gradual recovery from the economic slowdown caused by the global financial crisis of September 2008. These new conditions will test the flexibility of the industry, especially the processing sector.

In 2007–08, the number of people employed on farms involved in production of beef cattle had reached approximately 32 000, this includes a combination of employees, employers, own account workers, family workers and unpaid voluntary workers (Department of Agriculture, Fisheries and Forestry 2002, 2009).

Actual numbers employed will vary in response to major influences. For example, in times of low net farm incomes, on-farm employment will typically decline. In times of drought, employment can actually increase with more labour needed to feed and move or transport animals. Some events such as a floods and extreme weather often increase labour usage afterwards, moving cattle and carrying out repairs and maintenance.

In recent years, on-farm resident employment has declined due to economic factors and workplace health and safety changes. There has been a trend towards more contract labour on medium- and large-sized properties, and an increased use of unskilled labour for shorter periods. Cattle properties

Agribusiness Education & Training Audit

have adapted to less labour-intensive practices, with innovative approaches to make handling of cattle easier such as erecting laneways and self-mustering systems.

Technology is being used, such as remote monitoring telemetry technology to turn bores on and off and to record water use. Breeder selection now also takes into account animal temperament for easier handling and automated drafting and handling systems are becoming more common. Not only do such innovations reduce labour requirements, but they often have the added benefit of reducing stress on the cattle being handled.

Supporting Services

There are a large number of businesses supplying a wide range of goods and services to the beef industry. These firms provide off-farm employment for many people and supporting services add significant value to the economy.

Some business/industries supplying goods and services to the beef industry include:

- livestock transport
- general transport
- stock feeds
- animal health products
- veterinary services
- vehicles and machinery
- fuel and lubricants
- fencing, water and building material suppliers and contractors
- livestock handling equipment
- legal and financial
- aviation

The beef industry is achieving efficiencies by using new technology. This includes solar water pumping, livestock handling equipment, radio frequency identification device technology utilised by the National Livestock Identification Scheme, and traditional technologies such as transport and aviation.

Fencing, helicopters and highly trained contract staff have enabled the beef industry to undertake more intensive cattle handling and management with less staff and less experienced staff.

Over the next five years, the outlook for beef producers is expected to improve, strengthening demand for supporting services.

Meat Processing

Queensland processors exported beef to 79 countries in 2008–09 (CSIRO Meat Industry Services 2009). According to industry sources, Queensland's meat processing sector has assets estimated at \$5 billion and an annual turnover of \$3.5 billion. Four of the five largest beef processors operating in Australia have plants in Queensland. The industry is primarily concentrated in the state's south-east corner, with major plants also located in Rockhampton, Townsville and Mackay.

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In the last two to three years, competition with restockers and live cattle exporters and lower export beef prices as a result of a higher Australian dollar has resulted in export abattoirs reducing throughput and cutting shifts and the number of killing days.

There are presently about 14 100 people employed in meat and meat product manufacturing in Queensland (Australian Bureau of Statistics 2010a).

Meat processors in Queensland have faced skilled labour shortages, with workers being attracted to other industries by higher wages and better working conditions. In a bid to overcome meat worker shortages, processors have actively attracted foreign meat workers covered by 457 visas.

Two consecutively poor breeding seasons, sluggish demand for Australia beef exports and the rapid expansion of live cattle exports have temporarily reduced slaughter cattle supplies resulting in reduced processor shifts and worker lay-offs.

An important challenge is how to establish a competitive award to attract and retain skilled and semi-skilled labour in the processing sector. The need to develop a competitive award for the processing sector has arisen because of the strong labour market in the resources sector. Also, there are many other occupations providing more attractive working conditions. While processors have used temporary skilled workers from overseas under the 457 Visa Scheme, access to this scheme is becoming increasingly difficult. These factors are making it more difficult for beef processors to attract and retain labour, and have resulted in increasing costs in meat processing.

One partial solution would be to increase investment to raise the level of automation in plants to reduce costs, particularly those associated with a high labour content. An automation strategy would have several other benefits such as improving product quality and working conditions, which may also improve labour retention.

Continual improvement in management skills and knowledge is essential for resilient and profitable businesses. Opportunities exist for producers to upskill in essential business areas. Workshops can help producers analyse their business performance, assess risk, analyse options and develop and implement improved management strategies. This will in turn improve profitability and sustainability.

Cotton

Cotton GVP for 2010–11 is forecast to be \$710 million, which is 100 per cent above DEEDI's final estimate for 2009–10 and 118 per cent above the 2008–09 revised ABS estimate. The 2010–11 season has very strong prospects based on high expected prices and very good water supplies.

The 2009–10 cotton season was highly variable, with early dry conditions followed by floods in some areas. Area sown to cotton in 2010–11 is forecast to be 175 000 hectares, which is a 133 per cent increase on the estimated 75 000 hectares in 2009–10. This expected increase in area sown is partly due to a rise in the estimated price of cotton in the September 2010 quarter.

Extensive dryland crop plantings are anticipated for the Darling Downs and Border Rivers regions, and around Emerald in central Queensland. New areas are also being sown to cotton, most notably

Agribusiness Education & Training Audit

the dryland plantings in the McKenzie River irrigation development and in the Belyando region north of Clermont.

These new plantings will contribute to a forecast seven-fold increase in dryland cotton plantings to 56 000 hectares, up from an estimate of 6600 hectares in 2009–10, but are dependent on follow-up rain closer to the planting window in spring.

Grain

There are 91,111 hectares of grain crops in Mackay-Isaac-Whitsunday, predominantly grown in the Isaac Regional Council area.

Other

Small-scale dairy production occurs in Eungella (in the Mackay hinterland) and a collection of aquaculture is present in the Mirani (MRC), Ilbilbie and Nebo (IRC) and Bowen and Proserpine (WRC) regions.

Agribusiness Education & Training Audit

Emerging & related industries

Bio-based industrial products

It is expected that over the coming year's renewable biomass will increasingly be a substitute for non-renewable resources such as oil, coal and gas. Renewable biomass can be obtained from primary sources such as specialty crops, grasses, trees and marine algae, and from household, industrial and agricultural waste such as vegetable peelings, sawdust, used vegetable oils, bagasse and wheat straw.

Bioprocesses convert these materials into a range of products, including renewable fuels, plastics, paper and chemicals that are ecologically sustainable. As oil prices increase and technologies improve, these will also become economically competitive with their non-renewable counterparts. To facilitate uptake of these products, the bio-based industrial products sector will need to identify local comparative advantages, help vertical integration of research, investment and industry activities, and ensure market awareness and product differentiation.

Internationally, bioethanol and biodiesel transport fuel production is dominated by Brazil (sugarcane), United States (corn) and Europe (rapeseed). This is due to the well developed infrastructure, logistics, research and development and supply chains in these areas. The majority of Australian first generation biofuels are produced primarily from:

- C-molasses (from sugar refining) at Sarina's CSR site (MRC), and
- Cereal wheat starch at Manildra flour mill in New South Wales.

Internationally, considerable biochemical research and development has been aimed at production of platform chemicals for manufacture of bio-plastics, mainly using corn as the feedstock. In the future, the sector will need to transition to using non-food feedstocks to minimise impacts on food production capacity. Queensland has the potential to take a strong position in this sector having both access to non-food biomass and substantial research expertise in this area.

Current research capacities are focused on converting sugarcane to biofuels through developing efficient cellulosic processes, combining traditional plant breeding with genetics to develop new high performing 'energy' canes and using sugarcane as a green factory for production of biocommodities such as polymers, enzymes and higher value products.

In an Australian first, Queensland's Proserpine Sugar Mill is transforming sugarcane waste into the platform chemical, furfural, which can be used to replace hydrocarbon based chemicals in a range of applications. One exciting use is in transforming softwoods into the equivalent of various tropical hardwoods.

Furfural is a liquid chemical that is produced from lignocellulosic material (woody, fibrous plant waste biomass). Furfural is a bio-based industrial platform chemical previously used for manufacturing perfumes, nylon, spandex and other chemicals.

Agribusiness Education & Training Audit

Current research and development provides a platform to capitalise on emerging markets for advanced renewable fuels, high value materials and bio-based chemicals. The recently established Mackay Renewable Bio commodities Pilot Plant provides capacity for continued exploration of advanced bio-based industrial processes and the subsequent commercialisation and technology licensing opportunities.

International focus on developing bio-based jet fuel and the need for a refuelling hub in this region create an incentive for bio-jet fuel development that links with Queensland research. One international driver of this is the European Union (EU) in which current directives specify a percentage of biofuels to be used in aircraft landing within the Union. Queensland's climate, agricultural expertise and proximity to the Asia Pacific region provide significant advantages for development of this product.

Non-chemical pest control

The most recent concern to the horticulture industry is the Australian Pesticides and Veterinary Medicines Authority's (APVMA) decision to prohibit the use of pesticides dimethoate and fenthion to control fruit fly amid concerns about potential human health concerns.

The APVMA is currently reviewing the chemicals Dimethoate and fenthion. The potential outcome of the review would be that Dimethoate and Fenthion will no longer be in use. These chemicals are used as a market access requirement domestically and for export against the spread of Qld Fruit Fly.

If these chemicals are no longer able to be used the horticulture industry locally and state-wide will no longer exist if there is not replacement chemical or other option in place for growers to use for market access. The outcome of the APVMA review could potentially have a devastating effect on the horticulture industry locally and state-wide.

Agribusiness Education & Training Audit

Industry Advisory Groups/ Committees

Industry Advisory Groups and Committees are used as a direct link to the needs of industry.

AgriFood Skills Australia states that committees are,

“key company and industry stakeholders with a valuable contribution to make on issues like industry skills and workforce innovation and reviews of training products and services, including training packages” (AgriFoods Skills Australia, 2011, <http://www.Agrifoodskills.net.au/aboutus/committees/>).

AgriFood Skills Australia – Rural and Related Standing Committee

In 2007-08, AgriFood Skills Australia began the process of using standing committee’s to represent the needs of industry by informing training packages. The Rural and Related Standing Committee consulting with AgriFood Skills Australia is comprised of various organisations. The committee representatives and their respective areas of reference are as follows:

National Farmers Federation	National HR
Australia Dairy Federation	Dairy
Primary Skills Victoria / NFF	Agriculture
Vet Nurses Council Australia	Vet Nurses
National Gardening Industry Association	Horticulture
National Farmers Federation	Beef Production
Queensland Rural Industry Training Council	Pastoral, Dairy and Beef
National Farmers Federation (AgForce)	Training
NT Primary Industry Training Advisory Council	Training and Skills Development
Horticulture Australia Council	Orchard Production
Western Australian Farmers Federation	Cereal Production
Rural Skills Australia	Training and Skills Development
Greening Australia	Conservation

DEEDI – Rural Labour and Skills Strategy Industry Advisory Group

The Rural Labour and Skills Strategy Industry Advisory Group works directly with DEEDI’s Rural Skills, Training and Labour department. The committee representatives are as follows:

Future Farmers Network
AgForce
Growcom
Queensland Farmers Federation
Canegrowers Australia
Australian Workers Union
Queensland Rural Industry Training Council

Agribusiness Education & Training Audit

Part B - Supply

December 2010

Regional Economic
Development Corporation

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mwredc
regional economic
development corporation
MACKAY ISAAC WHITSUNDAY

Agribusiness Education & Training Audit

Table of Contents

Introduction.....	2
Overview	2
What is Agribusiness?	2
Agribusiness Training & Education Overview	3
Introduction	3
Training Education Overview	3
Training format	3
Engagement.....	4
Primary School	4
High School	6
<i>An Example of Course content</i>	6
<i>Mackay</i>	7
<i>Whitsunday</i>	7
<i>Isaac</i>	8
Extension Officers, Farm workers & Trainers.....	9
Providers	9
Tertiary Courses	9
Vocational Education Courses	10
Skill Set Training	14
Professional development	15
Industry Research & Development.....	17
Industry collaboration.....	18
Collaborative Stakeholders	18
National Curriculum	22
Agrifood Skills Australia Gateway Schools Initiative	23
Summary of training available	24
Training Providers	24
Training Type.....	24

Agribusiness Education & Training Audit

Introduction

Overview

The Agribusiness Education and Training Supply Chain Audit aims to enable the Mackay-Isaac-Whitsunday region to understand and respond to increasing skills demands in one of its major commodity industries; agribusiness.

The overall project aims to establish strategic dialogue between industry and skills providers at key points in the region's education and training supply chain and will be conducted in four parts:

1. Part A – Industry Overview
2. Part B – Supply
3. Part C – Demand
4. Part D – Analysis & Recommendations

This report concludes Part B of the Agribusiness Education & Training Supply Chain Audit for the Mackay-Isaac-Whitsunday (M-I-W) region. It documents the availability of agribusiness training and education throughout the supply chain from primary school education through to industry training and tertiary qualifications.

Parts C and D of the project will include a consultation process with the agricultural industry on emerging technologies, their current and future demand for skills and their current level of satisfaction with training packages currently available. Outcomes generated from the consultation will include a strategy for the attraction of education providers in the gaps identified and/or information to increase the capabilities of current providers to meet market demands.

What is Agribusiness?

Agribusiness is the production of food, fibre, foliage and fuel through the use of biological systems including plants, animals, fungi and bacteria. It covers any operation or enterprise that produces and sells an agricultural product. The agribusiness supply chain includes producers, animal care, agronomists, researchers, processors, business bankers, transport logistics. Agricultural businesses are governed by strict government guidelines regarding environmental protection, resource management, animal care and management and food safety.

Agribusiness Education & Training Audit

Agribusiness Training & Education Overview

Introduction

A comprehensive review was conducted to document the range of education and training options currently being delivered in the Mackay-Isaac-Whitsunday region. Information was collected via a range of methods including direct consultation, phone and email contact and desktop research.

Training Education Overview

When analysing the range of activities undertaken in the name of Agribusiness, a number of distinct groups and roles emerge. These are:

Role	Description
Engagement	These individuals/groups undertake activities which are responsible for the majority of people's first exposure to the Agribusiness industry. This early exposure is an opportunity for providing a positive and attractive image of the Agribusiness industry to potential Agribusiness workers of the future.
Representatives	These individuals/groups undertake activities which are of a supportive nature to the industry. Whilst not directly engaged in production themselves, they do fulfill an enabling role, such as the provision of goods and services related to the industry.
Extension Officers	These individuals/groups provide on-the-ground, practical support, advice, capacity building and learning opportunities to primary producers and growers of a specialised nature.
Farm Workers	These individuals/groups are engaged in day-to-day production.
Trainers	These individuals/groups provide education and training services to train new entrants to the industry and professional development for existing workers in the industry.
Researchers	These individuals/groups are engaged in Agribusiness-related science research and development.

The following analysis of available training and education will be presented according to their assistance of, and involvement with, these groups.

Training format

Training in the Agribusiness industry takes on a number of different forms. There is standard formalised training which broadly defined, encompasses all training which results in the participant receiving a qualification or achieving a level of competency.

There is also informal training. This training is structured in its delivery; however it does not lead to a nationally recognised competency or qualification.

Agribusiness Education & Training Audit

Engagement

Primary School

Primary schools are often responsible for the first exposure a child will have to the Agribusiness industry and therefore is highly instrumental in determining a child's perception of the industry.

The Agribusiness-related education and training provided by primary schools is largely informal and dependent on the interest of the classroom teacher. The focus of agriculture within the curriculum seems to be on environment and environmental impact as opposed to food production.

The following table provides a summary of the agribusiness-related education and activities currently occurring in schools throughout the M-I-W region.

Primary Schools - Mackay

Bloomsbury Primary School	Have a vegetable garden in the winter months.
Carmila Primary School	Have a veggie path in the cooler month, planting peas, beans, corn and parsley and measuring their growth.
Chelona Primary School	They used to have a veggie garden under their 'projects' but this has not been done for some time.
Emmanuel Catholic Primary School	<p>Started a herb garden in 2009 which has been continued. This year the school established a veggie garden which also had a work farm and a compost bin. Most of the produce goes to tuck shop which in return replenishes the compost bin.</p> <p>When there is a bumper crop, parents are advised and they can buy the produce for a gold coin donation which funds the garden – new seedlings or equipment. Also parents will buy a lettuce and return with a punnet of lettuce seedlings.</p> <p>The school applied for funding from businesses such as Coles but was unsuccessful.</p> <p>The P & F donated the soil and allocated \$100 towards the garden to buy seedlings. The school has also received a lot of support from the Organic Bio Farms Group who have engaged well with them and have sent lesson plans for Prep – Grade 7 covering how to grow seeds in a jar and the testing of soil.</p>
St Anne's Primary School Sarina	Each class from prep to grade 7 has a garden in a different area of the school. This year the prep class grew seedlings on cotton wool.
Eton Primary School	The Prep class has a vegetable garden.

Agribusiness Education & Training Audit

Primary Schools - *Whitsunday*

Collinsville Primary School	In the previous year, they had a vegie patch and chickens. Once a week the students would have scrambled eggs for breakfast. This has not been repeated again this year. This year Xstrata donated pots and seeds to the students. All students were encouraged to participate and the growth of plants was monitored.
St Catherine's School	The Prep and Year 4 classes each have a vegetable garden. The Year 4 class also has a worm farm and recycling centre.

Primary Schools - *Isaac*

Clermont State School	Have previously had a vegetable garden, but found it difficult to maintain over the school holidays.
Coppabella State School	Have a school vegie patch.
Dysart State School	There is a compost heap and teachings around recyclable items to be included into the compost heap, worm farm and vegetable patch to start again in Term 2. The produce from the vegetable patch goes to the tuckshop and also to class cooking lessons. Year 7 students undertake projects in land care, recycling and worm farming.
Glenden State School	The Prep class has a vegetable garden.
Kilcummin State School	There is a community vegetable patch. They also compost.
Middlemount Community School	The Year 5's have chickens and sheep. They have a vegetable garden which will commence in Term 2.
Mistake Creek State School	There is a worm farm and guinea pigs. They have had chickens and ducks in the past. Plans for a vegetable patch in Term 2.
Moranbah East State School	Have previously had a vegetable garden.
Moranbah State School	They offer agricultural studies that are relevant to subjects being studied per class.
Nebo State School	The groundsman has a vegetable garden that he works with interested children.
St Lawrence State School	There is a vegetable patch that the whole school can access.
St Joseph's Catholic Primary School	They are currently seeking interest from external stakeholders for a community vegetable patch. They are planning on planting in Term 2. They have previously had a worm farm at the school.

Agribusiness Education & Training Audit

High School

For many individuals, High School is the first opportunity for formalised Agribusiness-related education and training.

In most instances, Agribusiness-related courses are elective and subject to student interest.

There are two high schools in Mackay-Isaac-Whitsunday region, Clermont State High School and Sarina State High School, who were recently successful in gaining status as an Agrifood Skills Australia Gateway Schools for Agribusiness. The Gateway Schools program is designed to form partnerships between high schools and industry and facilitate the transition of students to jobs in Agriculture after graduation.

An Example of Course content

Year 8 – Intro to Agriculture

The Introductory Agriculture courses offered to Year 8 students is based on developing individuals by teaching them basic farm skills and how to use non-motorised tools. Students are involved in farm simulations, working farms and learn about sustainability.

Year 9/10 – Agriculture Studies

In Years 9 and 10, students gain experience with small engines and maintenance, bio technology, poultry, chemical, horse husbandry, dairy, industry and operations.

Year 9 students gain a ticket to use brush cutters and learn to operate a tractor. In Year 10, students practice fencing and cattle handling and have the opportunity to be involved with the show cattle team (extra-curricular activity). They also learn medical tasks such as the administration of injections and basic veterinary tasks.

Year 11/12 – Agriculture Science OP

In Years 11 and 12, students learn about plant science and gain awareness of the hot issues relevant to farming. They learn about sugar production, conduct trials for vegetables and beef, learn about the growth and development of cattle and cattle reproduction, including genetics.

The curriculum also covers issues surrounding overseas aid and are involved in a project simulating the setup of infrastructure important to third world agriculture development ie. water pumps.

The curriculum is a mix of theory based and practical skills, including data collection, observation, research skills, trials and evaluations.

Agribusiness Education & Training Audit

The following high schools have been identified as having Agricultural elements within the programs of their curriculum.

Mackay

School	Year 8	Year 9	Year 10	Year 11	Year 12
Mackay Christian College	Intro to Agriculture, 1st semester*	Elective – Agriculture Studies		OP subject – Agriculture Science	
Mackay North State High School				Elective – Agriculture is covered in Multi-strand science	
Sarina State High School	Intro to Agriculture*	Elective – Agriculture Studies	Certificate I in Rural Operations offered	Certificate II in Rural Operations Certificate II in skills sets (AACC)	
Mackay State High School	Agriculture (one semester only)*	Agriculture Studies	Agricultural Science School Based Traineeship option	OP subject – Agricultural Science Agricultural Practices – non OP – certificate I & II in Rural Operations School based traineeships option	
Mirani State High School				Elective – Aquaculture plot (red claw) is a 1 term unit in the Marine Aquatics subject	

*Indicates compulsory subject

Whitsunday

School	Year 8	Year 9	Year 10	Year 11	Year 12
Bowen State High School	Certificate I in Rural Operations				
Proserpine State High School	Elective - Certificate I in Rural Operations				

*Indicates compulsory subject

Agribusiness Education & Training Audit

Isaac

School	Year 8	Year 9	Year 10	Year 11	Year 12
Capella State High School				Certificate II in Rural Operations – Beef Production	Certificate II in Rural Operations – Beef Production
Middlemount Community College	Have previously offered Agricultural subjects, but they have not been offered in 2011.				
Clermont State High School	Intro to Agriculture*	Elective – Agriculture Studies Certificate I in Rural Operations (at AACC – Emerald)	Certificate II in Agriculture (at AACC – Emerald) – block training throughout year.	Nothing offered as yet, but Clermont HS recently announced as a Gateway School for Agriculture. Plans to offer non OP subject in the following years. Also planning on maintaining cattle (offsite), chickens, aquaponics, cropping trials and horticulture facilities.	

*Indicates compulsory subject

Agribusiness Education & Training Audit

Extension Officers, Farm workers & Trainers

Providers

There are several education and training providers with Agribusiness-related course offerings in the Mackay-Isaac-Whitsunday region. These include: James Cook University (JCU), Central Queensland University (CQU), University of Queensland (UQ – Gatton Campus), Australian Agriculture College Corporation (AACC), Rural Industry Training and Education (RITE), Open Learning Institute of TAFE (BNIT), Chemcert Training Group, MINTRAC, Ag Training Pty Ltd, Agforce Training, Plant and Machinery Assessing Services (PMAS), School of the Web, Canegrowers, B.E.S.T. Employment and Training, Growcom, BSES, Agforward and Bowen District Growers Association (BDGA). The majority of training offered is of an external nature with either block residential training outside the region, recognition of prior learning (RPL) or face-to-face workplace assessment. Training obtained through a traineeship has more opportunities for face-to-face assessment.

Both JCU and CQU universities are affiliated with the DEEDI Research Station located at Bowen. The restructure of the AACC has seen Bowen being identified as one to the new delivery sites to allow for face-to-face interactions between training providers and industry. At present AACC a definitive time frame for the delivery site will be fully functional is unclear.

Training offered includes Certificate, Diploma, Undergraduate and Postgraduate levels. Informal training offered includes skill set training, induction and information delivery workshops.

Tertiary Courses

Central Queensland University (CQU)			
Level	Program	Delivery method	Mode
Undergraduate	Bachelor of Environmental Science	Internal (Mackay 1 st year)/ External (2 nd , 3 rd years)	Full time
Undergraduate	Bachelor of Science (Applied Biology, Industrial Chemistry)	Internal (Mackay 1 st year)/ External (2 nd , 3 rd years)	Full time/ Part time
Postgraduate	Master of Water Resource Management	External	Part time
Postgraduate	Graduate of Water Resource Management	External	Part time
Postgraduate	Graduate Certificate in Water Resources Management	External	Part time
Postgraduate	Graduate Certificate in Environmental Management	External	Part time
Postgraduate	Graduate Diploma of Environmental Management	External	Part time
Postgraduate	Master of Environmental Management	External	Part time

Agribusiness Education & Training Audit

University of Queensland – Gatton Campus (UQ)			
Level	Program	Delivery method	Mode
Undergraduate	Bachelor of Agricultural Science – Rural Technology	External (some residential block training is required)	Full time
Undergraduate	Subject of Bachelor of Agricultural Science – Rural Technology: <ul style="list-style-type: none"> AGRC2020 – Agronomy (Can select individual subjects – some are dependent on course pre-requisites.)	External (some residential block training is required)	Full time

Vocational Education Courses

Australian Agricultural College Corporation (AACC) – Training Provider Number 31258			
Level	Program	Delivery method	Mode
Certificate / Traineeship	Certificate I in Rural Operations	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate II in Rural Operations	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate II in Horticulture (General)	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate II in Production Horticulture	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate III in Agriculture (Beef Production)	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate III in Horticulture (General)	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate III in Production Horticulture	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate IV in Agriculture (Beef & Horse)	External / RPL / Face to Face	Full time
Certificate / Traineeship	Certificate IV in Horticulture (General)	External / RPL / Face to Face	Full time
Diploma	Diploma of Agriculture	External	Full time
Diploma	Diploma of Rural Business Management	External	Full time
Diploma	Diploma of Agriculture (Beef Production)	External	Full time
Diploma	Diploma of Horticulture (General)	External	Full time

UQ Gatton – Vocational Education Centre (G-VEC) – Training Provider Number 1511			
Level	Program	Delivery method	Mode
Certificate	Certificate II in Agriculture	External / RPL / Workplace delivery / Face to	Full time
Certificate	Certificate II in Production Horticulture		Full time
Certificate	Certificate II in Rural Operations		Full time

Agribusiness Education & Training Audit

Certificate	Certificate III in Animal Technology	face assessment. (G-VEC prepared to travel and offer courses to a minimum of 12 participants – can be a combination of courses across the strand, e.g. 12 participants doing varying levels across Certificate II, III, IV, Diploma and Advanced Diploma in Production Horticulture)	Full time
Certificate	Certificate III in Agriculture		Full time
Certificate	Certificate III in Production Horticulture		Full time
Certificate	Certificate III in Rural Business		Full time
Certificate	Certificate III in Rural Merchandising		Full time
Certificate	Certificate III in Rural Operations		Full time
Certificate	Certificate IV in Animal Control and Regulation		Full time
Certificate	Certificate IV in Captive Animals		Full time
Certificate	Certificate IV in Agriculture		Full time
Certificate	Certificate IV in Production Horticulture		Full time
Certificate	Certificate IV in Rural Business		Full time
Diploma	Diploma of Horticulture		Full time
Diploma	Diploma of Animal Technology		Full time
Diploma	Diploma in Animal Technology		Full time
Diploma	Diploma of Agriculture		Full time
Diploma	Diploma of Production Horticulture		Full time
Diploma	Diploma of Rural Business Management		Full time
Advanced Diploma	Advanced Diploma of Agriculture		Full time
Advanced Diploma	Advanced Diploma of Rural Business Management		Full time
Advanced Diploma	Advanced Diploma of Horticulture		Full time

Rural Industry Training and Extension (RITE) – Charters Towers – Training Provider Number 31754

Level	Program	Delivery method	Mode
Certificate	Certificate I Rural Operations	External	Full time. Forms part of skill set training and RPL. It is tailored to individual's needs.
Certificate	Certificate I in Business	External	
Certificate	Certificate I in Work Readiness	External	
Certificate / Traineeship	Certificate II in Agriculture	External / Host Employer	Full time
Certificate / Traineeship	Certificate II in Rural Operations	External / Host Employer	Full time
Certificate / Traineeship	Certificate III in Agriculture (Beef Production)	External / Host Employer	Full time
Certificate / Traineeship	Certificate IV in Agriculture	External / Host Employer	Full time

Agribusiness Education & Training Audit

Open Learning Institute of TAFE – (Brisbane North) – Training Provider Number 30837

Level	Program	Delivery method	Mode
Certificate	Certificate IV in Frontline Management	External	Full time
Diploma	Diploma of Spatial Information Services	External (some residential block training is required)	Full time

ChemCert Training – Training Provider Number 5914

Level	Program	Delivery method	Mode
Certificate	Certificate II Rural Operations	External	Full time.

Mintrac

Level	Program	Delivery method	Mode
Certificate / Traineeship	Certificate II in Meat Processing	External	Full time
Certificate / Traineeship	Certificate III in Meat Processing	External	External
Certificate / Traineeship	Certificate IV in Meat Processing	External	Full time
Certificate / Traineeship	Diploma in Meat Processing	External	Full time

Ag Training Pty Ltd – Training Provider Number 31304

Level	Program	Delivery method	Mode
Certificate	Certificate II in Agriculture	External / Workplace Assessment / RPL	Full time
Certificate / Traineeship	Certificate III in Agriculture (Machinery Operation and Maintenance skill set)	External / Workplace Assessment / RPL	Full time
Certificate	Certificate II in Rural Operations	External / Workplace Assessment / RPL	Full time
Certificate / Traineeship	Certificate III in Rural Operations	External / Workplace Assessment / RPL	Full time

Agforce Training – Training Provider Number 1834

Level	Program	Delivery method	Mode
Certificate	Certificate I in Rural Operations	External	Full time. RPL large
Certificate	Certificate II in Agriculture	External	

Agribusiness Education & Training Audit

Certificate	Certificate IV in Agriculture	External	component of these training modules.
Diploma	Diploma of Agriculture	External	
Diploma	Diploma of Rural Business Management	External	

Plant and Machinery Assessing Services – Training Provider Number 5257

Level	Program	Delivery method	Mode
Certificate	Certificate II in Agriculture	External / Workplace Assessment / RPL	Full time
Certificate / Traineeship	Certificate III in Agriculture (Sugar Production)	External / Workplace Assessment / RPL	Full time
Certificate	Certificate IV in Agriculture	External / Workplace Assessment	Full time
Diploma	Diploma of Rural Business Management	External / Workplace Assessment	Full time

School of the Web – Training Provider Number 32262

Level	Program	Delivery method	Mode
Certificate	Certificate III in Agriculture	RPL	RPL
Certificate	Certificate IV in Rural Business	RPL	RPL
Diploma	Diploma of Agriculture	External (6 x 1 week face-to-face delivery over 2 years, will present locally with minimum number of participants)	Full time

Agribusiness Education & Training Audit

Skill Set Training

Australian Agricultural College Corporation (AACC) - Training Provider Number 31258	
Course/qualification	Frequency
Chainsaw Ops Level 1	Regularly
Chainsaw Ops Level II	Regularly
ChemCert Accreditation	Regularly
License to operate a Forklift	On demand
Tractor Training	On demand
Artificial Insemination	On demand
Basic Horse Shoeing	On demand
Firearms Safety Training	On demand
Basic Stock Handling	On demand
4WD driver awareness training	On demand
Pregnancy Testing Animals	On demand
Haul out	On demand
Slaughter/butchery course	On demand
Load Shifting (grader, backhoe, loader, skid steer, excavator)	On demand
Canegrowers – Mackay	
UD licensing course	Annually
On-line generic siding induction – WPH&S for mill for delivery of trucks to mill	
Authorised Personnel Overhead Power Line Safety – harvester drivers and growers for safe operation over powerlines	
B.E.S.T. Employment and Training – Training Provider Number 32247	
License to operate a forklift	On demand
ChemCert Training Group – Training Provider Number 5914	
Compulsory training in accordance with the Pesticides Act 1999: <ul style="list-style-type: none"> • RTC1701A – Follow basic chemical safety rules • RTC2706A – Apply chemicals under supervision • RTC3704A – Prepare and apply chemicals • RTC3705A – Transport, handle and store chemicals 	On demand
Plant and Machinery Assessing Services – Training Provider Number 5257	
Course in Loadshifting Equipment – Operation of Tractor, Combine Harvester, Traffic Farming, GPS, Hay baling	On demand
Ag Training Pty Ltd – Training Provider Number 31304	
Course in Loadshifting Equipment – Operation of Tractor, Combine Harvester, Traffic Farming, GPS, Hay baling	On demand
Growcom	
Forklift Assessment	On demand

Agribusiness Education & Training Audit

Freshcare Training	On Demand
Centre Pivot and Lateral Pivot Irrigation Training	On Demand

Professional development

BSES - Mackay		
Course/qualification	Collaborations	Frequency
Integrated Weed Management - RTC3704A Prepare & apply chemicals - RTC3401A Control Weeds - RTC3705A Transport handling and store chemicals	Burdekin Ag College were assessors AgriServ, Canegrowers and BSES	As required
Q Cane Select - cane variety selection – info sheets, - block recommendations, - whole farm planning, - regional variety performance stats	AgriServ Central	
Weed Management Manual 2010		
The Harvesting Best Practice Manual		
Legume break crops – agronomy	AgriServ Central	
Agdata Web – computerized recording of infield operations – spatially linked GPS	Driven by AgriServ Central; Mackay Sugar	
Implement 'library' – specialized equipment for loan		
Reef Rescue consultants – support to growers seeking funding from Fed Govts Reef Rescue program	AgriServ Central	
Local Grower Shed meetings – neighbourhood groups to learn/identify/discuss topics	AgriServ Central	
Neighbour field demonstration events	AgriServ Central	
Provision of general agronomy advice for cane	AgriServ Central	
Annual industry field days	AgriServ Central	
6 Easy Steps Nutrient Management Workshop	AgriServ Central	
GrubPlan – options for greyback cane grub management		

Agribusiness Education & Training Audit

Pest and Disease Management	AgriServ Central	
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Canegrowers - Mackay		
Course/qualification	Collaborations	Frequency
Provision of Recognition of Prior Learning (RPL) for growers and their workers towards certificates	RTO	On demand

Agforward		
Course/qualification	Collaborations	Frequency
Vegetation Management Essentials – How Regional Ecosystems and regrowth mapping and vegetation management laws affect your property		
Vegetation one-on-one assistance		
GPS essentials – GPS essentials provides you with practical training in the use of a GPS		
Computer Mapping Essentials		
AgForest Essentials		

Bowen District Grower’s Association (BDGA)		
Course/qualification	Collaborations	Frequency
Reef Rescue		
Nutrient Management		
Soil Management		
Pest and Disease Management		
Workplace Health and Safety		
Industrial Relations		
Visas		

Agribusiness Education & Training Audit

Industry Research & Development

In a commodity-based industry like agribusiness, innovation provides a sustainable source of competitive advantage. This involves using available resources in the most productive way.

In the context of agribusiness, innovation can occur successfully in one of two principal ways - process innovation and product innovation.

Process innovation refers to the way things are done. A grower implementing a new farm management plan to improve profitability and minimise the impact on the local environment is undertaking process innovation. Members of a mill area working together to implement a streamlined service to transport cane from the farm to the mill are undertaking process innovation.

Product innovation refers to the range of products produced. Research and development involves investigating ways of making more efficient use of agribusiness products and processing by-products. It is about finding new markets and developing clever ways of satisfying them. Turning mill mud into an eagerly-sought-after product that enhances profitability and overcomes environmental issues would be an example of product innovation.

Working with others to foster collaboration to innovate is one of the ways that the agribusiness industry has available for creating benefits for the entire value chain of the industry. In the Horticulture industry, Horticulture Australia Limited (HAL), Bowen District Grower's Association (BDGA) and Department of Employment, Economic Development and Innovation (DEEDI) have part-funded research.

BSES Limited is the peak R & D body for the sugar industry but other organisations such as the Sugar Research and Development Corporation (SRDC), Sugar Research Institute, CSIRO, universities and productivity service providers have also made valuable contributions.

Chemical companies also provide training regularly and specific training on demand for sales representatives, extension officers and growers by often demonstrating on-farm scenarios.

Agribusiness Education & Training Audit

Industry collaboration

Collaborative Stakeholders

Across the agribusiness sector, collaborations between stakeholders and industries commonly occur. Local, state and federal government departments and peak industry bodies frequently collaborate and/or partly fund research, skills formation strategies and incorporate education initiatives.

Examples of collaborative initiatives that could potentially be accessed within the Mackay-Isaac-Whitsunday regions are:

Initiative	Lead Organisation	Target Group	Description	Partners and/or participants
Australian University Crops Competition (AUCC)	Grain Growers Association	Under graduate Students	The AUCC is a new initiative in the cropping industry that aims to increase the awareness and connectivity between universities, degrees and with the rural industry. Components of the competition include pulse and seed ID and analysis, pulse classification, grain grading, live crop analysis, for pest/diseases, yield and production practices and business analysis.	Syngenta Crop protection; Federal Department of Agriculture, Fisheries and Forestry. 22 students representing 7 universities in the inaugural competition.
CarbonKids	CSIRO Education	K-10	CarbonKids is an educational resource that combines the latest in environmental science with education in sustainability. The CarbonKids program comprises a range of units with ideas and activities for the early, primary and middle years of schooling and enables students to achieve outcomes set out in State and Territory curriculum frameworks. Compliment to the Australian Sustainable Schools Initiative (AuSSI)	CSIRO, Bayer 111 schools nationally at currently registered for the program; 14 in Qld; 0 in M-I-W region . In the last six months, over 7000 students and 1000 teachers engaged face-to-face.
DEEDI Hermitage Research Station Schools' Plant Science Competition	DEEDI, Agriculture, Food and Tourism and Regional Services	P - 12	This is an annual competition that aims to stimulate an interest in agriculture and science in young people and promote agricultural science as an exciting, long-term career choice. Each year a plant science topic, related to current research projects at	Approximately 100 Australian schools participate annually. GRDC, Paul Johnston Memorial Trust, Education Queensland,

Agribusiness Education & Training Audit

			<p>Hermitage Research Station, is chosen and a hands-on experiment and other activities are designed for students to carry out in the classroom. The competition provides opportunities for students to be involved in and report on a range of agricultural issues such as climate, water use efficiency, managing insect pests and plant breeding to improve yield and quality in crops.</p> <p>63 schools registered for the 2011 competition, titled "Are You a Gene Genius?" with over 530 experiment kits on order.</p>	<p>Pioneer Seeds, Grains Research Foundation Ltd, Australian Institute of Agricultural Science and Technology, Blue Ribbon Seed and Pulse Exporters, HSR Group Pty Ltd, professor and Mrs. Joe Baker, Selected Seeds and UQ.</p>
Fun on the Farm	Meat and Livestock Australia	P - 6	An interactive online children's game – fun on the farm requires students to look after the livestock on the land.	
Horticulture Careers – Your guide to courses in Australia 2010/11	Rural Press Limited	Years 9-12	An Education and Careers Guide primarily addresses at school leavers and their advisors, but of vital importance to the industry, which regularly raises concerns about filling skills gaps. There is a commentary with some terrific	Rural Press, Horticulture Australia Ltd
Investing in Youth undergraduate studenthip program	Collaborative project of RIRDC's new Community Resilience R&D program	Under graduates	This program is offering up to 10 studentships, with the final number depending on final sponsorship and quality of applicants. Studentships will be open to students studying primary industries related degrees across Australian universities. 2010 applications closed in January with successful applicants' confirmed and announced prior to the end of February and the beginning of the academic year.	RDC's, Universities, PICSE, PIEF
Go Agro! Cotton	Central	Year 10	An initiative covering Central	Central

Agribusiness Education & Training Audit

& Grain Careers in the Central highlands	Highlands cropping industry and agricultural teachers		highlands (Emerald, Springsure, Capella, Clermont, Alpha). Two annual field trips are offered to Year 10 students: Emerald district field trip (March), South-East Queensland field trip (August/October). The program provides students with first-hand experience of the careers and study pathways available in cropping industries. Young adults working in the industry host students at their businesses, discuss skills, responsibilities and earnings from on-farm activities and agribusiness, and provide an opportunity to undertake some hands-on activities. Students are introduced to the latest in gene technology, commodity marketing and agricultural engineering.	Highlands Cotton Growers & Irrigators Assoc., PCAP, Excel, Cotton Catchment Communities CRC, Cotton Australia, APS, Springsure, Capella and Emerald Marist School P&Cs, DPI&F, Queensland Cotton, CHRRUP
Central Highlands Schools Linking to the DPI&F	DPI&F Spotlight on Science Initiative	Teachers	Annual Teach-the-Teacher Program and a booklet (available as CD) written to encourage linkages between Central Highland schools and the Emerald DPI&F. The booklet contains examples of both past use and possible future ways of connecting the DPI&F with school curriculum, including potential guest speakers, career talks, subjects, and opportunities for collaboration with research projects. The CD also contains specific teacher resources, movies and DPI&F computer programs and training manuals. The booklet/CD is a DPI&F Spotlight on Science initiative in the Central Highlands.	DEEDI – PI&F
PACE (Pathways to Agricultural Careers and	Australian Agricultural College	Grades 11 and 12	The annual education and training program started in April 2009 for the Emerald	AACC, CSODE, schools

Agribusiness Education & Training Audit

Education)	Corporation (AAC) and Capricornia School of Distance Education (CSODE)		area. Grade 11 and 12 students are assisted in achieving a Queensland Certificate of Education (QCE) while enrolled in AQF Certificates in Agriculture at AACC. It provides an alternative for senior school students who wish to leave school in Grade 11/12, who have a passion for Agriculture as a career. The program is delivered by distance using the computer suite and teleconference lessons at AACC. Students can be residential and non-residential. Several weeks of industry experience are incorporated into the program.	
School to Industry partnership Program & Rural Champion Volunteer Program	AgForce	Vocational Education and Training	An AgForce initiative, the program links key career education drivers in the regions with rural industry representatives in order to heighten the awareness of high school students, parents, teachers and school careers and guidance counselors of the various career options available in the rural and related industry sectors. It strengthens school to industry partnerships by encouraging increased student participation in on-ground awareness programs, formal training, work experience and traineeships based around industry needs in the regions. The program also builds industry capacity to support rural industry awareness activities, work experience and vocational education and training (VET).	Department of Education, Training and the Arts; Department of Primary Industries and Fisheries 32916 students, 211 teachers and 50 volunteers (08/09).
Science Education Strategy	DEEDI	Years 1-7	The Science Education Strategy 2006-09 encourages young people to aspire to	Qld Gov't, Education Queensland,

Agribusiness Education & Training Audit

careers in science by providing targeted high quality professional development for curriculum leaders and primary and secondary science teachers, including agricultural science. The Senior Science Officer supports school and students to find science-related workplace industry placements, and introduces scientists into schools as mentors and career role models. Resources include Primary Connections – linking science with literacy (Yrs 1-7 only).	Schools, industry, government departments, scientific research organisation and tertiary institutions including Central Queensland University.
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Sourced: Primary Industries Education Foundation (PIEF) 2011 National Stocktake – February 2011

The Primary Industries Education Foundation (PIEF) is the peak body representing primary industries education in Australia. The PIEF fosters a strategic alliance between industry, government and education by providing support and access to teachers and trainers through a one-stop-shop web portal containing resources aligned to the national curriculum and relevant information. Previous studies commissioned by PIEF had found that some industry stakeholders were not effectively communicating due to the areas of operational scope e.g. state initiatives were unable to access national industry bodies and/or funds due to operating at a state level. The one-stop-shop web portal is being launched 30th June 2011. The web portal will contain downloadable resources, information on available grants and funding and eventually provide access to representatives within organisations. At current, resources are available for educators to access but it involves them sourcing and accessing the information from individual member organisations. Current members of PIEF are Department of Agriculture, Forestry and Fisheries (DAFF), Meat and Livestock Australia, Forest and Wood Products Australia, Fisheries Research and Development Corporation, Australian Egg Corporation and Australian Pork. There are current working relationships between Canegrowers Australia, National Farmers Federation, Australian Council of Agricultural Deans, National Association of Agricultural Educators and CB Alexander Foundation.

National Curriculum

In 2010, the Australian Curriculum, Assessment and Reporting Authority (ACARA) who is responsible for packaging the national curriculum, announced the integration of agriculture content into existing subjects such as geography, maths and science. Agricultural subjects studied at high school level were previously within the Science curriculum but will be repackaged within the Technology suite within the National Curriculum. The National Curriculum Science suite will be rolled out into school next year but the Technology suite will not be released until approximately 2014. In the meantime, Agricultural teachers will need to link their subject to Science components until the Technology curriculum is released.

Agribusiness Education & Training Audit

AgriFood Skills Australia Gateway Schools Initiative

Agribusiness encompasses a vast variety of career pathways and jobs associated with on-farm production and/or the various stages of distribution, information provision and service, value adding, processing and marketing the product along the supply chain route.

The gateway school project aims to help young people make a successful transition from school into further education and/or employment within the industry. The project also encourages meaningful collaboration between schools, training (VET), universities and industry to promote career opportunities for students. Two schools within the Mackay-Isaac-Whitsunday region have been announced as Agribusiness Gateway Schools; Sarina State High School (MRC) and Clermont State High School (IRC).

The project promotes awareness and opportunities for students and school communities to engage in the diverse range of careers available across the primary industries sector. Students will gain valuable experience in the industry while still at school, providing them with the tools and knowledge to make informed decisions about training and employment upon leaving school, and at the same promoting the careers within the Agribusiness sector.

By being a gateway school in Agribusiness various key learning areas and their associated curriculum will endeavour to include a range of Agribusiness related contexts and activities in and out of the classroom.

The network of Gateway Schools in Agribusiness aims to work together in the sharing of information, ideas, teacher professional development and resources as well as strengthening their partnerships with Agribusiness industries. These partnerships and opportunities for work experience, structured work placements and school based traineeships or cadetships within the Agribusiness industry contribute to fostering an understanding and promotion of agriculture as being a viable career option.

These initiatives was developed in response to skills shortages across Agribusiness industries and the need to attract, train and retain a skilled workforce across the Agribusiness sector for future industry demand.

Agribusiness Education & Training Audit

Summary of training available

Engagement

Type	Quantity		
	Mackay	Isaac	Whitsunday
Primary Schools ⁺	6	12	2
High Schools*	4	2	0
Agribusiness Gateway Schools	1	1	0

* With agriculture programs

⁺ Degree of exposure to agriculture

Training Providers

Type	Quantity		
	Mackay	Isaac	Whitsunday
Skill Set Training*	6 ⁺	2 ⁺	6 ⁺
Vocational Education*	10 ⁺	10 ⁺	10 ⁺
Tertiary Education*	2	1	1
Professional Development*	2 ⁺	1 ⁺	1 ⁺

* With agriculture education/training programs ⁺ Minimum number of course participants may apply

Training Type

Type	Availability		
	Mackay	Isaac	Whitsunday
Informal	Y	Y	Y
Certificate	Y ⁺	Y ⁺	Y ⁺
Diploma	Y	Y ⁺	Y ⁺
Degree*	Y	Y	Y
Postgraduate**	Y	Y	Y

* Available at CQU and UQ [#]Available at CQU ⁺ Minimum number of course participants may apply

Agribusiness Education & Training Audit

Part C - Demand

December 2010

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MACKAY ISAAC WHITSUNDAY

Agribusiness Education & Training Audit

Table of Contents

Introduction.....	3
Overview	3
What is Agribusiness?	3
Approach	4
Careers	5
Strategic Jobs	5
Investigative Jobs	6
Production Jobs.....	6
Supporting Industries.....	6
Emerging Industries	7
Biofuels/Bio-energy	7
<i>Australian Government biofuels policy.....</i>	<i>7</i>
Skills Demand	9
Sugar	9
<i>Staff.....</i>	<i>10</i>
<i>Attraction and Retention</i>	<i>10</i>
<i>Training</i>	<i>11</i>
<i>Training content.....</i>	<i>11</i>
Horticulture.....	13
<i>Careers</i>	<i>13</i>
<i>Staff.....</i>	<i>13</i>
<i>General feedback about staff</i>	<i>14</i>
<i>Attraction and Retention</i>	<i>15</i>
<i>Training</i>	<i>16</i>
<i>General Comments about training</i>	<i>16</i>
<i>Training method of delivery.....</i>	<i>17</i>
Industry Overview.....	17
Beef Production	19
<i>Careers</i>	<i>19</i>
<i>Staff.....</i>	<i>19</i>
<i>Attraction and Retention</i>	<i>19</i>
<i>Training</i>	<i>20</i>

Agribusiness Education & Training Audit

<i>General Comments about industry</i>	21
Industry Overview	21
Grain	22
<i>Careers</i>	22
<i>Staff</i>	22
<i>Attraction and Retention</i>	23
<i>Training</i>	23
<i>Training content</i>	23
<i>Training method of delivery</i>	23
<i>General Comments on Improvement of Training</i>	24
Grain	24

Agribusiness Education & Training Audit

Introduction

Overview

The Agribusiness Education and Training Supply Chain Audit aims to enable the Mackay-Isaac-Whitsunday (M-I-W) region to understand and respond to increasing skills demands in one of its major commodity industries; agribusiness.

The overall project aims to establish strategic dialogue between industry and skills providers at key points in the region's education and training supply chain and will be conducted in four parts:

1. Part A – Industry overview
2. Part B - Supply audit
3. Part C – Demand audit (current report)
4. Part D – Analysis & Recommendations

This report concludes the third stage, Part C, of the Agribusiness Education & Training Supply Chain Audit for the Mackay-Isaac-Whitsunday region. It documents the results of consultations conducted with agribusiness industry representatives across the various sectors within the region.

The final stage, Part D, of the project will include analysis of the agribusiness training and education supply chain and agribusiness education and training requirements as identified by industry representatives.

Outcomes will include a strategy for the attraction of workers with industry-identified training qualifications. It will also include a strategy for the attraction of education providers required to meet staff training needs in the gaps identified and/or information to increase the capabilities of current providers to meet market demands.

What is Agribusiness?

Agribusiness is the production of food, fibre, foliage and fuel through the use of biological systems including plants, animals, fungi and bacteria. It covers any operation or enterprise that produces and sells an agricultural product. The agribusiness supply chain includes producers, animal care, agronomists, researchers, processors, business bankers, transport logistics. Agricultural businesses are governed by strict government guidelines regarding environmental protection, resource management, animal care and management and food safety.

Agribusiness Education & Training Audit

Approach

The audit of the region's agribusiness-related training and education demand involved extensive industry consultations. Representatives across a range of industry sectors were surveyed in direct consultation and phone interviews.

The Agribusiness Training & Education Supply Audit aims to identify training and education needs of the sugar, horticulture, beef and grain industries in the Mackay-Isaac-Whitsunday region.

REDC conducted interviews with agribusiness industry representatives of the various industry sectors within the region. These included growers, farmers, producers, extension officers, researchers, product representatives, consultants, agronomists and industry-based trainers.

Industry representatives were interviewed and asked to comment on the following:

- Position, current level of education, required level of education for their specific position;
- Relevant work history and career pathway;
- Staffing issues – use of retention strategies, difficulties experienced when recruiting, reasons staff regularly provide for leaving their employ and the quality of current staff;
- Satisfaction with training available in terms of quality, availability, timing, content, relevance and delivery method;
- Their thoughts on ensuring the ongoing success of the industry;
- Issues impacting on industry (positive or negative).

Agribusiness Education & Training Audit

Careers

The range and diversity of careers available in the agribusiness industry is far-reaching. Possible careers include:

- Agricultural Science Teacher/Trainer
- Agronomist
- Banking /Finance Officer
- Biosecurity Inspector
- Trainers/Teachers
- Cotton/Wool Classer
- Entomologist
- Extension/Sales Officer
- Farm Manager
- Field Scientist
- Horse Breeder/Handler
- Train Drivers
- Horticultural Scientist
- Irrigation Research Officer
- Landscape Gardener
- Machinery or Plant Operator
- Mechanic
- Production worker
- Microbiologist
- Nutritionist
- Plant Breeder
- Rural Journalist
- Technical Officer
- Veterinary nurse
- Zookeeper
- Technicians
- Auditors

Strategic Jobs

Increasingly vital in the agribusiness industry are management, marketing, quality assurance and industry development skills. These can be learnt formally and/or on-the-job, and all roles can involve a mix of practical and office work.

Development

- Agricultural Scientist
- Agricultural Technical Officer
- Research Officer

Marketing

- Farm Manager
- Crop Farmer
- Marketing Officer
- Research and Development Manager

Quality Assurance

- General Manager
- Quality Assurance Inspector

Regulators

- Auditors
- Government Representatives
- Inspectors

Research and development

- Agricultural Scientist
- Research and Development Manager

Quality and Innovation

- Quality Assurance Inspector
- Primary Products Inspector

Information Providers and Capacity Building

- Extension Officers
- Industry Development Officer
- Advisors
- Consultants
- Agronomists
- Sales Representative

Agro-political

- Industry Advocates

Agribusiness Education & Training Audit

Investigative Jobs

Science is the basis for a wide array of jobs within the agribusiness industry such as agronomic research, product development, project management and integrated pest management. The demand for science-related graduates exceeds supply. Roles can be based in the field, the lab, the office or a combination of locations.

Development

- Agricultural Scientist
- Agricultural Technical Officer
- Project and Program Administrator

Agronomy

- Agricultural Scientist
- Project and Program Administrator

Consultant

- Integrated Pest Management Consultant
- Agricultural Consultant
- Agricultural Scientist
- Pest and Weed Controller
- General Manager

Research and Development

- Research and Development Manager

Production Jobs

Agribusiness requires management of the environment, people, and food safety as well as production processes. There are opportunities to travel, upskill and contribute to the future of the industry. Jobs can involve the latest in machinery and technology with scope for introducing innovations into the industry.

Operations

- Operations Manager
- Crop Farmer
- Farmer/Farm Manager
- Business Director
- General Management

Consultant

- Hydroponic Consultant

Grower

- Farmer/Farm Manager
- Forklift Operator

Production

- Production Manager
- Crop Farmer
- Farmer/Farm Manager

Processing

- Engineers
- Chemists
- Technicians
- Machinery and equipment operators

Supporting Industries

There are many industries that provide additional support to the Agribusiness industries. These industries offer support not only from an operations and production perspective but also provide support as specialised consultants and regulatory positions.

Operations

- Information Technology Officer
- Tradespeople
- Professionals

Consultant

- Professionals
- Business and Finance Officers

Production

- Tradespeople

Regulatory

- Auditors
- Inspectors

Source: Bundaberg Fruit and Vegetable Growers

Agribusiness Education & Training Audit

Emerging Industries

Biofuels/Bio-energy

Biofuels are fuels produced from renewable organic sources or 'feedstocks'. The term generally refers to fuels for transportation and includes ethanol and biodiesel.

Ethanol is derived from agricultural feedstocks (such as grain, molasses and starch products) and is used as an extender for petrol. Biodiesel is made from new or used feedstocks such as soybean, canola and palm oil, and vegetable or animal fats (tallow). Biodiesel is used on its own or as an extender in a blend with automotive diesel.

Ethanol and biodiesel have the best commercial prospects in Australia and are the most common types of biofuels produced and used in Australia. This is, in part, due to current production technologies, feedstock availability and fuel usability. Feedstocks predominantly used in Australia for ethanol are waste starch, molasses and co products of food production, with tallow and used cooking oil the main sources for biodiesel.

Biofuels research is focused on second-generation biofuels technologies. These technologies use a wider range of feedstocks, including non-food crops and agricultural waste products (such as wood, cereal straw and algae), to produce fuel. Compared to biofuels produced using current technologies, second generation biofuels offer the potential to significantly reduce the impact of biofuels on the environment and minimise the impact on food and livestock feed. Full-scale commercial production of second generation biofuels is still some years away and is dependent on further research and development.

Australian Government biofuels policy

The Australian Government is investigating a range of alternative transport fuels, including biofuels, to reduce our reliance on fossil fuels and contribute to the reduction of greenhouse gas emissions.

Australian Government biofuels policy is managed by several departments:

- Department of the Prime Minister and Cabinet provides overall leadership on biofuels policy;
- Department of Resources, Energy and Tourism has primary responsibility for energy policy, including biofuels;
- Australian Taxation Office administers biodiesel production grants through the Cleaner Fuels Grants Scheme;
- AusIndustry administers the Ethanol Production Grants Program;
- Department of the Environment and Water Resources has responsibility for environmental aspects, such as fuel quality standards and air quality issues, and administers a number of measures to improve consumer confidence in biofuels.

DAFF is monitoring the development of a domestic biofuels industry, with particular attention to opportunities and challenges for our portfolio industries. The main areas of interest include biofuels feedstocks and on-farm use of biofuels. DAFF, through the Australian Bureau of Agricultural and Resource Economics, undertakes economic studies of biofuels, which include assessing the implications of global developments in biofuels production for Australian agriculture.

Agribusiness Education & Training Audit

The development of a White Paper on energy issues was agreed to by the Government in September 2008. The Energy White Paper is expected to provide a comprehensive policy framework for the development of Australia's energy resources (including biofuels) through to 2030 and recommendations for government and industry.

The government is targeting its investment in biofuels at second-generation technology. In October 2008, the government launched the \$15 million Second Generation Biofuels Research and Development Program. This program will be administered by the Department of Resources, Energy and Tourism.

Agribusiness Education & Training Audit

Skills Demand

Sugar

Careers

Industry representatives were interviewed about their role in the industry, their qualifications and the pathway taken to the position they currently hold.

Job	Relevant Training/Education	Possible Career Pathway
<i>Farm worker</i>		<ul style="list-style-type: none"> • Family Farm
<i>Grower</i>	<ul style="list-style-type: none"> • Bachelor of Applied Science (Rural Technology) Specialising in Plant Protection • Trade Qualified Diesel Fitter • TAFE Diploma of Lab Technology (Sugar) • Bachelor of Applied Science – Rural Technology 	<ul style="list-style-type: none"> • Family Farm • Marriage • Community Development • Industry Volunteer Work • Extension Officer • Consultant • Cane Farm Manager • Field Researcher
<i>Extension Officer</i>	<ul style="list-style-type: none"> • Bachelor of Applied Science – Rural Technology • Associate Diploma in Biological Techniques 	<ul style="list-style-type: none"> • Productivity Officer • Manager • Technical Manager • Family Farm • Crop Technician
<i>Researcher</i>	<ul style="list-style-type: none"> • TAFE Diploma of Lab Technology (Sugar) • Bachelor of Applied Science – Rural Technology 	<ul style="list-style-type: none"> • Study
<i>Consultant</i>	<ul style="list-style-type: none"> • Bachelor of Applied Science (Rural Technology) Specialising in Plant Protection • On the job training • TAFE Qualifications – Agriculture Bases, Soil Science, Soil Testing • Experience on own farm beneficial 	<ul style="list-style-type: none"> • BSES Extension Officer • Research & Development • Cane Farm Management • Sales Rep • Customer Counter Sales • Technical Advisor • Forecaster

Source: REDC Agribusiness Consultations, 2010

Agribusiness Education & Training Audit

Staff

Industry representatives were asked to comment on their experiences with attracting and retaining staff. They were asked to indicate the level of difficulty experienced when recruiting each of the different job types and rate the quality of the workers currently in the industry.

Job	Level of difficulty Attracting Staff	Quality of Existing Staff
<i>Farm worker</i>	<i>DIFFICULT</i>	<i>MODERATE</i>
<i>Manager/Sales Rep</i>	<i>MODERATE</i>	<i>HIGH</i>
<i>Extension Officer</i>	<i>DIFFICULT</i>	<i>MODERATE/HIGH</i>

Source: REDC Agribusiness Consultations, 2010

Attraction and Retention

Industry representatives were asked about their use of staff attraction and retention strategies. They were also asked to comment on the most common reasons staff leave the industry.

Farm Workers

Commonly used attraction and retention Strategies	Common reasons staff leave
Flexible Hours	Lured by high wages in Mining
Incentives (vehicles, fuel, bonuses)	Seasonal Workforces

Source: REDC Agribusiness Consultations, 2010

Extension Officers

Commonly used attraction and retention Strategies	Common reasons staff leave
RDOs	Lured by higher wages elsewhere
Salary Sacrificing	Seasonal Workforces
Flexible Working Environment	Contract based employment - Unsecure
Work/Life Balance	
Professional Development	
Annual Reviews	
Travel	
Incentives (Vehicle)	

Source: REDC Agribusiness Consultations, 2010

Agribusiness Education & Training Audit

Managers/Mobile Sales Reps

Commonly used attraction and retention Strategies	Common reasons staff leave
Create a team atmosphere	Upward movement within the industry
Professional Development	
Trials with farmers	

Source: REDC Agribusiness Consultations, 2010

Training

Industry representatives were asked to rate their level of satisfaction with the training and education currently available in terms of quality and availability.

Role	Quality of training available	Availability of training
<i>Farm worker</i>		
<i>Grower</i>	MODERATE/EXCELLENT	MODERATE
<i>Manager/Sales Rep</i>	EXCELLENT	POOR
<i>Extension Officer</i>	EXCELLENT	MODERATE

Training content

Respondents were asked about their opinion of the quality of training content provided:

Farm Workers:

- Some growers asking for a cheap and simple program in haul out procedures that are more affordable than the one currently offered by CANEGROWERS.

Growers:

- CANEGROWERS – Most were very satisfied with the diversity and quality of training offered by CANEGROWERS.
- Some were critical of time for training being taken up by explaining government legislation – want a focus on how to grow food more successfully.
- Grower Group Innovation Program also highly regarded.
- Some asking for more emphasis on soil science, nutrition and testing
- Need for higher end training because RPL system is so effective for Diploma level qualifications – suggested liaison with CQU would be appropriate

Extension Officers:

- Excellent feedback about courses offered by BSES
- Suggestion that RPL needs to be used in conjunction with upskilling in order to challenge existing knowledge and expand upon what is already known

Managers/Sales Reps:

- Suggestion that industry consultation should be conducted in order to select most appropriate people to deliver training.

Agribusiness Education & Training Audit

Industry Overview

During the consultation process, there were areas of concern in regards to ensuring the success of the sector. One recurring concern was about the attraction of the next generation of farm worker into the industry. Some suggestions included the need to highlight industry opportunities and promote career pathways to school students. Also the strengthening of community groups who offer training i.e. Qld Rural Women's Network, CANEGROWERS and CWA. It was suggested that these groups need to be open to new ideas and suggestions and that more training needed to be focused on women in the industry in order to build their capacity and contribution to the industry. Another area of concern was in the loss of extension officers and their collective knowledge of the industry and it was suggested that cadetships be reintroduced, more networking between officers and the offering of specific extension officer courses by Ag colleges. It was also suggested that agricultural education be provided to government officials highlighting the issues on-the-farms and the impact that changes to legislation may have on the grower. This is also relevant to the comments in regards to industry sales reps that may lack on-the-job, general experience on farms. An additional area of concern is the access to training and finding out what is available, one suggestion was that a central database be established listing what training is available Australia-wide and access to the training. It was recommended that more emphasis and training on soil testing including the soil science and nutrition. Another comment was in relation to access to practical training such as event management courses for trial and/or field days. General training on farm readiness in skills such as welding, machine maintenance and mechanics would also be beneficial. On the positive side, the Recognition of Prior Learning process was so effective for diploma level qualifications that it was suggested to investigate similar programs for tertiary education.

Agribusiness Education & Training Audit

Horticulture

Careers

Industry representatives were interviewed about their role in the industry, their qualifications and the pathway taken to the position they currently hold.

Job	Relevant Training/Education	Common Career Pathway
<i>Farm worker</i>		
<i>Grower</i>	<ul style="list-style-type: none"> • <i>Bach Applied Science (Hort Tech)</i> • <i>Management Studies</i> 	<ul style="list-style-type: none"> • <i>Family farm</i> • <i>Study</i> • <i>Farm hand</i> • <i>Picker</i> • <i>Packer</i> • <i>Management</i>
<i>Extension Officer</i>	<ul style="list-style-type: none"> • <i>Bach Hort Science (hort technology)</i> • <i>Diploma in Rural Systems Management</i> • <i>Bach Science (agriculture)</i> • <i>PHD (Entymology)</i> 	<ul style="list-style-type: none"> • <i>Family farm</i> • <i>Study/Lecture</i> • <i>Extension Officer/Researcher</i>
<i>Consultant</i>	<ul style="list-style-type: none"> • <i>Bach Applied Science (Plant Protection)</i> 	<ul style="list-style-type: none"> • <i>Product Rep</i> • <i>Research & Development Officer</i>
<ul style="list-style-type: none"> • <i>Ag Scientist</i> • <i>Agronomist</i> • <i>Crop Consultant</i> 	<ul style="list-style-type: none"> • <i>Bach Applied Science (Hons)</i> • <i>Population Ecology</i> 	<ul style="list-style-type: none"> • <i>Technical Assistant/Field Trials</i> • <i>Crop Consultant</i>

Source: REDC Agribusiness Consultations, 2010

Staff

Industry representatives were asked to comment on their experiences with attracting and retaining staff. They were asked to indicate the level of difficulty experienced when recruiting each of the different job types and rate the quality of the workers currently in the industry.

Job	Level of difficulty Attracting Staff	Quality of Existing Staff
<i>Farm worker</i>		
- <i>Manual worker</i>	<i>MODERATELY DIFFICULT</i>	<i>MODERATE</i>
- <i>Skilled worker</i>	<i>VERY DIFFICULT</i> <i>(to find staff with people management and knowledge of horticulture industry)</i>	<i>MOD-HIGH</i>
<i>Grower</i>	<i>MODERATELY DIFFICULT</i>	<i>MODERATE</i>
<i>Extension Officer</i>		
- <i>Entry Level</i>	<i>MODERATELY DIFFICULT</i>	<i>MODERATE</i>
- <i>Experienced</i>	<i>VERY DIFFICULT</i>	<i>MODERATE</i>
<i>Researcher/Consultants</i>	<i>VERY DIFFICULT</i>	<i>MODERATE</i>

Source: REDC Agribusiness Consultations, 2010

Agribusiness Education & Training Audit

General feedback about staff

Respondents provided the following feedback about staff quality and availability.

Farm Workers

Access to manual labourers (predominantly visa workers) is becoming more difficult.

Small growers are finding it difficult with the State Government's move away from Extension Officers as they do not have the budget to pay private consultants for the same services.

There is a lack of middle management staff.

Extension Officers

It is preferable for Extension Officers to have on-the-ground experience.

Growers

Some growers are willing to take risk and some lack support to do so. Generally takes considerable amount of time to build trust with growers.

Researchers/Consultants

Respondents commented that graduates are not as well trained as they used to be. Graduates must be trained extensively once they are employed.

Consultants find that females make excellent field staff as they tend to be more focussed.

There is a feeling within the industry that the quality of extension officers and researchers is declining.

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Attraction and Retention

Industry representatives were asked about their use of staff attraction and retention strategies. They were also asked to comment on the most common reasons staff leave the industry.

Farm Workers

Commonly used attraction and retention Strategies	Common reasons staff leave
Time off in lieu	Lured by high wages in Mining
Training	Inability to adapt to change
Additional paid holidays	Pressure from customers
Bonuses	
<i>Skilled workers - paid dependent on output/yield</i>	
<i>Manual workers – paid at end of season</i>	
Flexible hours	

Source: REDC Agribusiness Consultations, 2010

Extension Officers

Commonly used attraction and retention Strategies	Common reasons staff leave
Graduate program	Moving with partner
3 year contract – permanent position offered after 2 years	Desire to leave industry
	Struggle with level of change

Source: REDC Agribusiness Consultations, 2010

Growers

Commonly used attraction and retention Strategies	Common reasons staff leave
Bonuses	

Source: REDC Agribusiness Consultations, 2010

Agribusiness Education & Training Audit

Researchers/Consultants

Commonly used attraction and retention Strategies	Common reasons staff leave
Salary package (car, credit card, subsidized accommodation)	No long term job prospects
Flexible hours	Low paid industry
Computer, phone	Workers average 2-4 years in job
Professional development (experience in other locations)	Returning to family/study

Source: REDC Agribusiness Consultations, 2010

Training

Industry representatives were asked to rate their level of satisfaction with the training and education currently available in terms of quality and availability.

Role	Quality of training available	Availability of training
Farm worker	POOR	POOR
Grower	VERY GOOD	VERY GOOD
Extension Officer	VERY GOOD	VERY GOOD
Researcher	GOOD	GOOD
Consultant	GOOD	VERY GOOD

Source: REDC Agribusiness Consultations, 2010

General Comments about training

Farm Workers

Work readiness training is available for food safety however respondents commented that there is currently no training available which covers core skills that are consistent across farms such as forklift and tractor training.

Anecdotal: One RTO contacted has been travelling to Bowen for the past five years to deliver forklift training on behalf of a local Job Seeking Agency (JSA) aimed at skilling the unemployed. This RTO also offers tractor and GPS training.

Machinery training is seen to be time consuming. The cost of becoming a qualified machinery operator is \$8-10,000. Growers pay for training – there is always a risk that employee will move and take qualifications to the next employer.

There is a lack of training available for shed/assistant managers.

Agribusiness Education & Training Audit

Anecdotal: Traineeships in Rural Business Management are available but may not be eligible for User Choice funding depending on the level of training and/or identified need and/or skill shortage. Higher level training packages, in conjunction with traineeships, are generally not covered by the User Choice funding, which provides incentives to employers to undertake a trainee.

Extension Officers

There is abundant training available however relevance is always an issue. Training takes up time therefore quality must be good to warrant dedicating time to do it.

On average, it takes a minimum of 12 months of on-the-job training and mentoring of graduates before they are proficient and productive.

Growers

Chemical training needs to be tailored to the type of grower. Chemical training is viewed as long, tedious, inefficient and out-dated. There is a need for all training to be made more relevant.

Researchers/Consultants

Respondents indicated that the quality of training for product representatives was lacking in applied knowledge was not relevant to farms and lacked understanding of the grower's perspective.

Concerns were raised regarding the loss of training courses for researchers and the dwindling funds and number of workers.

Respondents indicated that it would be desirable for James Cook University to improve the linkage between their dry tropics course and the Bowen horticulture industry.

There is a need for improved spelling and grammatical skills as well as mathematical skills. Staff in Europe is viewed as being more advanced and therefore skills exchanges would be of benefit.

Respondents also indicated a need for improved collaboration across industry sectors and for better recognition of agriculture (i.e. food safety).

Other

There was a general consensus that there is not enough agriculture training and education being delivered in schools and what is available tends to be lacking in terms of quality content.

Training method of delivery

Respondents provided the following feedback regarding the delivery of training/education:

- Training needs to be tailored depending on the skill level of the group
- Training must respond to the need for staff to be skilled at a certain level

Industry Overview

The availability of local training was a common issue amongst growers during the consultation process. The quality, delivery and relevance of the training courses on offer were questioned. Also the need for follow up to training and the updates from chemical training courses be made available

Agribusiness Education & Training Audit

online. The facilitation of knowledge sharing amongst growers has been exacerbated with the loss of extension officers in their industry. Due to the nature of the industry where each grower sells products individually there is no inherent cooperative process and this is exacerbated by the loss of extension officers and growers currently having to pay consultants for this service. As such growers prefer not to share this knowledge freely as it has a monetary value attached to it. Some suggestions involved facilitating collaboration in order to harness collective power by promoting awareness of issues to government who often forget the flow on effect of industry, as opposed to industries like mining which have a single sale. Another concern of growers was that university courses need to become more practical and relevant as it is felt that there is too much focus on teaching students how to research and that courses should also include work placements. It was a common concern about the whole horticulture industry needing to work together to attract staff and promote the image of the industry. It was suggested to link school-based training with the recruitment process. The locality of the horticulture industry in Bowen allows ample opportunity to engage students by offering tours of production sheds, research labs and trials to showcase technology, marketing and business management opportunities.

Agribusiness Education & Training Audit

Beef Production

Careers

Industry representatives were interviewed about their role in the industry, their qualifications and the pathway taken to the position they currently hold.

<i>Job</i>	<i>Relevant Training/Education Requirements</i>	<i>Common Career Pathway</i>
<i>Producer</i>	<ul style="list-style-type: none"> <i>On the job, work way up through industry.</i> 	<ul style="list-style-type: none"> <i>Family background in cattle producing.</i> <i>Majority are generational producers.</i>
<i>Consultant/ Product Representative</i>	<ul style="list-style-type: none"> <i>Business and management training, Certificate in Retail</i> 	<ul style="list-style-type: none"> <i>Retail background</i>

Source: REDC Agribusiness Consultations, 2010

Staff

Industry representatives were asked to comment on their experiences with attracting and retaining staff. They were asked to indicate the level of difficulty experienced when recruiting each of the different job types and rate the quality of the workers currently in the industry.

<i>Job</i>	<i>Level of difficulty Attracting Staff</i>	<i>Quality of Existing Staff</i>
<i>Farm worker</i>	<i>DIFFICULT</i>	<i>MODERATE</i>
<i>Consultant - Product Representative</i>	<i>MODERATE</i>	<i>GOOD</i>

Source: REDC Agribusiness Consultations, 2010

Attraction and Retention

Industry representatives were asked about their use of staff attraction and retention strategies. They were also asked to comment on the most common reasons staff leave the industry.

Farm Workers

<i>Commonly used attraction and retention Strategies</i>	<i>Common reasons staff leave</i>
Higher Salaries	Close proximately to mines especially in Isaac region
Competitive Salary Packaging: <i>Housing and/or board (sometimes for whole family)</i> <i>Electricity</i> <i>Phones</i> <i>Meat</i>	Lured by high wages in Mining

Agribusiness Education & Training Audit

Governesses for children of workers

Isolation of properties

Unsure of suitability of rural life

Short-term workers such as backpackers

Source: REDC Agribusiness Consultations, 2010

Consultants

Commonly used attraction and retention Strategies

Flexible Hours

Professional Development

Common reasons staff leave

Relocation

Desire to start families

Partner loses job in mines associated subsidised housing

Training

Industry representatives were asked to rate their level of satisfaction with the training and education currently available in terms of quality and availability.

<i>Role</i>	<i>Quality of training available</i>	<i>Availability of training</i>
<i>Farm worker</i>	GOOD	GOOD
<i>Consultant</i>		
<i>- Product Representative</i>	GOOD	GOOD

Source: REDC Agribusiness Consultations, 2010

Farm Workers

Type of training	Quality of Delivery Method	Comments on Quality and Availability of training
Traineeship	Moderately Poor	Block training is not good it takes worker away from farm
		Block training is good, they can talk to other workers, they also come back with certificates and

Agribusiness Education & Training Audit

licences

Source: REDC Agribusiness Consultations, 2010

Consultants – Product Representatives

Type of training	Comments on Quality of Delivery Method	Comments on Quality, Availability and delivery method of training
Face to face delivered by chemical company	Good	Chemical reps will do PD days, on farm demonstrations, face to face, at a time that suits the business and at no cost to the business. Growers are also encouraged to attend.

Source: REDC Agribusiness Consultations, 2010

General Comments about industry

Market Competition

One issue facing the beef industry was a threat to the markets by Brazil.

Industry Overview

Issues of attraction of future worker, recognition of land security issues and feeling supported by government in long-term interest were common concerns across the consultation process. The attraction of future workers by placing interested students into work experience on a working farm has been a process some producers have used on a micro scale and found to be effective in introducing interested school students and potential future employees into the farm life. Due to the locality of cattle properties within the Isaac and Whitsunday regions, the threat of coal and gas deposit discoveries under properties is an ever present concern. The need for recognition of this issue was a common concern; due to this threat some generational farmers would not encourage their children to continue farming. Another concern, is the feeling of abandonment until recently due to the topical “food safety” concern from government. Most producers consulted are seeking long-term interest from government.

Agribusiness Education & Training Audit

Grain

Careers

Industry representatives were interviewed about their role in the industry, their qualifications and the pathway taken to the position they currently hold.

Job	Relevant Training/Education	Possible Career Pathway
<i>Farm worker</i>		
<i>Owner/Manager/Grower</i>	<ul style="list-style-type: none"> • <i>Grade 12</i> • <i>Farm/Trade Background</i> • <i>Financial Management Studies</i> • <i>Management Studies</i> 	<ul style="list-style-type: none"> • <i>Work way up in industry</i> • <i>Family Farm</i> • <i>Trade Qualifications</i>
<i>Extension Officer</i>		
<i>Researcher</i>		
<i>Consultant</i>	<ul style="list-style-type: none"> • <i>Bachelor of Applied Science (Rural)</i> • <i>Master of Rural Systems Management</i> 	<ul style="list-style-type: none"> • <i>Work way up in industry</i> • <i>Study</i> • <i>Marketing at Ag College</i> • <i>University Positions</i> • <i>Sales Agronomist</i> • <i>Grower Services</i>

Source: REDC Agribusiness Consultations, 2010

Staff

Industry representatives were asked to comment on their experiences with attracting and retaining staff. They were asked to indicate the level of difficulty experienced when recruiting each of the different job types and rate the quality of the workers currently in the industry.

Job	Level of difficulty Attracting Staff	Quality of Existing Staff
<i>Farm worker</i>	<i>MODERATELY DIFFICULT</i>	<i>MODERATE</i>
<i>Owner/Manager/Grower</i>	<i>VERY DIFFICULT</i>	<i>MODERATE</i>
<i>Extension Officer</i>		
<i>Researcher</i>		
<i>Consultant</i>	<i>VERY DIFFICULT</i>	<i>MODERATE</i>

Source: REDC Agribusiness Consultations, 2010

Agribusiness Education & Training Audit

Attraction and Retention

Industry representatives were asked about their use of staff attraction and retention strategies. They were also asked to comment on the most common reasons staff leave the industry.

All Workers	
Commonly used attraction and retention Strategies	Common reasons staff leave
Higher wages to compete with mining	Lured by high wages in Mining
Payment in kind (board, utilities, food)	Rural centres used as training ground before leaving for higher paying metropolitan positions
Developing strong relationships with contract staff	Cost of living/housing
	Dissatisfaction with the industry/industry not meeting expectations

Source: REDC Agribusiness Consultations, 2010

Training

Industry representatives were asked to rate their level of satisfaction with the training and education currently available in terms of quality and availability.

Role	Quality of training available	Availability of training
Grower	POOR/MODERATE	POOR/MODERATE
Consultant	POOR/MODERATE	POOR

Source: REDC Agribusiness Consultations, 2010

Training content

Respondents were asked how they rated the content of training being provided and on the whole were happy with the content of courses, rating it as 'good.'

Training method of delivery

Respondents were asked how they rated the delivery methods of training. Key issues that arose included:

- **Preference for face-to-face delivery in a group environment** - enabling knowledge sharing and the ability to network with other growers.
- **A frustration with lack of locally based training** – suggestions that expense is a driving factor behind the lack of courses available.

Agribusiness Education & Training Audit

General Comments on Improvement of Training

Respondents were asked for general feedback in relation to how training could be improved. To improve attendance and relevance a number of strategies were suggested, including:

- Consultation with industry in relation to timing of events (eg taking into consideration harvesting times and having flexibility around weather)
- An increase in targeted advertising
- Improving methods for stakeholders to see what training was available
- Subsidising courses to ensure growers have proper training in key areas in order to avoid conducting activities illegally (eg chemical drift issues)
- General subsidising of courses that are relevant
- Farmers deciding to undertake approved training courses at short notice due to changed conditions on properties e.g. harvest time delayed, may not be eligible for reimbursement because they do not have enough time to complete the pre-approval process.

Grain

Industry Comments on ensuring the success of the sector

During the consultation process some issues that were highlighted by growers was the need for recognition of the impact of mining and/or mining infrastructure on farming properties and workforces. Skills attraction is of concern due to factors such as competing with high wages offered by mining industry, close proximity to the mining areas and the lack of housing and/or affordability due to subsidised housing offered by the mining industry. A focus of the consultations was on knowledge sharing within industry, access and timing of formal training and professional development for staff. Some suggestions included a need for an attitude change on the part of agricultural managers and business owners in relation to the need for training, and also the encouragement of farmers to invest in high quality workers who have training and are aspirational in terms of career prospects. There was a recurring concern about the lack of new people entering the industry and it was suggested that the promotion of agriculture in schools and working harder to attract people into the industry may help the situation.

Common Themes across all industries

During the consultation process, there were themes that were common across all industries within the Mackay-Isaac-Whitsunday region. Recognition of the threat of mining on agricultural skilled workers, this includes feeling the employees could not compete with higher mining salaries. There was also concern about attracting and retaining new people into the industry. The feeling of great loss with the reduction of extension officers was felt mostly by the horticulture and the sugar industries. While the cattle and grain industries were most concerned with the threat to land security due to mineral deposits found under their properties.

Agribusiness Education & Training Audit

Part D - Recommendations

May 2011

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Agribusiness Education & Training Audit

Table of Contents

Introduction.....	2
Overview	2
Gaps Identified	3
Knowledge Sharing	3
Training	3
Skills Attraction	7
Connectedness.....	9
Government commitment	11
Summary of Recommendations	13

Agribusiness Education & Training Audit

Introduction

Overview

The Agribusiness Education and Training Supply Chain Audit aims to enable the Mackay-Isaac-Whitsunday region to understand and respond to increasing skills demands in one of its major commodity industries; agribusiness.

The overall project will establish strategic dialogue between industry and skills providers at key points in the region's education and training supply chain and will be conducted in four parts:

1. Part A – Industry Overview
2. Part B – Supply audit
3. Part C – Demand audit
4. Part D – Analysis & Recommendations

This report concludes the final stage, Part D, of the Agribusiness Education & Training Supply Chain Audit for the Mackay-Isaac-Whitsunday region. It includes recommendations and strategy for the outcomes identified to increase the attraction of education providers in the gaps identified and/or information to increase the capabilities of current providers to meet market demands. It also incorporates recommendations in relation to general issues within the industry.

Part A provided an overview of the identified industries within the region.

Part B documented the agribusiness training and education supply chain from primary school through to higher education and associated courses.

Part C documented industry consultation on emerging technologies, their current and future demand for skills and their level of satisfaction with current training packages available.

Agribusiness Education & Training Audit

Gaps Identified

Knowledge Sharing

Consultation with agribusiness representatives highlighted a general feeling of concern about the level of information and knowledge that has already been lost, and continues to be lost, due to experienced individuals retiring or leaving the industry. New inexperienced workers take a minimum of 12 months to become productive and then could leave to work in the more lucrative mining sector. The number of experienced staff remaining in the mentoring role with new staff (important for their skills development) has generally diminished.

Industry representatives indicated that the agribusiness industry has been greatly impacted by the loss of extension officers, who were previously employed by the Department of Employment, Economic Development and Innovation (formerly the Department of Primary Industries) to provide on-the-job assistance to growers. The provision of this service was highly regarded by industry who considered it to be an invaluable resource for accessing knowledge, expertise and information.

Private consultants are available to industry on a fee-for-service basis, however many smaller agribusiness owners indicated that they lack the resources to seek outside consultancy services. Because information is now accessed on a fee-for-service basis, information is guarded and knowledge-sharing across industry has suffered. The sugar industry however has generally maintained a good level of information provision through BSES and local Productivity Services.

A reintroduction of the extension officer service by government would be welcomed by industry and address an urgent need for the retention of the skills and knowledge essential for the success of the industry. This program could also be a vehicle for training skilled workers for the future under the mentoring and cadetship program which previously existed and very highly regarded.

This system may encourage some ex-extension officers with a wealth of experience and knowledge to re-enter the profession and assist with the training of the next generation of extension officers.

To cover costs, the program could be partly funded by government, partly fee-for-service and be phased in gradually with a view to it becoming a fully user-pays system.

Training

Management and Incentives

During the consultation period, the lack of access to training for middle management staff was one issue raised. Industry indicated that the preferred training would ideally include Human Resource components with an agricultural focus. This form of training would be suited to managers of packing sheds and production managers. Currently there is training for Rural Business Management but that course focuses on financials and other skill sets relatable to the manager/owner of the business. A

Agribusiness Education & Training Audit

Frontline Management course, with an agricultural focus particularly with HR competencies would be beneficial.

At present, there is no scope within the User Pays System of training delivery to include higher level qualifications to be offered as traineeships in either Frontline Management or Rural Business Management. It is recommended that an assessment be undertaken in relation to skills shortages within the various industries across the Mackay-Isaac-Whitsunday region particularly in the fields of machinery operation across the region and middle management in the Horticulture sector. Upon assessment, recommend that higher level training be funded for middle management traineeships under the User Pay system to encourage up skilling and retention of employees. This would encourage farmers to invest in high quality workers who have long term career aspirations.

Delivery method

Results from the consultation process in relation to preferred mode of delivery was overwhelmingly in favour of locally based face-to-face delivery. The costs of attending training away from the property can be both costly and time consuming.

Many RTOs contacted were willing to travel to offer training with a minimum number of course participants which reduces the cost of the training and the time away from properties. This also means that multiple personnel from businesses can attend.

Most RTOs consulted were also willing to package different training courses together and deliver as block training such as forklift training with tractor and GPS training. Quite often RTOs were willing to deliver training on farm sites and farmers can utilise the training in order to complete productive tasks on the farm, such as tractor training can be taught in the field during planting time.

As member organisations have an understanding on preferred timing for training, it is recommended that RTOs and member organisations communicate in order to deliver the right training at the right time and deliver the training in the right way. Member organisation could be the facilitators in collecting expressions of interest from its members and communicating information to the RTOs. RTOs can also market the availability and timing of expected training to the community. The coordination of training, if sourced out of the region, can be both timely and cost effective for participants.

Some courses require an element of external or correspondence with the training provider. The majority of these courses are now available online. Some issues that were identified as prohibitive to participation in external courses is that some growers and producers only had limited and/or slow internet access, farm printers were too small to print large volumes of course materials and that farmers were unaccustomed to reading from computer screens for prolonged period of time. It is a recommendation that a government department such as DEEDI provide a service at cost to the participant to print course materials upon request.

Agribusiness Education & Training Audit

Access to funding

With the changing conditions on farms in part to weather conditions and being unaware of training offered, a farmer's availability to attend a training session may not be able to be determined until shortly before the training is conducted. This can disqualify them from receiving reimbursement through the Farm Ready grants in which training must be pre-approved five days in advance. It is recommended that processes be streamlined to incorporate fast-track approvals for applicants applying at short notice, thereby encouraging participation in training at a time that is suitable to the farmer.

Awareness

During the comparison between the supply of training available and the demand of the industry, it was identified that some training options were already available and that awareness of available training needed to increase. Within the Horticulture sector of Bowen it was a recurring issue that access to forklift training and tractor training was limited.

One RTO consulted about their scope of training also mentioned that they provide machinery training. Their company is based in Toowoomba but they have been travelling to Bowen for the last five years and delivering forklift training to the unemployed coordinated through a JSA provider. They can also deliver training for tractor and GPS.

Most RTOs contacted via the National Training Information Service (NTIS) website were willing to travel to delivery training to communities. It was recommended during consultations to create a database that lists the availability of training Australia wide. The NTIS website is not user friendly for individuals with limited computer skills and/or knowledge of RTOs.

Through the process of locating RTOs willing to deliver training within the region, each RTO had to be contacted directly to determine delivery mode of courses, locality of provider and/or willingness to travel to deliver training. It is recommended to enhance the capabilities of the NTIS website by incorporating more searchable functions to list all courses delivered in particular areas (postcodes) including short courses/ block training, delivery mode of courses, minimum number of course participants if provider travelling to deliver course face-to-face. Also, the inclusion of a calendar which shows when RTOs are delivering courses in certain areas and a forum aiming to connect RTOs with either individuals and/or member organisations to deliver training where and when industry requires.

The ability to be able to search for careers associated with the qualifications would also benefit growers and/or member organisations to be better informed about required training to undertake for a certain qualification. Perhaps DEEDI could provide a central point of management to source training and schedule and facilitate RTOs and participants with minimum numbers and delivery of training in rural or remote areas.

Agribusiness Education & Training Audit

Timing

One gap identified between the supply and demand was the lack of communication between industry and RTOs. The timing of some training courses is not ideal in relation to the timing of farm duties such as harvest when it is not practical to leave the farm. Communication flows need to be improved between member organisation, which have the understanding of preferred timing of training and also are privy to information relating to changes in production times, and training providers. It is recommended that member organisations work in a facilitator role between farmers and training providers.

There are certain times during the year in which a large collection of farmers will meet at field days, expos, sales and local and state shows. If RTOs are delivering training packages in specific areas where there is a high representation of one sector of the agribusiness industry consultation with member organisations, one consideration would be to offer training courses around these events, especially for producers that are already travelling distances to attend.

Tailoring

During the consultations, it was suggested that training needs be tailored depending on the skill level of the group and that training must respond to the need for staff to be skilled to a certain level. This involves assessing the current capabilities of the student and then mapping the pathway to the nominated qualification. A literacy assessment across the industry is recommended as the majority of training offered is via an external delivery mode, including online and correspondence courses. The assessment of literacy levels may provide data into the suitability of the delivery of courses via correspondence to the agribusiness industry.

The need to assess the level of training required to respond to the current skills level of staff can be provided on a workplace basis. Skilling Solutions Queensland could be a way of assessing the skill levels and training needs of businesses in the region by completing skills/training audits of processing facilities, farms and other associated businesses. Ideally this could be done in partnership with member organisations to ensure maximum participation within a set time frame that suits industry.

Higher Education

During the consultation with growers and producers, the feedback about the benefits of Recognition of Prior Learning (RPL) in coordination with qualifications was positive. RPL was viewed as so effective that producers were keen to increase the capabilities of RPL by linking up with universities and incorporating into the framework of tertiary education.

At present, the University of Queensland's Gatton campus is the only provider of this service through its vocational education arm. Once individuals complete certain certificate level qualifications, it is recognised within the university and is applied to reduce course completion credits. These individuals are also given special consideration when applying to study at tertiary level

Agribusiness Education & Training Audit

with the university. It is recommended that this kind of process be extended to other tertiary and vocational education institutions operating within and close to the Mackay-Isaac-Whitsunday region; CQUniversity and James Cook University, Central Queensland Institute of TAFE, Barrier Reef Institute of TAFE and the Australian Agricultural College Corporation.

Core skills training

The need for general training of core skills consistent across farms was identified during the consultation process. Suggestions of general induction processes inclusive of generic OH&S training and practical elements such as welding, maintenance and mechanics was made by numerous farmers. The introduction of a general induction process onto farms will unify the information delivered across farms and reduce individual inductions undertaken sometimes daily by farmers.

General induction and farm readiness courses are already available from some RTOs who are willing to travel to deliver the content. RTOs such as University of Queensland Gatton Vocational Education Centre are open for collaborations with other providers that are based locally to deliver the content to workplaces and school-based training. Also the use of established, nationally accredited induction programs can be targeted collectively to regions and industries and could incorporate a mandatory training for long term employees and seasonal workers such as harvest trail workers and/or international holiday-visa workers, working across the industry.

It is recommended that growers, member organisations and local councils work together to encourage induction processes and farm readiness training in order to incorporate a generic skill set across entry-level farm workers. By pre-training employees in generic training, site specific training can be administered before starting on the farm.

Skills Attraction

Visa workers

With the access to manual labourers, predominately visa workers, declining and the predicted effect of the high Australian dollar on reducing international holiday-visa tourists, there is concern within the industry about the availability of seasonal workers.

It is recommended to review the definition of skilled worker within the '457' visa conditions. At current, some farm workers are not deemed skilled workers and are therefore not entitled to return for the additional visa stay enjoyed by workers within other industries. Some consideration also needs to be made in order to assess the availability of skilled workers in particular regions and/or industries and the amount of time that worker is required to work. Some fields of work do not allow for continual employment in order to access the benefits of extended holiday-visa guidelines. It is recommended to temporarily alter the holiday-visa guidelines due to these factors to encourage international tourists to work for longer periods of time but with more employers within regional Australia. It is also recommended to target marketing to growers and/or member organisations

Agribusiness Education & Training Audit

within the M-I-W Region of the federal government's 'Harvest Trail' website to advertise available positions for seasonal and year-long workers.

Collaborative promotion

The collective promise of the Agribusiness industry has not yet reached its full potential. With its many associations and/or affiliations within the structure of the industry, it is difficult for the promotion of the industry to be concise. In order for the industry to attract and maintain staff, the organisations need to form a collective body in order to work together to promote the strength and image of the industry by effectively communicating to students and the general community, the myriad of career opportunities/pathways available and increase awareness of the importance of the food production chain to Australia. Increasing the awareness of the industry to the public involves community engagement through promotional education materials for schools, hosting public tours of packing shed and talks from representatives of the industry with concise key messages. One example of cross-industry collaboration evident within the M-I-W Region is the "Reef Guardian Farmer" and "Reef Guardian Grazier" program. It is a voluntary program that has linked GrowCom, Canegrowers, Agforce, Regional Natural Resource Management groups, State and Commonwealth Government, schools, as well as grower/producers in the objective of engaging farmers and graziers in best practice management actions on-farms that are part of the Great Barrier Reef catchment. The results of producers and graziers has been well publicized in order to promote the industry as embracing environmentally sustainable practices.

School students

The inclusion of food production into primary curriculum is paramount to engaging the next generation into agriculture. In 2010, the Australian Curriculum, Assessment and Reporting Authority (ACARA), announced the inclusion of agriculture into the national curriculum. This inclusion was announced after agriculture was originally omitted from the proposed national curriculum. With the introduction of the national curriculum, it is timely that a new understanding of the agricultural industry be presented in a way that promotes the environment and food production practices as complimentary rather than previously being portrayed as contradictory.

It is also recommend that collaborations between schools and industry representatives be made by industry offering schools resources that are aligned to the national curriculum, incentives, programs and/or sponsorship for sustainable practices such as vegetable gardens that supply the school canteen. The newly formed Primary Industries Education Foundation (PIEF) is providing a one-stop-shop for teachers to access agriculture themed educational resources and links them to industry people. As part of their service, PIEF works with their membership base of agricultural organisations and aligns and packages their resources to the national curriculum. PIEF aims to offer no or low-cost resources to teachers.

The connections between industry and schools need to be stronger. The inclusion, depending on access to agricultural facilities, of excursions and tours of working farms and packing sheds. The creation of a Farm Visit resource kit should be readily available for interested farmers. Dairy

Agribusiness Education & Training Audit

Australia has created a kit that contains free resources to assist dairy farmers in promoting and executing school visits to their farms. Included in the kit are templates for farmers to promote their farm to schools, posters, and OH&S information and also education resources to hand out to visiting students and teachers. As the next round of FarmReady grants 2011/12 have been extended to include scope for training in agritourism and food tourism, these resource kits can be promoted to strengthen that connection between school and farm.

Currently the first exposure to a dedicated agricultural subject is Grade 8 or 9 at participating schools. Initiatives at a high school level, where industry and schools link students wanting to experience farm life with a working farm willing to offer work experience during the school holidays. As a result, students may undertake a school-based traineeship and the industry can promote their successes. Industry and universities also need to communicate to students and the public the long-term career prospects of tertiary qualifications in agriculture.

Connectedness

Identifying roles of key players

During consultations with farmers, a recurring perception was that training does not genuinely reflect industry needs.

In 2004, AgriFood Skills Australia, along with 10 other Industry Skills Councils, was launched. This new framework set to deliver training packages that were industry driven and relevant. Assisting AgriFood Skills Australia with industry feedback are 5 advisory committees. The advisory committee responsible for providing feedback from industries represented within the M-I-W region, is the Rural and Related Standing Committee. The members of the committee responsible for feeding back information from M-I-W industries in relation to training and their scope of reference are AgForce (beef), Horticulture Australia Limited (horticulture) and the Western Australian Farmers Federation (broadacre including grain). CANEGROWERS was consulted during the development process but a present there is no direct representative on the committee for sugar cane production. It is recommended that AgriFood Skills Australia includes a representative for the sugar industry onto the committee. Also the collaboration between industry and training bodies needs to be promoted to educate farmers about how their organisations are working for them by feeding back information into the body that is responsible for creating their training packages.

Connectedness between organisations within the Agribusiness has not always been apparent. Previously the connectedness between organisations including collaborations, memberships, affiliations and working relationships, has not always been well promoted. In order for the whole industry to strengthen and flourish, it needs to promote itself and work together.

At present, the majority of industry organisations and industry advisory groups do not have a list of affiliations and represented organisations that are freely available to the public. Membership and affiliation connections need to be acknowledged in the least via website links. Clearly identifying and mapping feedback processes between all industry advisory groups and representative bodies,

Agribusiness Education & Training Audit

encourages transparency to enable people at the grassroots level to understand how their feedback will reach decision makers in the training field. See Appendices 1 – 4 which chart the connection of member organisations relevant to the industries in the M-I-W region through to the DEEDI Rural Labour and Industry Advisory Group and AgriFood Skills Australia Rural and Related Standing Committee, which provides a starting point for any future mapping of the industry. It is hoped a document like this would enable organisations to clearly demonstrate their role in advocating for their members in the areas of education and training and would hopefully strengthen participation in grassroots level membership groups by producers and growers.

Facilitate collaboration

The organisations within the Agribusiness sector tend to operate individually and are reluctant to share knowledge and access to resources. Many organisations appear to ‘go it alone’ when creating initiatives. Rather than communicating and working together to form a collective initiative that can be translatable across various industry within the agribusiness sector. Many frameworks within industries have relatable applications within other industries. GrainGrowers has redirected their approach in order to better utilise the industry. Currently, they are creating a program that utilises spatial mapping and Google Earth. This allows growers to plot their property using Google Earth imagery with the types of grain planted, price received for crop, chemicals used. It also compares the location of their property to others within in their LGA. After all information is compiled, growers yields can then be compare against the average of the other local growers. This program has the capability to be repackaged for use in the beef and sugar industries. The sharing of knowledge and available resources, allows the industry to progress forward rather than spending money recreating similar programs and initiatives. Currently there are three general farm induction programs running in Queensland alone. They are all offering training in generic workplace health and safety, ability to keep records of skills demonstrated in previous employment and issue licence cards. Two of these three are also nationally accredited and contain unique identifier for paddock trace back capabilities. In order for true industry collaboration and progression, all organisations need to work together.

Networks and connections between organisations, training bodies and government need to be created and strengthened at a national, state and local level. Regional collaborations between JSA, member organisations and government agencies need to be encouraged in order to capitalise on training that may be sourced outside of the region.

Info sharing

The links between agribusiness organisations needs to be strengthened and made more transparent in order to communicate effectively and efficiently industry’s feedback about the quality and accessibility of training. There is a focus on individual rather than industry wide goals and some growers within the M-I-W region are reluctant to share knowledge and are protectionist in nature. This is also indicative of some organisations within the industry. Open communication is required in order to share information efficiently between organisations.

Queensland Farmers Federation (QFF) is the Peak Industry Body for Queensland for irrigated crops. National Farmers Federation (NFF) is the National Peak Industry Body for Agriculture.

Agribusiness Education & Training Audit

CANEGROWERS Australia is a national farming and member organisation and also a member of both NFF and QFF. QFF is not a member of NFF and is not represented on the Rural and Related Industry Standing Committee. In theory, if QFF has training feedback for the standing committee, it has to communicate that information via CANEGROWERS Australia who then communicates with NFF. The fostering of working relationships between organisations is recommended in order to channel industry feedback directly to the standing committee.

By establishing more effective communication networks between industry stakeholders, this allows information to be shared about issues and events including training opportunities, funding and community support. Methods that could be utilised to encourage this include member distribution lists, online noticeboards, forums, newsletters and networking events.

RTOs also need to share their training opportunities with organisations. For example, if RTO is willing to travel to Clermont to train beef producers and requires 10 participants to hold the course, they should be able to contact a member organization representing graziers in the Clermont region and ask for that information to be forwarded to the individuals. The organisation, acting in a purely facilitator role, may then send out an email to members located in the Clermont region, who then contact the RTO. This organisation could then send the information via the industry network to other organisations.

Government commitment

A common recurring theme throughout the consultation period was a feeling of being forgotten by government and policy makers until recently due to the problems with the food production chain highlighted during the 2011 floods in Queensland. Many farmers consulted felt that the government needed to acknowledge the increased pressure on the agribusiness sector by the mining industry. Not only are farmers impacted by the loss of skilled workers to the higher wages offered by the mining industry, but the constant threat to their land security due to the discovery of coal and gas deposits located under their properties more so in the regions of Isaac and Whitsunday. Due to these issues, some generational graziers would not encourage their children to continue farming. It is recommended that the government offer strong long-term commitment by real issues of the industry such as land insecurity due to coal and gas deposits under properties, shoring up food safety issues and repair to roads to limit disruption to food supply chain.

A commitment is required by the government to provide agricultural education to students living in areas heavily represented by agriculture. At current a strategy is needed within the Bowen horticulture sector in order to attract and retain staff and also to encourage future employees into the industry by engaging school-based trainees. Bowen and Gumlu District Growers Association (BDGA) and AACC are currently working with Bowen State High School (BSHS) by offering school-based traineeships with local growers. This program needs to be expanded by re-establishing the agricultural department at BSHS and awarding it an Agribusiness Gateway School status.

One recommendation to facilitate training that is suitable to farmers was that DEEDI could provide staff to facilitate the training requirements of the industry and/or member organisations. The staff would act in a role where required trainers are sourced and connected to growers, farmers and/or

Agribusiness Education & Training Audit

member organisations in order to deliver training that is both relevant, accessible and in a desirable delivery mode.

Housing affordability is an issue when attempting to attract staff to the industry. Some industries in particular beef and grain have to compete with the mining industry to secure housing for employees. Previously remote living allowances were offered to the award. It is recommended introducing additional allowances for remote living for agricultural practices to encourage staff to remotely located properties and also creation of affordable housing particularly in areas of great demand.

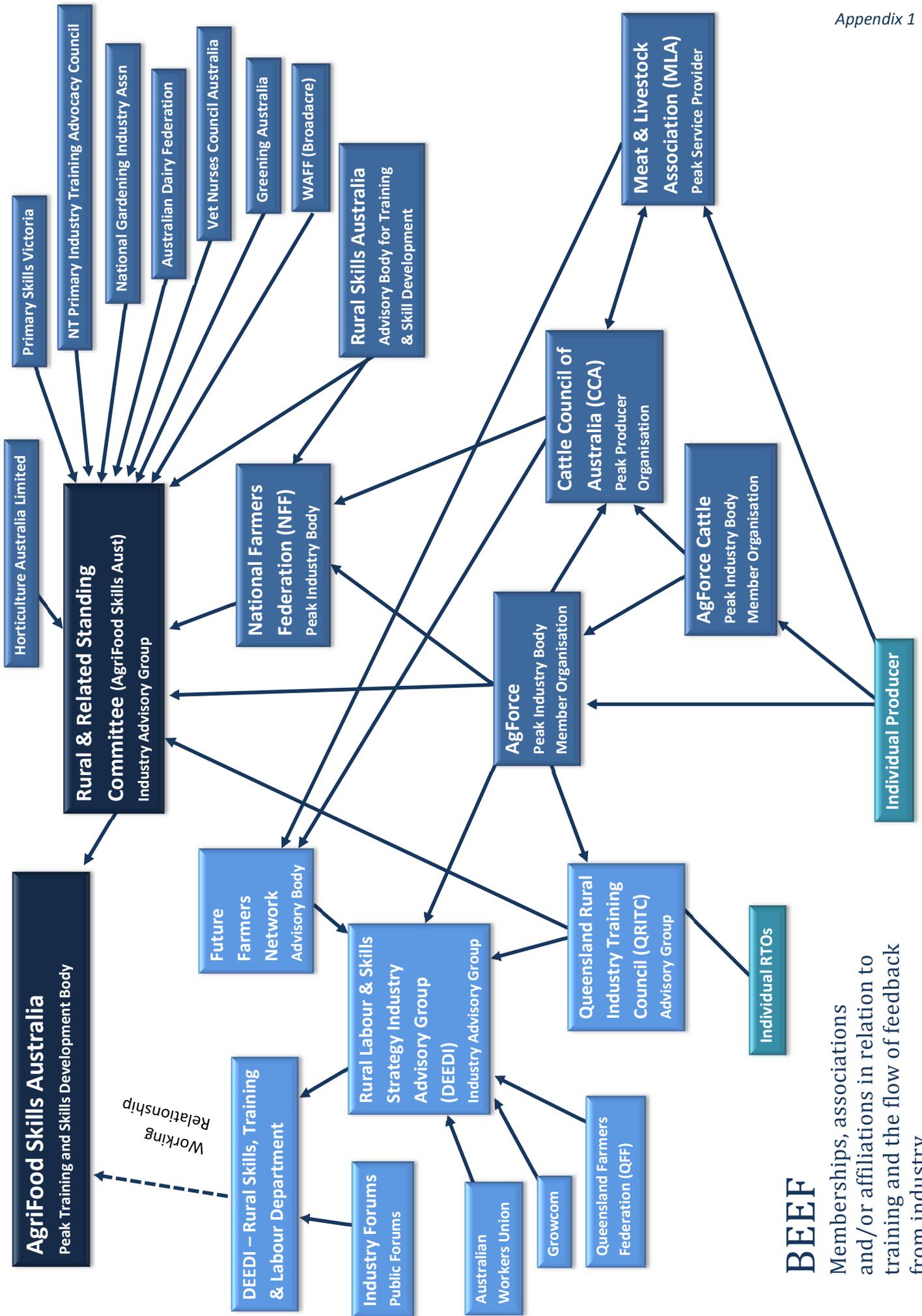
Agribusiness Education & Training Audit

Summary of Recommendations

- 1. Strengthen communication between industry stakeholders, representative bodies and training advisory groups.**
 - a. Improve agribusiness stakeholder awareness of governing bodies, advisory bodies and the communication channels available for providing feedback on quality, delivery and content of agribusiness-related training and education.
 - b. Identify all agribusiness stakeholders, advisory bodies and representative bodies, their roles, methods of engagement with industry and map the relationships between them.
 - c. More effective communication of issues, events, training opportunities, funding and community support. Possible mechanisms include member distribution lists, online noticeboards, forums, e-newsletters and networking events.
 - d. Improvement of the National Training Information Service (NTIS) website to make it more user-friendly and to include information such as RTO delivery locations, delivery modes and minimum numbers required for face-to-face workshops. Website could also include a training calendar or searchable database of upcoming courses and a mechanism for industry to provide feedback.
 - e. Inclusion of a sugar cane representative on the AgriFood Skills Australia Rural and Related Standing Committee to represent interests of the sugar industry.
 - f. Introduction of state advisory bodies for Agrifood Skills Australia that report to national advisory bodies.
- 2. Improved relationships and communication between industry stakeholders and sectors.**
 - a. Encourage knowledge sharing on common issues and challenges so as to improve effectiveness and avoid duplication of strategies being developed.
- 3. Collaborative promotion of agribusiness-related career pathways and opportunities.**
 - a. Development of an agribusiness/food production suite of promotional materials which showcases career pathways and opportunities across all agribusiness sectors.
 - b. Promote agribusiness as being in the business of 'food production' – allowing more effective communication of career opportunities/pathways to students and the wider community;
 - c. Attract new recruits to the industry by increasing school student exposure to on-farm experiences via the use of school-based traineeships, tours and work experience opportunities.
 - d. Inclusion of Bowen State High School into the Agribusiness Gateway Schools Program and investing in a strategy to skill and retain staff and promote agricultural careers to students.
 - e. Promotion of environment and food production as complimentary within the primary and secondary education curriculum.
 - f. Inclusion of food production themes into curriculum (i.e. agribusiness-focused activities in current maths, science and study of society subjects) rather than offering agricultural studies just as elective courses.

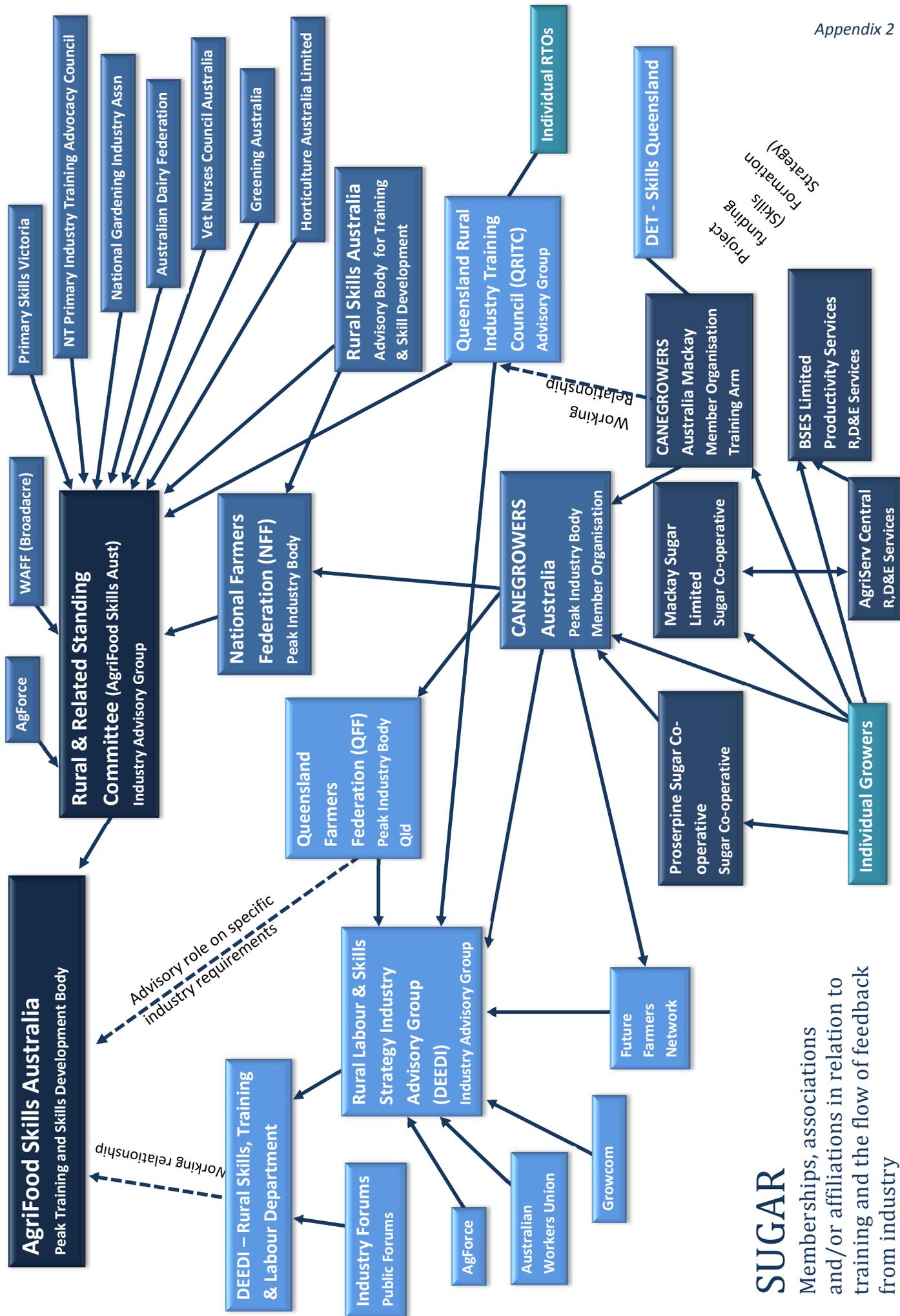
Agribusiness Education & Training Audit

- 4. Tailoring agribusiness training and education to include a focus on business and human resources management.**
 - a. Integration of business and human resources components into agriculture-focused qualifications
 - b. Introduction of incentives/subsidies to encourage up-skilling of existing workers into middle and upper management positions, thus improving retention of staff and alleviate pressure on businesses owners who often fulfill these roles due to a lack of appropriately trained management staff.
- 5. Improve access to education and training-related assistance.**
 - a. Streamlining of the pre-approval process for FarmReady reimbursement grants – allowing for short notice applications;
 - b. Targeted engagement by Skilling Solutions QLD – to promote services and encourage uptake of skills training audits for agribusiness operators.
 - c. Qld Department of Employment, Economic Development and Innovation to provide printed course materials to agribusiness owners in order to reduce challenges faced by those with limited access to quality internet connections required for online training.
- 6. Facilitation of knowledge and information sharing**
 - a. Reintroduction of the Queensland Government’s extension officers in particular soil conservation officers – to be implemented gradually, initially as a subsidised service with a view to becoming a fully user-pay system.
- 7. Improve opportunities for Recognition of Prior Learning (RPL)**
 - a. Encourage partnerships between vocational education providers and universities to maximise opportunities for articulation from certificate and diploma courses into degree level programs.



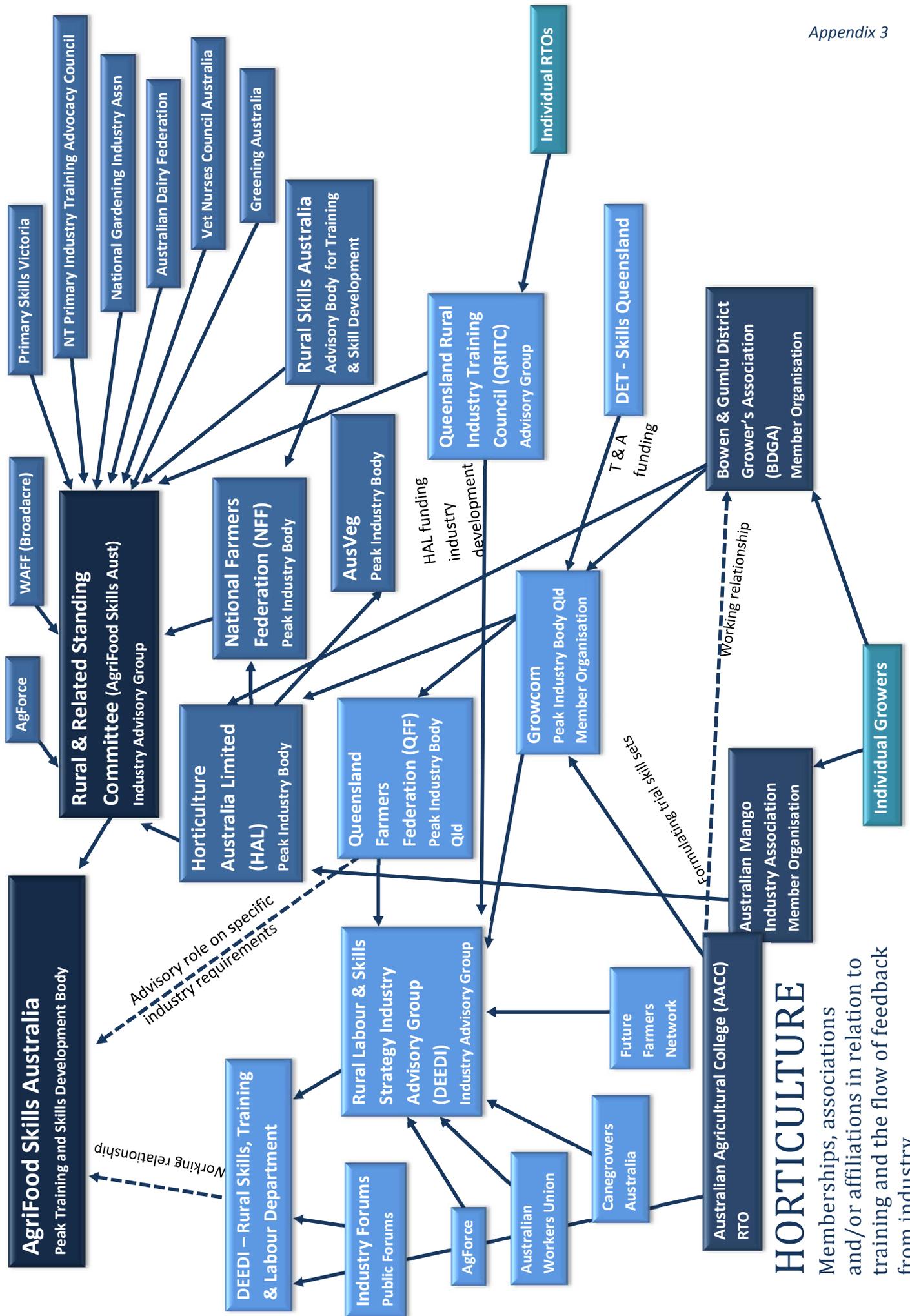
BEEF

Memberships, associations and/or affiliations in relation to training and the flow of feedback from industry



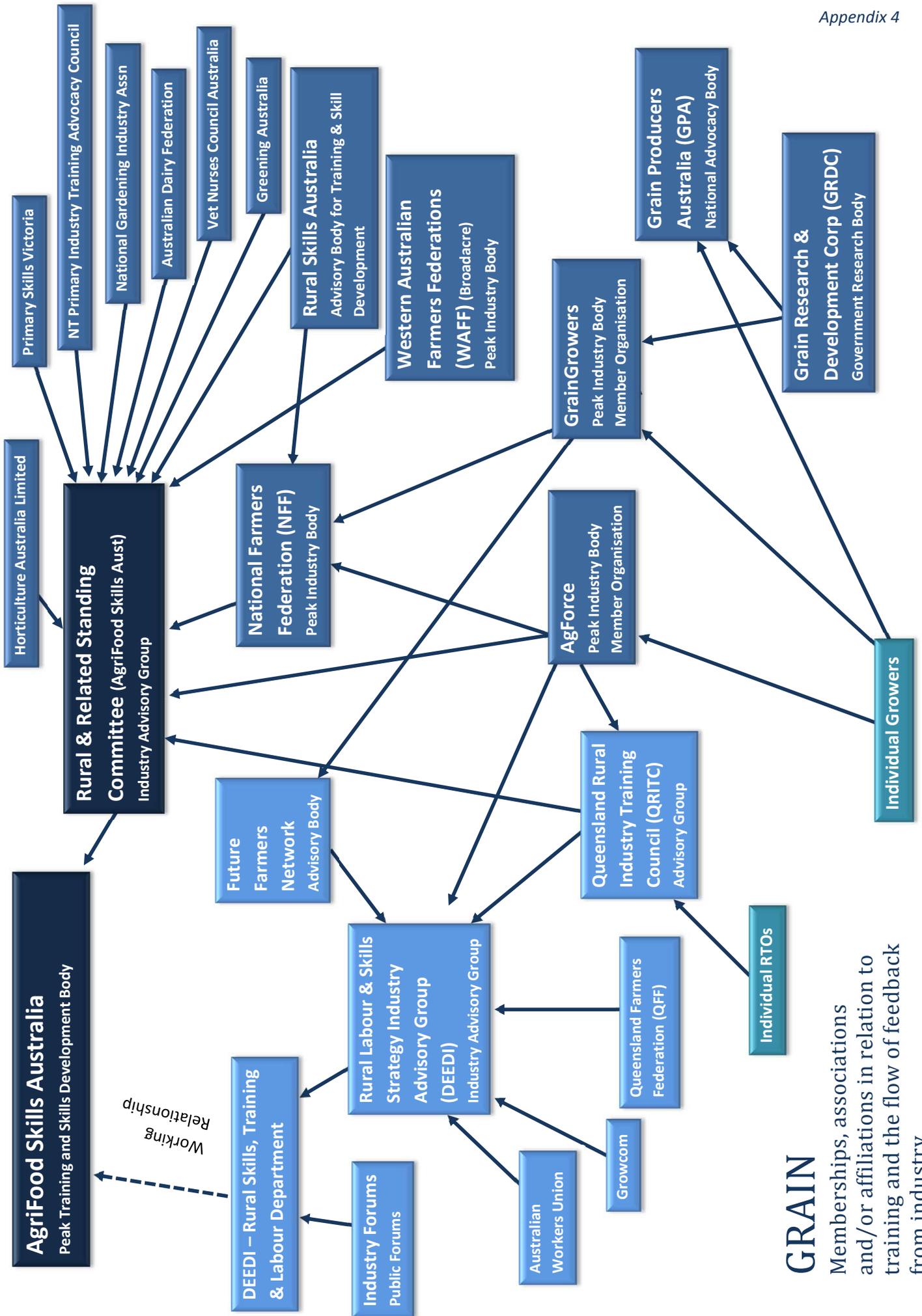
SUGAR

Memberships, associations and/or affiliations in relation to training and the flow of feedback from industry



HORTICULTURE

Memberships, associations and/or affiliations in relation to training and the flow of feedback from industry



GRAIN

Memberships, associations and/or affiliations in relation to training and the flow of feedback from industry



BOWEN GUMLU HORTICULTURE WORKFORCE DEVELOPMENT STRATEGY

1. Attracting New Entrants to the Industry

- Develop promotional materials to showcase career pathways and opportunities - Agriculture as the business of food production
- Develop local Schools/industry program
- Tap into under-utilised labour market

2. Supporting Recruitment into Local Jobs

- Develop tools to assist local businesses to use effective recruit practices
- Investigate potential of BGGGA to act as recruitment agency
- Standardised local OHS/Induction training for seasonal workers and new entrants

3. Ensuring Workers are Retained/Returned to the Sector in Face of Competition from other Sectors

- Develop tools to assist local businesses to use effective human resource practices that enhance retention of permanent and regular seasonal staff
- Investigate for "cadetship" approach for existing workers that rewards up-skilling with career progression and/or other incentives

4. Develop and Recognise the Skills of the Industry at all Levels

- Identify the base-level skills that local employers acknowledge as desired for new entrants into the sector
- Determine preferred model/s of entry of workers into permanent workforce
- Develop and maintain industry standard "skills in demand" list for existing workers, including business owners/managers
- Promote value of training and recognition of skills in optimising on-farm practices; increasing productivity and building a larger pool of skilled workers in the district
- Coordinate training and recognition opportunities

- Investigate potential for higher qualification (eg. Post-graduate) and better articulation between VET and higher education

5. Build Industry Capacity and Ensure Agencies and Providers Collaborate with Industry to Develop Appropriate Responses

- Establish a local industry/agency/provider reference group
- Identify the wider network of service providers and government agencies and the contribution they can make to supporting the industry locally

CURRENT/PROPOSED ACTIONS

Bowen State High School/BDGA Schools Program (**Strategy 1**)

- Develop promotional material for distribution to students; staff and parents outlining the careers and opportunities on offer along the local food production supply chain (**BGGA/DET/DEEDI/ Bowen SHS**)
- Increase student and staff exposure to industry through farm visits and on-farm work experience (**Bowen SHS/BGGA**)
- Establish a school-based traineeships program for students, tentatively based on Production Horticulture Certificate II. To commence in 2012 (**Bowen SHS/DET/AACC/ BGGA**)
- Provide industry-centric OHS/Biosecurity induction for students and staff to undertake prior to going on-farm (**Bowen SHS/AACC/ BGGA/DEEDI**)
- Participate in the DEEDI review of the Qld Agribusiness Gateway Schools program and determine the future place of Bowen SHS in the program (**BGGA/DEEDI**)

Long-term Unemployed Program (**Strategy 1**)

- Develop proposal to pilot group of appropriate persons to train and work on-farm under Skilling Queenslanders for Work program (**DEEDI/BGGA**)

Seasonal Worker OHS/Induction (**Strategy 2**)

- Develop proposal to implement the VUMI (view me) online resume facility as a means of providing coordinated support for local business to recruit. Possibly to be a pilot in the Bowen and Bundaberg districts (**DEEDI/BGGA/BFVG**)
- Explore links/opportunities with National Harvest Trail and Federal Job Placement programs (**DEEDI/BGGA**)

Identification of Base-Level Skills (**Strategy 4**)

- Consult with industry to determine the suite of skills (eg. Skill set) considered as an appropriate minimum to consider employing a new entrant to the permanent workforce (**BGGA/Agriscience Qld/DET**)

Building Industry Capacity/ Ensuring Collaboration/Commitment (**Strategy 5**)

- Industry Development Officer, Bowen Gumlu Growers Association is a member of the Qld Government Horticulture 2020 Workforce Development Plan (**DEEDI**/BGGGA)
- Developing industry links with other districts (eg. Bundaberg Fruit & Vegetable Growers) and relevant associations (eg. Growcom) to identify collective strategies/initiatives/issues (**BGGGA**/DEEDI)
- Investigating opportunities to get local support person to lead implementation and coordination of Workforce Action Plan (**BGGGA**/DEEDI)
- Convene regular Bowen Gumlu Horticulture Workforce Group to provide networking opportunity; identification of new opportunities and emerging needs; development of initiatives; oversight of Workforce Action Plan; provides links to State and National Workforce funding and policy (**DEEDI**/BGGGA/relevant agencies and providers)



Proposal: Industry-based Workforce Coordinator

Bowen & Gumlu Horticulture Workforce Coordinator

Duration: Full-time 3 years commencing January 2012

Funding required: \$80,000 per year

(includes base salary, super and on-costs, travel expenses and vehicle lease)

PURPOSE

The purpose of the role is to build the capacity of the Bowen and Gumlu horticulture growers and support them to collectively address skilled labour shortages that threaten their productivity and their long term sustainability of the industry.

BACKGROUND

The broader Bowen district, incorporating Gumlu, is the largest winter vegetable growing district in Australia. The district benefits from a regular season beginning in March and finishing in November and a steady supply of unskilled and semi-skilled labour (eg. International and local travellers).

However, permanent workforce stability has increasingly been characterised by increased attrition with many highly skilled workers and farm managers leaving to work in the construction and mining sectors.

This attrition impacts greatly on productivity and increase total labour costs, including the ability of growers to successfully induct and supervise the unskilled/semi-skilled workforce.

The sector offers considerable opportunity for local residents, including school leavers and is rewarding on many levels – although the image of the sector, here and nationally is often talked down and thus not considered as a career destination. It is also a great proving ground and developer of practical and professional skills – as demonstrated by the flow of labour to other sectors.

The Bowen and Gumlu Growers Association (BGGA) has recently developed a Workforce Development Plan in conjunction with stakeholders, including the Queensland Government, employment and training services providers and schools (attached).

A number of workforce initiatives have been proposed by BGGA and a sustained effort and dedicated support is required for this group to continue and ensure that these recommendations translate into on-ground outcomes.

Through a coordinated effort, work has commenced on the introduction of a Traineeship Program to commence in 2012, as well as the development of a comprehensive annual industry/schools program for implementation from 2012 and onwards.

The success of these two programs and the initiation of other key strategies will rely greatly on the ability of a dedicated person to drive implementation with all stakeholders, build the capacity of growers to engage with stakeholders and enhance enterprise workforce planning and attraction practices and nurture sustainable partnerships that benefit the sector, community and regional economy.

The availability of a reliable, appropriately skilled workforce underpinned by sound workforce planning is vital to the long term success and development of the horticulture and other agricultural industries in the region. Planning for an effective workforce needs to be long term to enable businesses and the industry collective to best manage skilled labour supply issues.

INDICATED ACTIVITIES

The Coordinator will:

- Lead the development of industry/government /community linkages to develop and implement innovative employment and training strategies, including workforce attraction, retention and skilling programs
- Implement processes and professional development activities to build the capacity of the grower sector and business to workforce planning and supply
- Lead the implementation, including oversight of the activities of relevant agencies and service providers, of key activities, commencing with:
 - 2012 Traineeship program
 - Ongoing industry/schools program
- Work closely with regional government and economic/ workforce development agencies to ensure regional strategies and initiatives support and complement workforce strategies for the horticulture sector and identify cross-sectorial synergies and opportunities
- Provide policy input into the development of employment and training policies impacting upon the horticulture sector (eg. Through DEEDI's 2020 Horticulture initiative)

KEY ACCOUNTABILITIES

The position is accountable for:

- Working closely with stakeholders to guide the development of collaborative strategies and activities to address horticulture industry workforce issues
- Assisting Bowen and Gumlu Growers Association to develop effective and sustainable relationships to underpin collaborative workforce planning
- Ensuring education, employment and training service providers truly understand industry requirements and operating environment to ensure contextualised service delivery
- Ensuring business, government, regulatory bodies and other industry sectors truly understand industry requirements and operating environment to enable resolution of issues that affect workforce supply to horticulture
- Working collaboratively with industry (eg. Via Bowen Skills Formation Strategy; directly with Mining/Construction enterprises) to explore potential to integrate existing/planned initiatives and activities to reduce duplication and optimise the use of available resources
- Providing strategic advice on skilled labour attraction, retention and development issues to government.
- Leading project work and performing industry representation as required by BGGA

OUTCOMES

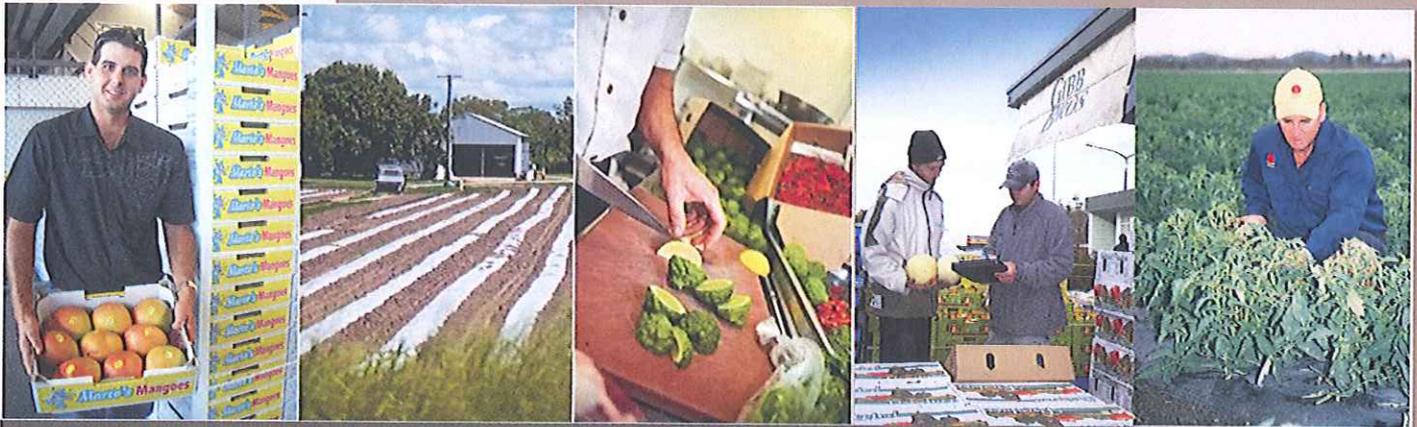
The following outcomes summarise the intended short to long term outcomes.

Short to medium term outcomes include:

- Development of open dialogue and commitment between relevant government agencies, regulatory authorities and industry to address the broader issues impacting on industry development, work and skills policy
- Developing a good understanding by industry and other stakeholders of the nature and complexity of the skilled labour issues confronting the local horticulture sector shortage issue
- Demonstration of a shared responsibility for building a skilled workforce
- Identification and implementation of immediate strategies directly related to training that will address critical issues in the short term
- Identification of and implementation of medium- to long-term solutions to industry workforce issues
- Improved responsiveness from Public and Private Training Providers to the needs of/changing needs of industries, regions and communities

Long term outcomes include:

- A sustainable mechanism for industry to continue to address skills formation within the broader context of workforce management and business strategy
- Identification and implementation of longer-term employment and training strategies An agreed approach to future negotiations around government expenditure on vocational education and training
- Expansion of networks to facilitate pathways through schools, higher education, professional development, career pathways, vocational education and training, informal learning and training
- Consolidation of industry commitment to the attraction, development, effective utilisation and retention of skills
- Inter-business/organisation collaboration
- Changes or adaptation to/of VET policy and practices that currently have negative impacts on skills formation
- Implementation of skills formation strategies as the new process of engagement between industry, government and other stakeholders.
- A sustainable mechanism through which the Skilling Queensland (including its primary industry engagement group) , DEEWR and the Qld Department of Education and Training Arts can negotiate and liaise with industry around publicly funded training and leverage arrangements.



Fruit & Vegetable **INSIDER**

in this issue >>>

- ⇒ *Melon Levy Soon!!*
- ⇒ *Farmers Market Update*
- ⇒ *Export to Vietnam*
- ⇒ *Industry Development Officer Update*
- ⇒ *News from Growcom*
- ⇒ *AMIA AGM*
- ⇒ *Proposed Suspension of Dimethoate*
- ⇒ *Irradiation and Fruit & Vegetables*
- ⇒ *Economic Brief*
- ⇒ *BGGA Membership*
- ⇒ *Sponsors*
- ⇒ *What's cooking in the kitchen*

*Bowen Gumlu Growers
Association Inc.
September 2011 Edition*

Industry Development Officer invited to BFVG Fruit fly and Dimethoate Forum

The IDO headed down to Bundaberg to attend the 'Understanding Fruit fly, what the loss of key crop protectants means for market access and field crop protection, and exploring ways forward in Integrated Pest Management' forum.

Presentations by experienced staff from the Department of Employment Economic Development and Innovation, Griffith University, Queensland University of Technology, Bugs for Bugs, Horticultural Crop Moni-

forum. research outcomes being delivered through national communications strategies and future research needed to be undertaken in the Bundaberg region, as well as the key priorities for the industry at a local, state and national level.

The forum covered topics such as the status of the APVMA review of dimethoate and Fenitron, Potential alternatives for Fruit fly management (pre & postharvest), Process of applying for special use permits for crop protectants, Fruit fly biology and ecology, Current research project outcomes, Field practices for the suppression of Fruit fly, Practices to control Silverleaf Whitefly, and Fruit fly control for Queensland strawberries using Integrated Pest Management



Peter Hockings A/CEO BFVG, Denise Kreymborg IDO, David Moore General Manager Industry Services HAL

tors, CSIRO and Bundaberg Fruit and Vegetable Growers.

The IDO provided advice on research and development currently being undertaken by industry in Bowen and Gumlu, Government and other

When asked about why the Bowen potential 'Systems Approach' might be successful, the IDO pointed out the fact that growers have been extremely proactive in this area and part funded this and other projects in collaboration with Government and industry levies which supports the best outcome for the region.

The project has also been in place over the past four years which meant the industry isn't trying to come up with solution to Fruit Fly management now that the industry could see a loss of key crop protectants.

Melon Levy Ballot Closing Soon!!

Make your vote count!

The formal ballot for the Watermelon Levy proposal is on now and all growers are urged to cast their vote.

"This proposal is incredibly important for our industry and we need every grower to take part" said Mark Daunt, AMA Chairman. "The Watermelon industry is at the crossroads. Production is increasing but demand is flattening-out. So when supply exceeds demand it can mean only one thing – lower prices for growers.

With a strong, levy-funded promotion program we can increase consumption and influence the market. This is our one chance and we must go for it".

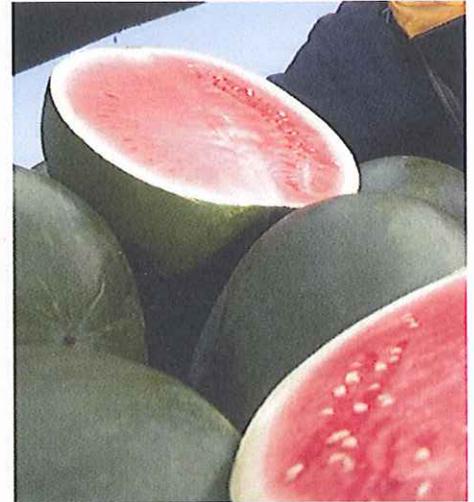
AMA strongly recommends that growers vote YES in support of the proposed levy.

Full details about the levy are available at [Australian Melon Association » Watermelon levy](http://www.melonsaustralia.org.au/news/More-levy-information) <http://www.melonsaustralia.org.au/news/More-levy-information>.

Any grower who has not received ballot forms should contact the Ballot Manager, Richard de Vos on 0413 588 054, immediately.

The ballot closes on September 26.

For further information please contact Dianne Fullelove, Melon IDM idp@melonsaustralia.org.au



Whitsunday Farmers Market Stall Holder Forum Sept 14, 2011

Invitation

The time has come for anyone interested in taking a stall at the Whitsunday Farmers Market to step forward by attending a Stall Holder Forum next week. This is a golden opportunity for anyone who has ever thought about making a food product – as well as established manufacturers – to follow their dream.

Shane Stanley, the brains behind the successful Noosa Farmers

Market and two other markets in Queensland, will share his extensive knowledge about farmers markets and marketing your products.

We have opportunities for people to share available horticultural land and use fully equipped commercial kitchens at very low cost so if you have the motivation to become a stall holder there really is nothing stopping you.

So far, makers of cakes, muffins, icecream, pasta, muesli, chocolate, honey, fruit drinks and relishes have stepped forward. Meat and seafood will also be sold at the market and providers of hot takeaway food are also being sought.

This farmers market will strictly sell locally produced food, beverage and plant products. Sorry no art or craft stalls will be accepted.

Bowen

Date: Wednesday, 14 Sept

Time: 4pm - 5pm

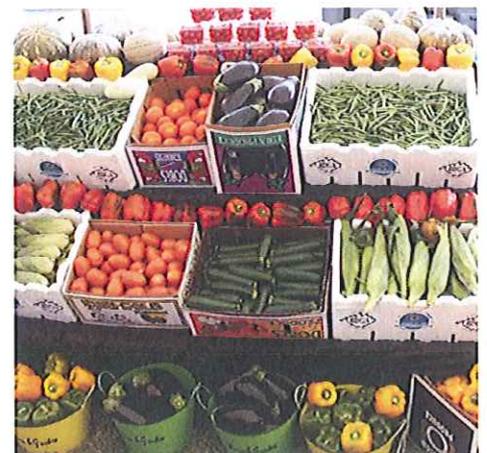
Location : Cafe 360 on Flagstaff

Please ensure you RSVP

Phone: (07) 4946 0111 Fax:

(07) 4946 0112

Email: projectmanager@enterprise-whitsundays.com.au



Removal of export allowances to Vietnam

The Department of Agriculture Fisheries and Forestry (DAFF) has advised that the Vietnamese government has removed Australia from the list of countries to export plant products to Vietnam. This decision is pending the approval of exporting countries under Circular 13. DAFF advises that trade will be disrupted and recommends that exporters discuss Vietnam's requirements with their importers prior to sending fresh produce of plant origin to Vietnam.

The Australian Government will continue to make representation to Vietnam on this issue. [Click here](#) for a list of affected products and commodities.

Invitation to industry: Chemicals of Security Concern focus groups

In 2008, the Council of Australian Governments (COAG) finalised its review of the regulation, reporting and security surrounding the storage, sale and handling of chemicals of security concern. As part of this review, COAG identified 96 chemicals that could potentially be accessed by terrorists in the Australian context. It also agreed to undertake a comprehensive risk assessment of each of these 96 chemicals.

The Attorney-General's Department is in the process of preparing a Regulatory Impact Statement (RIS) relating to proposed new chemical control measures.

The 11 chemicals that this RIS will examine have been identified as being precursors to home-made explosives but also have applications of use in the horticultural industry. Please note that Ammonium Nitrate is not being included in this RIS and will be subject to separate investigation.

Price Waterhouse Coopers has been engaged to prepare this RIS, and will host a series of focus groups in all capital cities excluding Canberra with the Brisbane meeting set for Tuesday, 13

September.

There is an invitation for industry input. We encourage you to examine this, and if you feel that you will be affected by further regulation of these 11 chemicals, we encourage you to register your interest. Ausveg will be making a representation at the Melbourne meeting.

Spaces at these focus groups are limited to 20.

APVMA MRL changes in line with Food Standards Code

Industry has long awaited the harmonisation of the Australian Pesticides and Veterinary Medicines Authority (APVMA) Maximum Residue Limits (MRLs) and the Food Standard Code. APVMA has advised that the first group of MRL amendments have been gazetted. There is a broad group of commodity and chemical changes that are covered in this first batch of amendments to the Code. These have been added to the APVMA's MRL Tables for March, April and May. It is anticipated that these amendments will now come through on a regular basis.

For further information please <http://www.comlaw.gov.au/Details/F2011L01651>.



Nominations for 2011 HAL Awards closing soon

Nominations for the annual HAL Awards, which recognise outstanding contributions to the horticultural industry, will close on **Friday 23 September**. Those who would like to nominate a deserving colleague are asked to submit their application as soon as possible so as not to miss the deadline.

The Graham Gregory award, which includes a \$10,000 cash prize and commemorative bronze medal, is presented to the candidate that has demonstrated excellence in horticulture from any point along the supply chain, including research and development, education, training, technology transfer, and advertising and promotion.

The Young Leader award recognises leadership in any discipline of the horticulture industry by those 35 years of age and under. Both winners will have the opportunity to travel to Sydney for the award ceremony, which will be held the evening of the HAL November Industry Forum on Wednesday 23 November, 2011.

Last year's Graham Gregory award winner was Peter Clingeffer of CSIRO Plant Industry, an internationally recognised expert in vine management and vine improvement, with vegetable grower Richard Hawkes announced as the winner for the Young Leader award.

This is a great opportunity to reward these forward-thinking leaders of our industry. Their achievements, whether spanning a few years or a lifetime, are contributions that positively impact horticulture for all of us.

Nominations for the Graham Gregory and Young Leader awards will close on **Friday 23 September**. For more information and to download nomination forms, http://www.horticulture.com.au/news_events/HAL%20Awards.asp or contact Sarah Morton at sarah.morton@horticulture.com.au or 02 8295 2379

Industry Development Officer - Key meetings, projects and initiatives update

Facilitated the APVMA Forum in Bowen

The IDO facilitated a forum for Growers with the APVMA regarding the potential suspension of the crop protectant Dimethoate. The forum provided growers with the opportunity to gain feedback from the APVMA on their recommendations as well as ask key questions in terms of where to from here?

Brief presentations were given by the APVMA on the review report and recommendations, What is involved in the dietary risk assessment and Why do we do it?

There was a discussion around uses, what's in and what's out, a list of uses supported and identified data gaps and uses proposed for suspension. This was followed by the process from here, what are people supposed to respond to by 13th September, what happens after that date, What does suspension mean, How much time is there to provide additional data where indicated, and What is the PRF and what happens then?

Key points for Bowen & Gumlu Growers were

- Permit applications and any new requests – what do we need to do from here?
- Cancellation of existing permits
- List of permits under consideration
- New permit requests
- Links with ICA to be modified/developed

The BGGG have been very proactive in this area and are now working towards a potential outcome to support growers in the region.

Newly Appointed Flood Recovery Officer

The IDO while in Bundaberg met with the newly appointed flood Recovery Officer Tina Mcpherson. The flood recovery officer will support skills development in the Bundaberg and Bowen regions. The IDO believes the key priority for the industry at this time is to be

working towards a more collaborative approach to managing industry issues. The area of Skills and Workforce Development is a key priority for the Horticulture Industry nationally and with a more collaborative approach to managing this and other issues potentially all the funding won't come from one area but will be shared across industry making it more cost affect to develop solutions for the industry and it's long term sustainability.



Horticulture Australia Limited, David Moore, General Manager for Industry Services

The IDO has had meetings with Horticulture Australia Limited representative David Moore regarding Industry Development and the current review of Research and Development funding arrangements. David was keen to see the Industry Development program continue stating that the project was a great project for the region and industry. He also spoke about the current the Strategic Investment Plan and the current review taking place. There has been much discussion around the review and the potential lack of support for Research and Development. The IDO has been given a copy of the draft Strategic Investment Plan to look over and provide comment. A forum will be held in Bowen on the 21st September 2011, at Elders on Col-

linsville Rd, 6pm till 8pm to give growers the opportunity to provide feedback.

Food Plan Meeting

This past month saw the IDO invited to attend the Federal Government National Food Plan advisory session in Townsville. The session went over the issues paper and key priorities for the further development of a national food plan. Currently the draft National Food Plan focusses on Food Security, Nutritious and safe food supply meeting consumers' needs, a competitive, productive and efficient food industry, a Sustainable food industry, and Maximising the benefits of Trade.

The key messages put forward by the IDO on behalf of horticultural and agricultural industries were that there are plenty of opportunities to strengthen and grow industry but a huge need for support to do this. It is about a collaborative approach to managing key issues incorporating both government and industry. Some of the risks that could affect the potential sustainability of the industry if not managed are a lack of Market Access and Market Development, Foreign Investment, potential loss of R & D funding, Reg-

ulation, Lack of consumer education around pricing and farming practices and farming opportunities, lack of infrastructure in the areas of transport, water and urban encroachment, the potential impact on skilled workforce losses to mining and construction, career pathways, skills development, access to migration programs and skilled workforce.

Policy and Regulatory Reform Working Group

As a member of the State Government Hort2020 Policy and Regulation Working groups, the IDO has attended three meetings over the past two months to go over the key priority areas around Policy and Regulation. The IDO has put forward a number of key priorities for industry with the overall list of priorities the working group will work towards supporting industry on are Market ac-

cess requirements, Red tape e.g. multiple audits, Carbon tax – implications for horticulture, Food safety – how to improve, Chemical use – immediate issues (dimethoate and Fenthion) and longer term access to appropriate chemicals, Biosecurity policy shift and a more Proactive approach to pest management, e.g. flying foxes and birds.

Workforce Development Working Group

As a member of the State Government Hort2020 Workforce Development Working group, the IDO has attended two meetings over the past month to go over key priorities in the area of Skills and Workforce Development across industry. The key priorities at this stage are Introductions with a Yellow Card/Skills Passport system, Develop linkages with Agribusiness Gateway Schools, Initiate training to improve the business skills and labour management practices of producers, Look at ways to improve labour access, and Establish Skills Development Management Committees in key locations to manage regional issues with regional solutions.

Career Day at the Bowen State High School

The IDO spent a day with students from the region promoting careers in horticulture. Schools from Bowen, Proserpine and Collinsville came along to see what careers are on offer. The IDO promoted all the career pathways within the horticulture industry, stating to students that horticulture is not only about farming but business, marketing, information technology, international business, science and chemistry to name a few. Students seemed to be very interested in the fact that they could go to College or University and study business and still find a career in the horticulture industry in Bowen. The IDO is incorporating these types of career pathways in the workforce development strategy for the horticulture industry in this region.

Agricultural linkages with the High School

The IDO held a meeting with the Bowen State High School Principal incorporating DEEDI staff and Service providers in the region to discuss career pathways and the Agribusiness Gateway Schools program. The Bowen High School is keen to work on setting up career pathways in horticulture evening to inform parents and students of the opportunities in horticulture starting with traineeships in

Horticulture production as well as traineeships in business administration etc. that could also be based with horticultural enterprises.

Export to New Zealand of tomatoes and the current MAFF auditing requirements

The IDO was a part of an AQIS meeting recently to discuss MAFF requirements based on residue testing for export to New Zealand. As an industry representative the IDO had discussed options with growers prior to the meeting and other industry representatives to put forward the growers comments and industry perspective. The meeting was to discuss current regulation set by MAFF around residue testing and the provision of data requested by MAFF on dimethoate residue testing results.

The IDO expressed to the meeting which was made up of AQIS representatives and mostly exporters that this issue affects growers differently to exporters. Exporters do not bear the cost of the AQIS inspections or audits which become a significant factor in the lifting of this requirement. The IDO expressed the opinion that prior to committing to any course of action with MAFF, there needs to be a consultation process with growers on the matter.



Whitsunday Food Circle

The IDO attended and facilitated meetings over the past months regarding the Food Circle project to support the horticulture industry. An initial report on the first years activities was approved by DEEDI which means the recommendations within the report need to be actioned. Some of the recommendations are: to Establish a farmers market with the capacity to expand into a multi-functional operation, Facilitate opportunity for regional distribution of local

produce though strengthening industry networks, Work with Trade Start to develop an export strategy for Whitsunday growers, Work with Tourism Queensland and growers to encourage the development of food tourism in the Whitsundays, and In collaboration with the Grown in the Whitsundays brand, develop a marketing plan for regional produce. The IDO will be working closely with EW in order to facilitate delivery of these outcomes to industry in the coming months.

Meeting with James Cook University

A meeting was held with James Cook University to establish the priorities and need of the horticulture industry within the Whitsunday Regional Council area. A full report will be given to the council outlining key issues within the region and the need for further support for industries such as horticulture for long term sustainability.

Made in the Whitsundays and Grown in the Whitsundays

Recently a meeting facilitated by the IDO around the Made in the Whitsundays (MITW) and Grown in the Whitsundays (GITW) was held to discuss the future direction of the brands and committee. It was agreed by those in attendance that the committee needed to become an incorporated non for profit body supporting local industry. This would provide opportunities to gain future funding to better support the brands.

Workforce and Skills management meeting in Bowen

The IDO facilitated more discussion with the newly formed Horticulture Workforce and Skills Development committee around the key priorities for the industry at a local level. The IDO is keen to see government and local agencies support the horticulture industry to develop a strategy plan to manage the potential loss of skilled workers when the mining and construction boom hits Bowen.

Attended the Regional Development Australia Carbon Pricing Forum

The IDO attended a forum in Mackay facilitated by Regional Development Australia. The key speaker was Minister for Regional Australia the Hon Simon Crean. The IDO gained information on the details around the Carbon Tax and was given the opportunity to provide feedback to the Minister and Regional Develop-

Industry Development Officer - update continued.....

ment Australia on the potential affects on the horticulture industry.

Evaluation of Reef Rescue Initiative in Townsville

The IDO attended a Reef Rescue Initiative review recently in Townsville. The program did have some glitches in the beginning however it seems to be travelling well now. The IDO provided feedback to the consultants on the issues around funding requirements changing from round to round – this seems to be an issue across the board. NQ Dry Tropics is going to try and stick with the current requirements in order to streamline processes.

Round 4 is now open with funding now available for horticultural growers for practice changes that will improve water quality through the reduction of nutrients, sediments and pesticides leaving farms.

These are some examples of how current farm practices can be improved, while increasing farm efficiency:

- **Effective Nutrient Application Rates** – flow rate controllers, variable rate applicators under GPS guidance
- **Precision Fertiliser Placement** – fertigation systems
- **Better Soil Health** – minimum tillage equipment, increased groundcover under tree/crops, permanent beds, precision in-crop operations, controlled traffic
- **Improved Water Use Efficiency** – drip or overhead irrigation systems, automated irrigation equipment
- **Reducing your off-farm runoff** – recycle pits and associated infrastructure or constructed wetland

Attended the Smart Futures Grants Forum

The IDO attended a State Government Forum in Townsville to discuss funding opportunities for the different industries in Queensland.

Bowen Show

The IDO facilitated a great local fresh produce stand at the Bowen Show pavilion as part of the Guinness World Record Cooking attempt. Thanks goes to all growers who supported the fresh produce stand and provided fresh produce for the world record attempt. It was a time when growers didn't have much stock to send to market and still provided for the show.

Brisbane Produce Markets Liaison Officer Vanessa Kennedy also provided support by providing give away goodies for the Bowen & Gumlu District Growers show bags which are always a hit at the show.



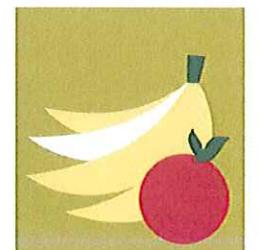
Other meetings in general:

- Bowen AGM held – Carl Walker, President – Jamie Jurgens, Vice President – Leanne Born, Treasurer
- Meeting with Peter O'Reilly re new amalgamation of Enterprise Whitsunday & Tourism Whitsunday
- Meeting with Tourism Queensland re Agritourism and the opportunities to develop linkages
- Attended the ICA 38 Introduction workshop
- Met with Peter Leach and Rex Williams from Biosecurity Qld regarding the Bowen Gumlu Systems Approach to the management of Fruit Fly in the region
- Meeting with Brisbane Produce Markets (Andrew Young)
- Attended the opening of the new Australian Agricultural College Corporation in Mackay and met with The Hon Tim Mulherin, Rob Setter Associate Director General, Nicky Wright Director of DEEDI Mackay.
- Meeting held with Central Queensland University to develop a program to support more researchers sitting within the DEEDI research station in Bowen

For further information on any of the above contact:
Denise Kreymborg
Industry Development
Officer, BGGGA, 07 4785 2860 or
bdgainc@bigpond.com



BRISBANE



**PRODUCE
MARKET**



Australia's food security vulnerability must be acknowledged by government Peak horticulture organisation Growcom today congratulated the Australian government on initiating the development of a national food plan.

Commenting on the Government's issues paper Growcom said the development of a national food plan had been a high priority for the organisation for some time.

However, in its submission Growcom disagreed with the Government that Australia did not have a food security problem.

"Casual statements about Australia producing more food than we consume do not reflect the full food security picture," said CEO Alex Livingstone.

"There is a bias in this debate towards abundant exports of meat and grain. However, for their nutritional health Australians must have access to the recommended daily fruit and vegetable intake.

"We contend that there are a number of risks to the security of horticultural products in Australia both in the short and long term."

Mr Livingstone said it was worrying that currently, Australia is a net importer of fruit and vegetable products, according to the Government's own data.

"With respect to vegetables, we export about 9 per cent of what we produce, but import about 19 per cent of what we actually consume (primarily as canned or frozen products). We import just over twice as much as we export.

"In terms of fruit, we export about 13 per cent of production, but import about 34 per cent of what we consume. We import about 2.6 times as much as we export."

Mr Livingstone said the Government's contention that Australia is "food secure" was based on an assumption of continued easy access to imports.

"Growcom does not consider this to be an acceptable strategic policy position as there are a number of threats to our capacity to access such imports," he said.

"We accept that imports are necessary and support the current approach to free trade but we do not see it as a replacement for actually dealing with the issue of domestic food security. Imports are not a secure source of food and are vulnerable to a number of foreseeable risks, including production failures, trade restrictions, conflict and reduced affordability.

"Import dependencies across the food supply chain may give rise to vulnerabilities or disruptions in the event of a national or

offshore emergency.

"Food self sufficiency is a worthwhile objective that is not contradictory to the concept of free trade and market liberalisation.

"We should work to avoid a situation where, in the event of a crisis, we can no longer produce or access adequate food for our population."

Growcom's submission may be read at www.growcom.com.au

Disaster relief assistance extended

The Queensland Government has extended the deadline for primary producers and small businesses to access disaster relief assistance after the summer of flooding and cyclones to 31 January 2012.

The flood assistance package was due to finish 30 September and Cyclone Yasi package 31 October.

This extension recognises the extent of the disaster that Queensland farmers faced this summer. It also recognises the long road to recovery and that farms and farmers are not there yet.

To date more than \$159 million has been approved for 12 417 primary producers, businesses and not-for-profit organisations across Queensland in the form of grants and loans to assist in recovery.

For more information please contact Georgie Knight on 4068 2255 or email gknight@growcom.com.au

Round 4 Reef Rescue water quality grants now open (Burdekin Dry Tropics NRM region)

Growers who have been thinking about investing in new technologies to increase the efficiency of their farming systems may be eligible for 50 per cent incentive funding under Round 4 of the Federal Government's Reef Rescue program.

In previous rounds growers across Queensland have secured incentive funding for:

- low volume pesticide applicators
- soil moisture monitoring tools
- a tractor GPS
- fertigation systems
- irrigation system automation
- side throw slashers
- mulch applicators
- sediment traps, and
- compost tea infrastructure.

All of these technologies lead to a reduction in the risk of pesticides, fertilisers and/or sediment run-off from their farms which

is the aim of the Reef Rescue program. Round 4 funding of the Australian Government's Reef offers growers in the Burdekin Dry Tropics NRM region a total of \$750 000 in horticultural grants for improved water quality practices.

Funding of up to \$25 000 for each application is available in the Burdekin Dry Tropics NRM region. In combination with the larger grants NQ Dry Tropics is offering a 'Small Grants' program. This program allows growers to apply for incentives up to \$5000 with growers contributing 50 per cent of the costs.

Growers are still required to lodge an expression of interest and complete a Growcom Farm Management System (FMS) Water Quality Risk Assessment. In conjunction with individual FMS results and a new application form, practice changes with proven water quality benefits will be fast tracked through the assessment process making it easier for growers to apply for funding.

Applications close 8 October 2011.

To apply, an expression of interest form can be obtained by ringing Growcom Land & Water Field Officer Anna Geddes at the Townsville office on 07 47243 544. Ms Geddes will then organise a Farm Management System (FMS) Water Quality Risk Assessment with the grower and assist the grower to prepare an application for funding.

Certification to 2nd Edition Freshcare Environmental Code

Growers who operate in compliance with Freshcare's Environmental Code will need to progress to the second edition. This will not involve training and can be undertaken by completing a manual sent out to growers by Freshcare. All growers will be audited under the second edition by January 2012.

Industrial Relations News

Preventing bullying in your workplace

Workplace bullying is one of the many dark issues facing employers today. A recent study by Queensland's Griffith University has found that bullying in the workplace now affects at least one in four Australian

News from GROWCOM cont..

employees in one way or another - either because they're being bullied themselves, or because they have witnessed a co-worker being bullied.

Bullying increases incidences of absenteeism, stress leave and staff turnover, and severely reduce employee efficiency and productivity levels. It has a flow-on effect, breaking down teams and increasing the workload of other staff members. Unfortunately, prosecutions for incidences of workplace bullying are on the rise. It is important that employers do everything in their power to prevent bullying occurring.

Below are some key points regarding how employers should address the potential threat of bullying in their workplace.

Introduce a policy

Firstly, you should implement a workplace bullying and harassment policy if you don't already have one. The policy should define exactly what bullying and harassment is, how you expect your employees to behave, what employees should do if they feel they are being bullied and what action you will take if an allegation of bullying is made. Ensure that everyone in your workplace is given access to a copy of your bullying policy, and that you remind people about it often.

Inform employees about the policy and procedures at induction

You should provide information about workplace policies and procedures on bullying prevention to all employees when you induct them. If you engage a labour hire / contracting company, you should ensure the company incorporates this information into its induction process.

Define unacceptable behaviour

Make sure you understand what constitutes bullying - and make sure everyone else in your workplace does too. Your employees need to know exactly what acceptable behaviour is and what isn't. You could also consider providing cultural awareness training to your employees.

Train your supervisors and managers

Train your supervisors and managers about your workplace bullying policy. You should also encourage them to address any problem behaviour as soon as possible, regardless of whether or not a formal complaint has been filed.

Monitor the workplace

Monitor your workplace for any bullying. You can't just assume that bullying is not occurring in your workplace. You need to

keep an eye out for warning signs, like employees taking excess amounts of leave or becoming withdrawn or looking stressed. You should check with your supervisors and/or managers on a regular basis to see if there are any behavioural issues or concerns.

Respond to allegations

Respond as soon as possible to any evidence of inappropriate bullying behaviour. You need to show your employees that you are serious about tackling bullying in the workplace.

If you would like further information about implementing a bullying and harassment policy, or you would like further advice about a particular issue in your workplace, email the IR team on ir-team@growcom.com.au or phone 07 3620 3844.

Workplace relations services

Growcom provides professional and experienced guidance to horticulture employers and can help growers manage their legal responsibilities to avoid nasty surprises, manage their employees to improve performance and productivity as well as increase their profits.

Growcom grower members are entitled to a range of free services. More information on Growcom's products and services are available on the [Growcom web site](#) or contact Growcom's IR team on 07 3620 3844

Pest Management

The following permits have been issued by APVMA in the past fortnight

PER12442 - Trichlorfon / eggplant, pepino, cape gooseberry / Qld fruit fly & Med fruit fly. Valid from 10 August 2011 – 31 May 2014. For use in all states excluding VIC. APVMA requires two trials in each crop in field and protected cropping situation.

PER12995 - Herbicides (various) / leeks and garlic / weeds (various). Valid From 17 August 2011 – 31 March 2012. For use in leeks in all states except VIC and in garlic in NSW, SA and TAS only. Garlic / ethofumesate use removed from previous permit – PER10344.

PER8930 - Phorate / eggplant, peppers, shallots & spring onions / aphids, jassids, mites, thrips & onion maggot. Valid from 14 August 2011 – 31 July 2016. For us in all states.

PER12592 - Chlorothalonil & difenoconazole / papaya / Black spot & Brown spot. Valid from 14 August 2011 – 30 June 2020. For use in all states.

PER13042 - Paraffinic oil / passionfruit / Red scale, Hemispherical scale, Passionvine mealybug. Valid from 23 August 2011 – 31 August

2012. For use in all states except VIC. Full details of all permits are available on the [APVMA web site](#).

Proposed suspension of dimethoate

As part of its review of dimethoate, the APVMA has completed the latest Residues and Dietary Risk Assessment (released 22 August 2011) and found that its use on many crops exceeds the health standard established in January this year. The APVMA proposes to suspend dimethoate products as an interim regulatory action while it completes further assessments on the chemical. This would effectively prohibit the use of dimethoate on certain horticultural crops, including fruit fly treatments of many fruits and vegetables.

The APVMA has taken the first step toward a possible suspension by asking dimethoate product registrants and permit approval holders to 'show cause' as to why the proposed action should not be taken.

Industry has three weeks (by 13 September) to respond to the 'show cause' announcement with any information and data pertinent to the dietary risk assessment, after which time the APVMA will make a final assessment. Should suspension then be announced, more information will be provided to growers about how that will take effect. It would take place at the end of September.

A list of affected crops is included below. Please contact Janine Clark at Growcom for further information or:

Felicity McDonald, APVMA on 02 6210 4812 or 0467 726 486 for more information about the APVMA's process regarding this chemical or the health aspects of this matter

Jayne Scott, Biosecurity Queensland (DEEDI) on 07 3239 3014 for more information about possible alternative treatments and effects on trade

David Moore, Horticulture Australia Limited on 02 8295 2330 for more information about industry and federal government investment in alternative treatments.

[View the list of uses proposed for suspension](#)

[Frequently asked questions about the proposed suspension](#)

[Read more about the dimethoate review and the latest dietary risk assessment](#)

<http://www.apvma.gov.au/products/review/current/dimethoate.php>

AMIA AGM and Mango Annual Levy Payers meeting

AMIA will be holding its Annual General Meeting and HAL will be holding the Mango Annual Levy Payers Meeting on the afternoon/evening of Monday 19th September 2011. The AGM and other meetings will be held at the Kalamia Hotel, Queen Street, Ayr, commencing at 4.00pm. Following the meetings, a light meal will be served. All growers are invited to attend.

For catering purposes, please RSVP to AMIA by Wednesday 14th September. Phone Trevor on 0400 808 689 or E:IDM@mangoes.net.au

Carbon Farming Initiative (Reuters) –

Australia's parliament endorsed the world's first national scheme that regulates the creation and trade of carbon credits from farming and forestry on Mon-

day, to complement government plans to put a price on carbon emissions from mid-2012.

The laws are a precursor to the carbon price legislation to be put before parliament later this year.

Known as the Carbon Farming Initiative (CFI), the new laws allow farmers and investors to generate tradeable carbon offsets from farmland and forestry projects."

Proposed regulatory action for dimethoate

As you may be aware, the chemical dimethoate has been under review by the Australian Pesticides and Veterinary Medicines Authority (APVMA) for a number of years. We are writing to advise that the APVMA has today released the **2011 Dimethoate Residues and Dietary Risk Assessment Report** as part of its review process.

The assessment concludes that chemical residues remaining on many crops are above the health standard established in January this year. Therefore, the APVMA proposes to suspend dimethoate products as an interim regulatory action while it completes further assessments on the chemical.

The APVMA has today taken the first step toward a possible suspension by asking dimethoate product registrants and those groups that provided data for the review to 'show cause' as to why the proposed action should not be taken. The closing date for this information is 13 September 2011.

As part of its consultation with key stakeholders, the APVMA also seeks information or data from users of dimethoate that would change the outcome of the dietary risk assess-

ment by **13 September 2011**. Submissions can be emailed, faxed or posted to the details listed below.

Between now and 12 September, the APVMA will brief industry and grower groups on the 2011 dietary risk assessment through meetings coordinated by industry bodies. Details of these meetings will be available on the [dimethoate review webpage](#) from Tuesday 23 August.

If regulatory action such as suspension is to be taken, it will take effect by the end of September 2011, prior to the commencement of the main post-harvest dipping season. At that time, the APVMA will specify restrictions on use and provide related information to all stakeholders.

Permit applications for uses to replace dimethoate are being given priority attention by the APVMA so that, as far as possible, approvals are in place by the time the suspension action is taken.

Information on the dimethoate uses proposed for suspension, alternatives to dimethoate and frequently asked questions (FAQs) about the proposal are available on the [dimethoate review webpage](#).

We invite you to reproduce text from our [Regulatory News article](#) or [FAQs](#) in your newsletters and journals as long as you mention that it is reproduced with permission of the APVMA.

If you have any questions about the proposed action, please contact the Chemical Review Contact Officer via (02) 6210 4749 or chemicalreview@apvma.gov.au.

If such notifications should be sent to a different contact within your organisation, please advise APVMA Public Affairs via contact@apvma.gov.au.

Regards

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Irradiation of fruit and vegetables

A replacement for chemicals

With the Australian Pesticides and Veterinary Medicines Authority (APVMA) likely to restrict the use of Dimethoate and potentially Fenthion as post-harvest pest treatments soon, the horticulture industry is looking at its options for managing pests and meeting phytosanitary requirements for fruit fly.

There are a range of potential alternatives to these chemicals, such as refrigeration, hot water and steam treatments. Post-harvest gamma irradiation is one option that is increasingly being considered an attractive and viable alternative for replacing chemicals and is already being used by some tropical fruit growers and wholesalers.

A safe process

Irradiation is used in a number of sectors, including the medical, animal feed and food packaging industries, as a means to sterilise and decontaminate products. The process involves exposing a product to a source of ionising energy (either gamma or X-rays) which eliminates insects, bacteria and other pathogens. It is a chemical free process that does not rely on temperature or water and can be applied to packaged goods.

In terms of the irradiation of food, more than five decades of research and practical application has proven it is a safe and effective treatment for fruit, vegetables, cereal grains and meat.

Today, more than 50 countries allow the use of food irradiation and an estimated one million tonnes of food is irradiated annually around the world. International bodies such as the World Health Organisation, Codex and International Plant Protection Commission recognise that irradiation at approved levels eliminates pests and bacteria while having minimal impact on the quality and nutritional content of the food.

Regulatory approvals

In the United States fruit and vegetables are an approved food class for irradiation. This means any fruit and vegetable can be irradiated. In Australia there is no such blanket approval,



al, rather Food Standards Australia New Zealand (FSANZ) assess each product on a case-by-case basis.

Currently, FSANZ has approved irradiation for the treatment of treat herbs, spices, certain teas and 10 tropical fruits, including mangoes, papayas, rambutans, persimmons and lychees.

Industry and the Queensland State Government are currently working towards an application to FSANZ to have this list expanded to include more fruit and vegetables affected by the Dimethoate and Fenthion ban, with tomatoes, capsicums and melons among the priority commodities. The necessary nutritional and quality testing to support a FSANZ application is already well progressed for tomatoes and capsicums and the Bowen horticulture industry has helped fund research into the irradiation of honeydew and rock melons.

New Zealand market access and ICA-55

To date, food irradiation in Australia has mostly been used in the mango industry for exports to New Zealand. To meet quarantine measures for fruit fly all mango exports from Queensland to New Zealand are irradiated. This trade totals around 1,000 tonnes per year and these mangoes are sold in mainstream New Zealand retail channels and are well accepted by consumers.

Earlier this year the Interstate Certification Assurance 55 (ICA-55) was approved by the Australian Commonwealth and State Governments. Consequently, irradiation is now a recognised fruit fly treatment under domestic fruit fly biosecurity regulations. This creates the opportunity for more Queensland fruit and vegetables to be treated with irradiation prior to being sold in the southern states.

Steritech

The only irradiation plant in Queensland is Steritech's facility in Narangba, north of Brisbane. Steritech is an Australian family owned company that has been offering sterilisation services for more than 30 years. The Narangba site already handles the mango export volumes and Steritech is building the capacity to handle significant volumes of Queensland fruit and vegetables as required.

Conclusion

It is unlikely a single solution will replace the use of chemicals like Dimethoate and Fenthion in the horticulture sector. Nonetheless, food irradiation looks to be one of the most appealing 'tools in the toolbox' as it is non-invasive, effective against a broad spectrum of insects, does not heat or cool the fruit and vegetables, and is a relatively quick and cost competitive process. For more information visit www.foodstandards.gov.au/consumerinformation/foodirradiation.cfm or www.steritech.com.au.

Economic Brief: Ian James - Economic Sub Program, National Vegetable Industry Development Program



Interest rates on hold

The Reserve Bank of Australia has hinted that interest rates will remain on hold while the turbulence in world financial markets continues. In his bi-annual testimony before the parliamentary economics committee the Governor of the Reserve Bank Glen Stevens said that "there are periods of tremendous turbulence when I think it is a very good thing for policy to just sit still, if it can, rather than add to that turbulence by starting to change our settings." Financial markets are still factoring in interest rate cuts but have wound back expectations of any move soon to cut interest rates. Market economists are increasingly leaning to the view that interest rates will now remain on hold for the rest of the year.

Selling a good news story

The Governor's testimony also tried to counter the prevailing pessimism on the economy by stating that while the economic situation had deteriorated overseas the degree of pessimism was overdone. The high demand and prices Australia was receiving for its commodities was continuing to drive massive resource investment projects. The benefits of this investment would eventually spread through the rest of the economy and there was evidence that industries outside of mining and engineering were starting to benefit. Nonetheless, consumers are likely to remain cautious for some time yet as consumer confidence has been impacted by the recent turmoil on the markets.

Two speed economy still with us.

Despite the reassurances, the economic evidence of a two speed economy continues to mount. The Australian Bureau of Statistics released data on construction activity for the June quarter last week. This data showed that while the value of engineering construction rose 5.9% in the June quarter to be 21.2% higher over the year the value of residential construction fell by 4.1% to be 7.6% lower than a year earlier while the value of non residential building fell 6.1% to be down 23.2% over the year. Coupling this with announcements of a record profit for BHP Billiton and the laying off of workers at BlueScope steel it remains a difficult sell to convince the average Australian of the Reserve Bank's case.

Overseas news still bad

Any hopes that the volatility in world financial markets would abate soon were dashed by employment figures out of the US last Friday. There was no growth in the number of em-

ployed Americans in August. Investors are looking for some signs that the American economy is growing fast enough to create enough jobs to begin to dent the high rate of unemployment. Until there is clear evidence that this is occurring and also signs that the Europeans can manage their debt situation, financial markets are likely to swing through bouts of optimism and pessimism over the future direction of the world economy.

Investment expenditure boom

In the absence of clear signs that the world is heading into recession, the latest capital expenditure figures released by the Australian Bureau of Statistics last week show why an interest rate cut by the Reserve Bank is unlikely. Business investment over 2010/11 spurred on by mining related developments grew 23%. But it is the business investment intentions for this financial year which is likely to cause the Reserve Bank to sit on its interest rate hands. Business is planning to invest \$149 billion this financial year up 36% on the strong growth last financial year and 6.2% higher than what they estimated three months ago. More importantly the data surprised on the upside with intended investment outside the mining sector rising rapidly even in the beleaguered manufacturing sector. Despite gloomy business surveys the investment intentions suggest that business is putting money on the line that the mining boom will eventually feed through the economy and that it needs to build capacity to take advantage of good economic growth prospects going forward.

High Australian dollar here to stay?

Not that things look too hot for the housing sector with the latest building approval data released last week showing chronic weakness in the housing sector. At current rates there is a large shortfall between current building rates and underlying demand for housing. Not that it appears that there will be a turnaround any time soon. Anecdotal evidence suggests that corporate business' dependent on the housing sector are starting to rationalise their operations. The same can be said for corporate business impacted by the high value of the Australian dollar. Recent actions suggest that corporate Australia does not expect a rapid fall in the value of the dollar anytime soon. Restructuring based around continuation of a high Australian dollar is underway. These actions are likely to strengthen Australian corporates but may cause havoc to small business suppliers of inputs who may well

need to adjust their own operations to the realities of the economy.

It may be satire but 'At Home with Julia' hits the nail on the head—Media release

The first episode of a new satirical program which comically delves into the private lives of the Prime Minister and her partner Tim Mathieson, brought the serious issue of Australia's food security into the spotlight, said AUSVEG Communications and Public Affairs Manager, William Churchill.

"Last night was a great opportunity for Australians watching the episode of 'At Home with Julia' to take a moment to pause and think seriously about where their food is actually coming from," said Mr Churchill.

AUSVEG is the national Peak Industry Body representing Australia's 9,000 vegetable and potato growers.

"I would also like to know where my Roma tomatoes are coming from. Are they being produced in Australia, or are they, like other field tomatoes coming from New Zealand? Are my New England onions coming from Australia or have they been imported from the USA?" said Mr Churchill.

Australia faces many issues relating to food security and a National Food Plan is currently being assembled which will be an important document to guide the future of how Australia feeds itself.

"Australia is a net importer of vegetables with a trade deficit of \$306 million for the last financial year. We import more vegetables than we export and as a result Australian farmers are put under immense pressure because they can't compete with cheap imported produce," said Mr Churchill.

"Importing potatoes into Australia from New Zealand means the industry is also facing the threat of allowing potatoes into the country that are contaminated with Zebra Chip disease. A disease that costs the New Zealand industry NZ\$28 million annually."

"So the next time you pick up your Roma tomatoes or your New England onions, or you watch 'At Home with Julia', remember that food security is a serious concern for the future of agriculture," said Mr Churchill.

Build a sustainable future for your business and the horticulture industry by becoming a member of Bowen & Gumlu District Growers Assoc.

Bowen & Gumlu District Growers Association

A strong and cohesive organisation providing a voice for our members and building a more sustainable future for the industry

Bowen & Gumlu District Growers Association

- represents the interests of the horticulture industry in Bowen and Gumlu
- invests in Research and Development projects and programs that best meet the needs of the industry locally
- provides strategic planning and the development and management of programs that provide benefits to the growers
- identify and coordinate activities to address

current and emerging pest & disease issues that impact on the local industry

- Coordinate information flow to enhance farming businesses
- Provide a link between government and industry to support growers
 - Look for initiatives and incentives that grow farming businesses and encourage profitability long term
- Is passionate about every farming businesses sustainability long term

Please tick the boxes that are applicable to your business and fax to: 07 4785 2211

1c per carton capped at \$2500

Minimum amount payable \$500

\$1 per tonne capped at \$2500

Amount payable: \$ _____.



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A/C Name: Bowen and District Growers Association Inc



BGGA

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P O Box 489, Bowen Qld 4805

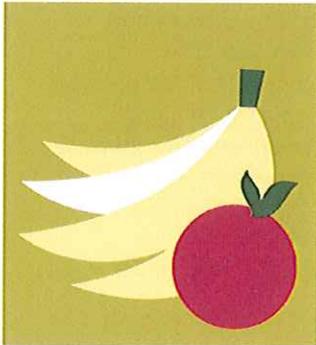
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Save the Date

Bacon & Corn Fritters

2011 Queensland Landcare Conference 20 – 23 September

The 2011 Conference will be held in Ayr and will focus on the generations of guardians responsible for land and culture stewardship across the state. Enquiries can be directed to event manager Wombat Creative by phoning 0421 709 519 or landcare2011@wombatcreative.com.au. Registrations are now open.

2011 AgriFood National Conference 22 September

This year's conference will be held at the Sofitel in Brisbane and feature high-profile speakers and panellists discussing industry issues around employee attraction and retention. Bookings can be made online <https://register.eventarc.com/event/view/4512/tickets/empowering-employers>.

Free safety workshops 22 and 29 September

Workplace Health and Safety Queensland is offering free workshops in Gympie to help business operators better manage workplace safety.

Food innovation workshops 27 October

This workshop will be an information sharing forum for industry, government and researchers involved in food innovation and product reformulation. To be held in Brisbane, the workshop will aim to give participants and opportunity to share their experiences with reformulation, including approaches to improving the nutritional profile of their products, technical challenges and product case studies. <http://www.csiro.au/events> and look for [food reformulation](#) for more information or if you would like to register your attendance.

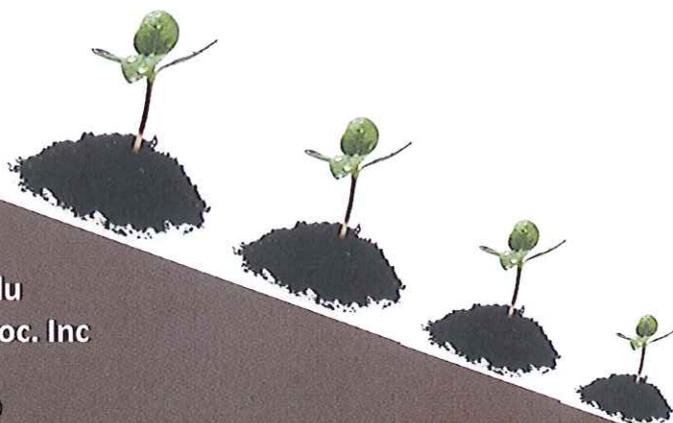
Ingredients (serves 4)

- 2 tbs olive oil
- 125g bacon rashers, coarsely chopped
- 4 shallots, ends trimmed, thinly sliced
- 1 red capsicum, finely chopped
- 1 x 420g fresh corn or can corn kernels
- 115g (3/4 cup) plain flour
- 3 eggs, lightly whisked
- 1 tbs milk
- 2 tbs chopped fresh coriander
- **Tomato & avocado salsa**
- 1 tomato, deseeded, finely chopped
- 1 avocado, coarsely chopped
- 1/2 small red onion, finely chopped
- 1 small fresh red chilli, finely chopped
- 1 tbs fresh lemon juice
- 1 tbs olive oil
- 1 tbs chopped fresh coriander

Method

1. Heat 1 teaspoon of oil in a non-stick frying pan over medium heat. Cook the bacon, stirring occasionally, for 2 minutes or until lightly browned. Add shallot and capsicum. Cook, stirring, for 1 minute or until capsicum is soft. Transfer to a bowl. Stir in the corn, flour, egg, milk and coriander. Season with salt and pepper.
2. Heat remaining oil in a large non-stick frying pan over medium-high heat. Spoon three 1/4-cupful portions of the corn mixture into the pan. Flatten slightly. Cook for 2 minutes each side or until golden and cooked through. Repeat, in 3 more batches, with the remaining corn mixture, reheating the pan between batches. To make the tomato & avocado salsa, combine the tomato, avocado, onion, chilli, lemon juice, oil and coriander in a small bowl. Serve with the fritters.

Freezing tip: Cool at the end of step 2. Wrap each fritter in plastic wrap and freeze in an airtight container for up to 3 months. Eat hot or cold. To reheat, thaw then cook the fritters in a frying pan until heated through.



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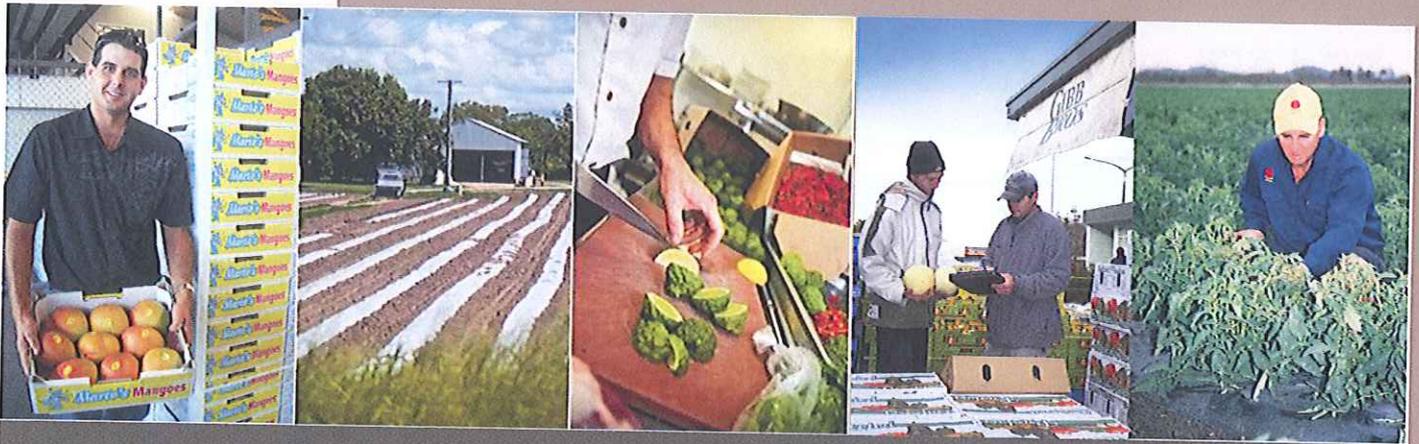
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Know-how for Horticulture™



Fruit & Vegetable **INSIDER**

in this issue >>>

- ⇒ *FSANZ calls for comments*
- ⇒ *Farmers Market Update*
- ⇒ *Food Alliance Update*
- ⇒ *Industry Development Officer Update*
- ⇒ *Brisbane Produce Markets update*
- ⇒ *Growcom Update*
- ⇒ *Advice from Japan*
- ⇒ *Pesticides*
- ⇒ *BDGA Gala Dinner*
- ⇒ *Economic Brief*
- ⇒ *BGDGA Membership*
- ⇒ *BGDGA Sponsors*

*Bowen & Gumlu District
Growers Assoc.
Feb 2011 Edition*

Industry Development Officer Attends Dialogue with the Minister

This past week saw the Hon Tim Mulherin sit with industry representatives from across Queensland in dialogue over the proposed new Horticulture 2020 priorities for the next 12 months. The Bowen Industry Development Officer attended the dialogue on behalf of the industry in Bowen and Gumlu. Horticulture 2020 is an opportunity for industry to drive industry development and work with Government to double the size of the industry by 2020. This forum was an opportunity to review the industry feedback to date and provide advice on the best ways to work together to tackle these issues collaboratively.

It was vital that attendees consider the key priorities from previous industry forums held late 2010 as a summary of where industry and DEEDI discussions have taken the Horticulture 2020 strategy to date. The group discussed the state of the horticulture industry in Queensland and the priorities identified by industry as key to a sustainable

future.

The key priorities are

- Supply chains and markets
- Productivity and the environment
- Workforce development
- Biosecurity
- Policy, legislation and regulatory reform
- Transport and infrastructure
- Cross-industry collaboration



The group provided further input into the list of challenges facing the industry and the delivery of outcomes from the Industry Steering Committee. The Horticulture 2020 Steering Committee will be made up of representa-

tives from each growing region in Queensland and other key representatives – the focus was on attracting growers rather than service providers. Jamie Jurgens, Vice President of BGDGA will be the representative from this region.

After discussions with the Minister about the future skills shortages for the region and the effect on the horticulture industry, the

IDO was advised of the development of a new steering committee specifically targeting the skills shortage in the region and potential support for the industry on this challenge. The Minister stated the need for the IDO to be on this steering committee to drive delivery of outcomes to support the industry and its sustainability long term.

There was overwhelming support for Industry and Government collaboratively working towards a more sustainable future in the delivery of key initiatives across many areas of concern for the industry over the coming years.

FSANZ calls for comment on horticulture paper

Food Standards Australia New Zealand (FSANZ) today released a consultation paper on what approaches should be taken to ensure food safety in fresh horticultural produce.

FSANZ Chief Executive Officer, Steve McCutcheon, said Australians had access to a large variety of high quality, safe fresh produce.

"Surveys conducted by FSANZ over many years have demonstrated that the Australian horticulture sector does a good job in managing the food safety risks associated with fresh produce," Mr McCutcheon said.

"However, from time to time, microbiological or chemical hazards can arise and these can present a risk to the consumer.

"The horticulture industries in Australia have been quick to implement measures

through audited industry schemes or other systems that address food safety. What we don't know is whether these measures are sufficient to provide a nationally consistent approach to food safety across the entire sector."

Mr McCutcheon said FSANZ was now working with industry to establish whether current measures are adequate to ensure the safety of fresh produce or whether new national requirements need to be developed.

"FSANZ's key responsibility is the protection of public health and safety and we do this using the best available scientific evidence while promoting consistency between domestic and international food standards.

"We intend to consult widely as this work progresses and we acknowledge that there are a large number of growers, packers, wholesalers and industry bodies

as well as other non-industry stakeholders that will wish to contribute. We will be working to establish communication links with all those involved in the sector."

Written submissions on the paper must be lodged with FSANZ by 6pm (Canberra time) 11 July 2011.

Safety of horticulture in Australia – consultation paper - <http://www.foodstandards.gov.au/srcfiles/Stakeholder%20Consultation%20Paper%20-%20REVISED%20version.pdf>

For more information about the latest notifications from FSANZ see the [notification circular](http://www.foodstandards.gov.au/foodstandards/changingthecode/notificationcirculargeneral/notificationcircular5175.cfm) -

<http://www.foodstandards.gov.au/foodstandards/changingthecode/notificationcirculargeneral/notificationcircular5175.cfm>

Media contact: Lorraine Belanger 0401 714 265

"Not only that but the farmers themselves enjoy increased profit margins due to direct sales and the market creates job opportunities for the region.

"They are also environmentally friendly as there is a reduction in food miles, as the produce is not going all the way to Brisbane and back, and less packaging is required. "A farmers market also becomes a wonderful community asset – a great place to socialise and network for both residents and growers.

"So don't delay! Fill out your survey form now and have your say – your opinion really does matter."

Survey respondents can post the forms back to PO Box 479, Cannonvale, Qld, 4802 or drop them into one of the locations listed above.

For more information about the farmers markets, or to register your interest as a stallholder, contact Claire Dulieu at Enterprise Whitsundays on 07 4946 0111 or projectmanager@enterprisewhitsundays.com.au

For more information about this media release contact Claire Dulieu at Enterprise Whitsundays on 07 4946 0111 or projectmanager@enterprisewhitsundays.com.au



Interest in farmers market runs hot

Interest in a farmers market is running hot, with more than 300 survey forms received so far from right across the region.

While this is a great result, organisers say they still want more and are encouraging people to fill in a survey form so the true feelings of the region can be gauged. The survey asks people how often, what day and what time they would like to see a farmer's market, as well where in the region they would like to see it.

As well as enormous support for the concept from consumers, the idea of a farmers market has also received a strong response from growers and producers, with more than 40 people already listed as would-be stallholders.

Project manager Claire Dulieu from Enterprise Whitsundays, which is spearheading the initiative, said the response so far had been very encouraging but more completed forms were needed if the end-result was to truly reflect the wishes of the community. "The response so far has been very encouraging with many people including notes with

their surveys - we welcome this as we value every opinion," she said.

"But we do want to hear from more people, so the market truly reflects the wishes of the community. We also want to hear from more growers and food producers – so, if you are currently making or growing food or it is your dream to do so, contact us to find out more or simply fill out a survey form." As well as being printed in local newspapers and available online at www.qldfarmersmarkets.com.au/whitsundayssurvey, Whitsunday residents can obtain a survey form from the following locations.

Airlie Beach: Sushi Hi, Capers, Extreme Bean, BB's Cafe and Marino's Deli.
Cannonvale: Cannonvale library, Goodness Gracious Health Foods, Enterprise Whitsundays office and Bowen Fruit Market (at Whitsunday Shopping Centre).
Bowen: Council office, Bowen library, 360 on Flagstaff Hill and Food Freaks.
Proserpine: Council office, Coconol, Colour Me Crazy and Akiah Elan.
The benefits of a farmers market to a region are many, including economic, environmental and social benefits, according to consultant Shane Stanley, who is overseeing the project.

"Farmers markets can contribute millions of dollars to rural communities," said Mr Stanley, who is the man behind the incredibly successful Noosa Farmers Market, which injects more than \$30m annually into the local economy.

Qld Food Alliance Update – June 2011

The Bowen Industry Development Officer, Denise Kreymborg is a member of the Queensland Food Alliance. The Queensland Food Alliance is an informal networking and business building group established to connect and assist food and beverage related firms and stakeholders through out the various regions and food industry led forums in Queensland. The QFA concept has been acknowledged by the Minister for Primary Industries, the Hon. Tim Mulherrin.

The QFA is a joint initiative facilitated by the Food & Supply Chain Unit of DEEDI and the industry led forum FoodQ.

Queensland Food Alliance involvement activities

Queensland Food Policy (draft)

After over 12 months of consultation, discussion and input, the draft of the Queensland Food Policy was announced the Minister the Hon Tim Mulherrin.

This document has been attached for you to read and comment on – feedback can be provided via the contact details on the last page of the document. Industry is invited to respond up to 5pm on 15th August 2011.

At the same time as the release of the document, Minister Mulherrin announced an allocation of \$2 million from the State budget to support the implementation of food policy initiatives.

Queensland Food Fellow

Just to demonstrate further that food is a high priority to Queensland Government, the Queensland Food Fellow was appointed in April 2011.

Well known food industry consultant Alison Alexander was appointed as the inaugural Queensland Food Fellow. The Food Fellow's role is to engage and influence other food opinion leaders including chefs and media to preference and profile Queensland's diverse agriculture and food to domestic and international consumers.

The Food Fellow will also profile Queensland's unique and iconic regional produce as well as lead a food reputation advisory group to advise the Queensland Government – see attachment.

The Food Fellow can be contacted via the Department of Employment, Economic Development and Innovation (DEEDI) - 07 32393254 or email queensland-grown@deedi.qld.gov.au

New Alliance Participants

We would like to welcome some new QFA participants including:-

- Gympie Food Cluster Group – via Lynne Wilbraham at Gympie Regional Council,
- Murri Munchies: Wide Bay & Burnett Native Food Alliance – via Zona Hussey-Smith from DEEDI and
- Sth Burnett Food Group – via Ross Anderson at Sth Burnett Regional Council.

We look forward to providing valuable connections to a wide range of food firms, industry groups and industry opportunities.

FoodQ News

The AGM for FoodQ took place recently and a number of new Executive Officers were appointed. Martin Duncan has taken over from Jennifer Beadnall as Chairperson and brings with him significant experience and connections within the food and beverage sector. As many of you would know, Martin has been very active leading the Qld Food & Beverage Industry group and is excited about working synergistically with the two groups.

Mike Royal has replaced Renee Weaver as Vice Chair and brings with him a wealth of food manufacturing experience, as well as his role with the Gold Coast Food Forum. Mike is also an Executive Officer with FIAQ (Food Industries Association Qld) so will help connect a number of industry forums.

Tour to Food & Science Precinct at Coopers Plains

FoodQ is organising an industry tour of the Coopers Plains Food and Science Precinct on Thu 7th July. You do not need to be a member of FoodQ to attend and this will be an excellent opportunity to see this world class food science facility and meet some of the FoodQ members.

For further details you can go to www.foodq.com.au or contact the FoodQ Secretary to register your interest via fo-navanilla@hotmail.com

Stop Press – “Off the Eaten Track” is being repeated by Channel 7 commencing in June. 1.30 on Seven Two each Saturday. This program has a segment on Airlie Beach Hotels Capers Restaurant using Grown in the Whitsunday and Made in the Whitsunday products around their ‘Localvore’ tour and menu items.

Update on DEEDI Projects— Sarah Limpus

Bowen soil health trial update

Permanent beds, organic surface mulch, controlled traffic, reduced tillage and compost are being used in a field trial at the Bowen Research Station. The aim is to identify the effect these practices have on physical, chemical and biological soil characteristics. A sorghum crop was mulched to provide bed cover for the permanent beds while plastic mulch was laid in the conventional and controlled traffic treatments. Capsicum and zucchini seedlings were planted in June and baseline soil samples were taken.

Sensitive waterways project Bowen update

Activities in the Bowen area aim to develop and identify tools, and processes for on-farm nutrient management to reduce the risk of nutrient movement into fresh and marine waters. Wetting front detectors have been installed on-farm and at the Bowen Research Station to monitor salt and nitrate concentrations of vegetable root zones and leaching. A nutrient budget will also be developed for these crops to contribute to Queensland baseline data on crop requirements.

Biodegradable mulch in vegetables

Evaluations of new biodegradable mulch products will begin in July, with capsicums and melons being planted on the Bowen Research Station. There is an opportunity for us to work with growers testing the products in on-farm commercial situations.

For more information on these projects see: www.dpi.qld.gov.au/30_20298.htm or contact Sarah Limpus at the Bowen Research Station on 07 47614000, sarah.limpus@deedi.qld.gov.au.

Industry Development Officer - Key meetings, projects and initiatives update

Dimethoate & Fenthion

The review of Dimethoate and Fenthion is due out by the end of June however as yet we have not heard anything from the APVMA on what the review will say. All other information throughout industry is speculation at this stage as to what the review will mean for the industry. The systems approach work being developed through Subra at the Bowen DEEDI research station is almost complete with the Tomato report for the project now completed and under review by key government officers – it will then be looked at by regulators to determine what will be included in a systems approach and what potentially will be acceptable as market access. Key meetings have been held around this issue. Further information will be provided as more information is known.

Irradiation as a future option for domestic and export market access

Meetings were held with Steritech recently to discuss the option of irradiation as a replacement for Dimethoate and Fenthion for market access. BGDGA has funded a project into supporting this as an option. An application will be made to FSANZ for acceptance but this process could take up to a year. Irradiation is readily accepted worldwide however it is only accepted for domestic use in Australia on a limited number of commodities. Further updates on the research currently being undertaken will be provided as it is completed.

Melon Industry Development Manager and Richard De Voss

Recently Dianne Fullelove, Richard De Voss & the Australian Melon Association President Mark Daunt visited the Bowen and Gumlu region. Discussions were held around the proposed Watermelon Levy and the way forward in ad-

ressing grower's questions.

Growers wanting further clarification on the details surrounding the proposed levy or who would like to express their opinion directly to the Australian Melon Association should attend the upcoming Melon Forum to be held on the 1st & 2nd July 2011. For further details and registration please contact Dianne Fullelove on 0413 101 646.

Launch of the Farmer's Market Survey

The launch of the Farmer's Market Survey saw quite a number of local businesses, government representatives and the local community were on hand to promote and sup-

port the development of a local farmers market. There is potential for the local farmers market to be a centralised distribution centre for local restaurants, Islands and surrounding communities to access fresh produce from the local horticulture industry.

Potential Skills shortages and Skills retention programs

Meetings were held in Brisbane recently with the Director, John Bird and Project Manager Greg Crossan from DEEDI's Agribusiness Skills & Extension Strategy to discuss the many different challenges in the area of skills facing the horticulture industry over the next 5 to

10 years. The IDO is currently working on a horticulture skills strategy and accessing funding from the Strategic Investment Fund to support a position with Bowen District Growers Association over two years to support the industry in the area of skills.

Queensland - India Food and Beverage Opportunities Seminar/ Webinar - Series I

The IDO attended the following Webinar:

India has become one of the fastest growing economies and is now Queensland's third largest export market.

An emerging middle class of 300 million is seeing growing opportunities for many consumer items, including niche food and beverage. According to a study by McKinsey & Company, the Indian food market is poised to grow from US\$181 billion in 2009 - 10 to US\$258 billion by 2015 and US\$320 billion in 2025.

Food and beverage products are the biggest consumption category in India, with spending on food accounting for nearly 21% of India's GDP. Additionally domestic spending on food and food products constitutes a large portion of average Indian consumer spending of more than 31% of their income.

Trade & Investment Queensland is hosting a 'Queensland - India Food and Beverage Opportunities Seminar/Webinar' aimed at educating Queensland's food and beverage companies about the opportunities this market presents.

This event will be an excellent opportunity for Queensland companies based to be informed on market trends and potential business opportunities in the food and bev-



erage sector in India.

The Queensland Government's Trade & Investment Commissioner for South Asia, Mr Rod Solomons, will be presenting online for the Seminar/Webinar along with a key representative from India's Food and Beverage sector involved with importing international products.

Made in the Whitsundays, Grown in the Whitsundays

Recent meetings have been held with Coles around the Grown in the Whitsunday logo being displayed in all their Coles supermarkets Queensland wide. They will be also including the brand as part of their Master Chef marketing campaign this season. Unfortunately we have had a late season and we are yet to see too much fresh produce from the Bowen region in stores.

Other meetings have been held with the Made in the Whitsundays, Grown in the Whitsundays management committee to work on delivering a new focus for the brands at a local level and nationally. A proposal will be put forward to apply for some funding from the Blueprint for the bush funding out of DEEDI to develop a strategic marketing plan. Meetings were also held with Tourism Queensland and Tourism Whitsunday to work on Agritourism style activities that will potentially deliver marketing support for the brands and initiatives across both tourism and horticulture.

ACACA Delegation to China Application

An application has been made to ACACA to send a delegation of growers and industry representatives to China. The application is based on gaining key knowledge around value adding opportunities for the fresh produce sector in this region, securing investment attraction and the potential export markets in the region.

Recycling

Meetings have been held with a business wanting to recycle local t-tape with future plans for the polyethylene mulch film. It is currently only a concept with initial expressions of interest taking place around how much of a need there is for a recycling plant.

Reef Guardian Farmers

The Steering Committee for the Horticulture, Cane and Graziers met recently to go over details surrounding the new program to include agricultural industries as Reef Guardians. A set of guidelines is being developed for growers to become reef guardians. A number of farms have been pilot farms this year with great results. For further information on becoming a Reef Guardian Farmer please contact BDGA on 07 4785 2860.

Mackay Whitsunday REDC Agribusiness Education & Skills Supply Chain Audit

The Steering Committee for the Agribusiness Education Supply Chain Audit has completed the report on the current levels of education and skills within Agriculture and where there is a need for support from government and industry. This report has been passed to the Minister the Hon Tim Mulherin and others within the Department of Employment, Economic Development & Innovation. The Steering Committee believes this report will help set skills as a priority for this region.

Load Limit on the Bowen Development Rd

The IDO was able to gain access to the Bowen Development Rd during the load limit restrictions. The process of negotiation through BDGA meant that authorisation was held by BDGA and given to individual transport companies as needed supporting an uninterrupted supply chain at the beginning of the season.

Food Circle

The Food Circle working group is currently developing a list of recommendations to support the horticulture industry in this region in a number of key areas. The recommendations will be presented to DEEDI to support further funding or initiatives in this region around horticulture. Some of the recommendations will be actioned to support delivery of outcomes for horticulture in the short term in key priority areas. These recommendations will be around value adding, processing, local supply chains, niche markets

and investment attraction opportunities.

Cyclone Yasi and Flooding Funding Meeting

This past week a meeting was held with Peter Long and Advisors from the Minister, The Hon Tim Mulherin's Officer regarding the inclusion of the Whitsunday Regional Council in the QRAA disaster relief.

Grants are now available from QRAA to assist your business to pay for costs arising out of direct damage caused by Cyclone Yasi and flooding.

Grants of up to \$25,000 are available to assist eligible small businesses as follows:

Initial grant: up to \$5,000 to assist you with immediate recovery
Subsequent grant: up to \$20,000 to recover costs that you have paid in order to repair direct cyclone damage. Assistance under this scheme is not intended to compensate for loss of income. Assistance provided is subject to future audit.

How can the assistance help you?

The assistance enables you to cover the costs associated with cleaning and restoration activities including:

- purchasing, hiring or leasing plant equipment or materials to clean or resume business activities
- clearing or disposing of debris and damaged goods repairing buildings or essential fittings in buildings other than houses leasing
- temporary premises for the purpose of resuming trading
- replacing lost or damaged stock essential to resuming trading engaging a person clean or to conduct a safety inspection of premises
- paying additional wages to an employee to assist with the clean-up and restoration work.

For further information or to apply for this funding please do not hesitate to contact BGDGA .

For further information on any of the above contact:
Denise Kreymborg
Industry Development
Officer, BGDGA, 07 4785 2860 or
bdgainsc@bigpond.com

Greengrocers incensed by profiteering claims

Independent greengrocers, who are already discounting fruit and vegetable prices heavily, were incensed at media claims they were profiteering from the fluctuating values of fresh produce in the wake of Queensland's natural disasters.

Queensland's Sunday Mail newspaper raised alarm with a headline "Buyers Get the Rough End!" claiming mark ups of 300%, including pineapples that were 14 times more in price than what the grower received for growing them. Parts of the story were repeated the next Sunday, further inflaming the situation. Brisbane Markets buyers said the claims were disturbing and bordering on scurrilous.

Crispy Carrot Mt Gravatt greengrocer Joe Hanuman said the accusations hurt retailers with customers admitting they were deterred from buying and eating fresh produce because they believed the price was inflated.

"Most of us are heavily discounting to keep price consistency for our customers in what has been one the toughest years in my 33 years experience, and this is the last thing we

needed," Mr Hanuman said.

"Bananas are just one example where we are barely covering our costs, and sometimes losing, to keep our prices down. Where does the profiteering come into that?"

Award winning retailer Carlo Lorenti, of Clayfield Markets Fresh, invited the journalists behind the Sunday Mail article to spend a day in the life of the greengrocer at his store but was not taken up on the offer.

He said the open invitation would have been eye opening when an outsider saw the price sacrifice that most greengrocers offered every day just to keep people walking through the doors.

"The independent greengrocers are suffering and sacrificing prices at a time when there is a strong push to encourage people to take the healthy option to eat fresh," Mr Lorenti said.

"Such media reports and price suggestions, which are not substantiated, do enormous harm to the industry and lead consumers to think they can't afford to eat healthy food."

Brisbane Markets Limited Director Peter Betros, of Betros Bros, said

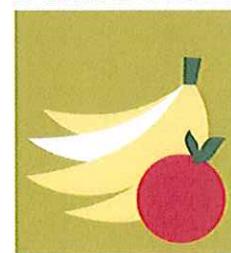
most greengrocers were struggling to make a living and meet the overheads of running their business.

He said despite the restrictions in supply which have resulted from the difficult climatic conditions over the past six months, and the resultant increases in prices which have occurred, fresh fruit and vegetables remain the best value for money healthy eating option available.

"You can find extremes in any story on price and it looks like that is what the journalist has done in this case," Mr Betros.

"Unfortunately such reporting has the ability to hurt many people in an already challenged industry during one of their most difficult seasons on record."

BRISBANE



PRODUCE MARKET

From boots to suits a well deserved recovery

Bowen District Growers Association (BDGA) President, Carl Walker, and his wife Trudy, learned firsthand how the Brisbane Markets coped with its recovery after 2011 floods when it joined its workers to help remove the working and gum boots to don frocks and suits for the annual Brisbane Produce Market Gala dinner.

The Walkers flew to Brisbane especially for the event, knowing they would have to be back the next evening in Bowen for their own BDGA gala dinner.

The 'Boots to Suits' themed dinner at the Brisbane Convention and Exhibition Centre was labeled as the Queensland fruit and vegetable wholesaler's night of the year, with 600 sponsors, retailers, wholesalers and tradespeople turning out to raise a glass after months of flood recovery.

ery.

The night was a tribute to those involved in the massive Brisbane Markets clean-up who spent days working alongside contractors and volunteers to pull the site into working order.

Special guest Queensland Premier Anna Bligh was on hand to announce the annual Brisbane Produce Market Retailer of the Year, with the award going to Birkdale greengrocers Nick and Vanessa Pavlou of Paradise Fruits. As winners, Para-

dise Fruits received a trophy and a \$10,000 promotional prize. They took out the award for excellence from 140 independent greengrocers who participated in 2010.



News from GROWCOM

The clock is ticking on forklift licences

Anyone operating a forklift on-farm will need to obtain a forklift licence by 1 January next year. Growcom is now facilitating on-farm forklift licence assessments to enable growers to be assessed for their forklift licences using Recognition of Prior Learning (RPL) principles. This means you may not have to do a course but can be assessed on-farm. If you would like more information or to book a time for your training please contact Growcom's Admin Officer Michael Cowan on 07 3620 3844 or email mcowan@growcom.com.au

Certification to 2nd Edition Freshcare Environmental Code

Growers who operate in compliance with Freshcare's Environmental Code will need to progress to the second edition. This will not involve training and can be undertaken by completing a manual sent out to growers by Freshcare. All growers will be audited under the second edition by January 2012.

Industrial Relations News

FWA increases minimum wage by 3.4 per cent

Fair Work Australia's minimum wage panel released its 2011 [minimum wage decision](#) on Friday 3 June 2011. The decision increases the national minimum wage to \$589.30 per week or \$15.51 per hour - an increase of \$19.40 per week or 51 cents per hour.

The decision will take effect from the first pay period commencing on or after 1 July 2011, and will apply to all workers on the minimum wage, including employees working under the *Horticulture Award 2010*. The minimum wage went up \$26 a week last year after a wage freeze in 2009.

While modest compared to the 2010 increase, this increase will still cause some difficulties for those

employers worst hit by the natural disasters this summer. However many growers are philosophical, knowing that their employees have also been hard hit by the disasters, with some losing their jobs or having hours reduced due to a lack of work.

All efforts are being put into recovery, rebuilding and replanting and so a renewed focus on improved skills and productivity will be required to ensure ongoing employment and a viable industry. Wage summary sheets for 2011/12 together with transitional tables are now available on the Growcom web site and can be faxed out on request.

Phasing of minimum wages, penalties and loadings under the *Horticulture Award 2010*

For Queensland horticulture enterprises without a Workplace Agreement, please contact Growcom or your local Industry Development Officer, Denise Kreymborg for phasing provisions under Schedule A of the Award apply from the first pay period commencing on or after 1 July:

FarmReady grants available from 1 July

FarmReady reimbursement grants will be available again from 1 July - and the program has been expanded to include agritourism and food tourism training. Federal Agriculture Minister Senator Joe Ludwig said this would help fill the gap between agricultural sector skills and the skills required for tourism.

"This gap was identified in the ABARES 2010 study *Drivers of regional agritourism and food tourism in Australia*, where it was found that agritourism opportunities are often underutilised on farms," Senator Ludwig said.

Senator Ludwig said that whether it was inviting people on farm to pick their own fruit, catch trout at a fish farm, help muster cattle or make their own wine, the farming sector offered many valuable experiences for families, couples and individuals off the beaten tourism track. He said the \$34.4 million Farm-Ready program had been remarkably successful, providing more than 22 000 training opportunities for primary producers, wild game harvesters and indigenous land managers since February 2009. "The program was so popular that funding for the financial year was exhausted by November 2010," Minister Ludwig said. When the program re-opens on 1 July 2011 changes will be introduced to extend the availability of funds and make the program accessible to more primary producers. "Primary producers and wild game harvesters will now be entitled to a reimbursement of 65 per cent of the costs of approved courses," Minister Ludwig said. "While they will be asked to make a contribution to the cost of their training, there is no change in the total amount of funding an individual can claim under the scheme. "Each primary producer can still claim up to a maximum \$1500 each financial year, with funding up to \$500 also available to assist with travel, accommodation and child care expenses. "These changes will ensure that funding is available over the coming year to fund more opportunities for more primary producers." More information about FarmReady can be found on the [DAFF web site](#).



growcom
together we grow

News from GROWCOM cont..

Record fine for land clearing in central Queensland

The largest ever single prosecution of a landholder responsible for land clearing was enforced in Rockhampton's Magistrates Court last month. Prosecuted under the *Integrated Planning Act (1997)* a Central Queensland couple was fined \$122 000 for the illegal clearing more than of 320 hectares of remnant native vegetation. Additionally, they were required to cover the court and legal costs of a further \$19 000. The breach was discovered through analysis of satellite imagery by the Department of Resource Management (DERM) under the Statewide Landcover and Trees Study survey.

Update on Malaysian Agricultural Produce Regulations

The Malaysian Parliament passed the Grading, Packaging and Labelling of Agricultural Produce Regulations in August 2008. The federal Department of Agriculture Fisheries and Forestry (DAFF) has ad-

vised that this regulation will be enforced on 1 July 2011.

It covers the grading, packaging and labelling of agricultural produce imports and exports in Malaysia. It also affects the grading, packaging and labelling of agricultural produce at the wholesale and retail level. Certain information will be required in the Bahasa Malaysia (the local Malay language). Stickers will be allowed but must be put on before entering Malaysia.

Malaysia has agreed to a "dry run" of the enforcement provisions for a six month period. During this period, products that do not meet the new requirements will still be allowed market access although "warnings" could be issued.

DAFF is currently following up on five issues relating to the GPL regulations:

- the enforcement date - noting US industry advice that the enforcement date may be delayed until 1 August 2011

- trading partner views on remaining concerns with the GPL Regulations
- mixed consignments - seeking alternative options for labelling as this requirement will require traders to label each of the packages sourced from wholesale markets within a very limited timeframe to ensure they meet air freight schedules
- labels on bags of produce - seeking clarification that the label on the string bag can be applied to the inside of the bag or sewn onto the string bag so long as the information is clearly visible for inspection
- Schedule 2 of the GPL Regulations for Mandarins - noting that for mandarins, the Second Schedule lists this type of produce as 'Mandarin orange (domestic)', DAFF is seeking advice on why the term 'domestic' has been included here and what it means for imported mandarins.

For further information, please contact Tom Black, A/g General Manager Bilateral Trade - Trade and Market Access Division on 02 6272 4365 or email tom.black@daff.gov.au

Advice From Japan

Three months have passed since the devastating earthquake and Tsunami that hit Japan on 11 March 2011. During this period the Queensland Government has maintained its commitment to Japan through the efforts of the Trade and Investment Queensland office in Tokyo.

Commissioner Tak Adachi and the team in Japan and Brisbane are now gearing up for a range of initiatives for next financial year and Queensland businesses are encouraged to participate to capture new opportunities and deepen their relationship with Japan.

To find out more please contact Stephen Biggs, Director, Overseas Market Development Asia by email Stephen.Biggs@trade.qld.gov.au or phone

3224 6823 or Julie Yamamoto, Senior Trade Officer, by email Julie.Yamamoto@trade.qld.gov.au or phone 3235-4132.

Our counterparts at the Consulate-General of Japan, Brisbane have also asked that we would share with you the attached information concerning the situation in Japan.

1) "Japan is Open for Business" is an article written by Foreign Minister Takeaki Matsumoto stating the current situation in Japan, and that the country is open for business. This article was contributed to the International Herald Tribune – Weekend Edition on 30 April / 1 May, 2011.

2) "Information on safety in relation to

radioactivity level" provides a list of regularly updated websites in English detailing comprehensive scientific data in relation to the safety of Japan.

If you are considering travel to Japan remember to check the Department of Foreign Affairs and Trade Smarttraveller website <http://www.smarttraveller.gov.au/zw-cgi/view/Advice/japan> and register your travels online.

Best regards,

Rob Whiddon
Managing Director
Trade and Investment Queensland

The non-poisonous truth about pesticides

According to recent press advertisements signed by "prominent Australians and organisations", dangerous pesticides are being used in Australia despite not being allowed in other countries. This information must be, and is clearly intended to be, alarming to the average Australian. Pesticides are inherently hazardous and the suggestion that cancer-causing chemicals are unnecessarily adding to that hazard will cause concern.

If the signatories to the advertisements, many of whom are not in fact prominent at all, were engaged in commerce or trade, they may find themselves in a court accused of misleading and deceptive conduct and facing huge fines. That's because their claims are false and a gross slur on Australia's farmers.

Agricultural chemicals are as tightly regulated as human pharmaceuticals. It takes many years and tens of millions of dollars to gain approval for a new chemical. Some people suggest that, because humans are not used as food and therefore residues not considered, the regulatory path is actually easier for human drugs.

Correct use is obviously vital. Take too many of your blood pressure tablets and you will feel a lot worse. Give them to your child or cat and they might die. Some have long-term consequences or leave toxic by-products in sewage.

The same goes for agricultural chemicals. They must be applied for the right reasons, at the right time, at the right rate. And when they are, the regulatory authorities have confirmed that they do not pose an unacceptable hazard to those using them, other people or the environment. Indeed, the purpose of the regulatory system is to ensure the hazard is acceptable.

What the advertisements claim is that in the case of a number of older chemicals, the hazard is not acceptable based on "current standards". It does not describe these standards, nor is any reason given beyond the fact that the products are no longer sold in some other countries. It is nonetheless

inferred, and the group's press release asserts, that it is for safety reasons as some are "suspected" carcinogens or "potential hormone disrupters", although no evidence is offered.

The truth is quite different. The reason chemicals are still sold in Australia despite having been withdrawn in other countries is that our agriculture is different. We grow different crops, suffer different pests and have different agricultural conditions, so naturally we need different pesticides.

Companies that sell minor quantities of a product in one market but large quantities in another will naturally pull out of the minor market first. Thus there are products no longer sold in Europe but still sold in Australia, and vice versa.

The reference to current standards is a misrepresentation of the policy of regulators in some countries (including Australia) to encourage the updating of data on approved chemicals to the same standard required of new chemicals. A product approved 30 years ago, for example, would have been assessed based on the technology of the time rather than current technology.

In a number of cases the cost of generating additional data to meet these standards has exceeded the commercial value of the chemical, so the manufacturer has opted to withdraw it from the market. Some chemicals are no longer on the market anywhere for that reason, while others have been withdrawn from individual markets.

But this says nothing about whether they are dangerous or not. Indeed, a product that has been used for 30 years will be very well understood and additional analysis to fill a data gap is highly unlikely to throw up any unknown problems.

Further, there are also numerous instances where regulators have opted to ignore gaps in the data because the product is too valuable to the agriculture industry and no real alternative is available. The requirement to conform to current standards is not absolute; food production comes first.

One of the signatories to the campaign is Choice, which showed its hand by claiming: "There are more than 80 chemicals and pesticides used every day in Australia that are banned in Europe." That statement has now been removed from the organisation's website but it illustrates the lack of integrity behind the campaign.

That is a shame. Choice is relied on by many Australians for unbiased consumer advice, on things like choosing a washing machine or buying health insurance. The public would like to think it knows what it is talking about. Unfortunately, by joining this campaign it not only misleads consumers but casts doubt on the integrity of all its advice.

If the products of concern to Choice and its fellow advertisers were removed from the market in Australia, farmers would struggle to control pests in their crops. The costs of production would rise, forcing prices up to consumers and reducing quality. Production would decline, reducing exports and encouraging imports. Farmers would also be compelled to resort to older style methods of pest control, including tillage. This is not only costly but encourages erosion and soil degradation as well as requiring the consumption of more fuel.

Ironically, most of those named on the advertisements would be able to cope with higher food prices. They are nearly all well paid and depend on the public sector rather than private enterprise for their living. By the time they felt any pain, a lot of Australians would have suffered a serious drop in their standard of living.

The best thing consumers could do is ignore them and hope everyone else does as well.

David Leyonhjelm

Published 3:48 PM, 21 Jun 2011



**Bowen & Gumlu
District Growers**
**Armed, Dangerous &
Notorious**



**Gala Industry
Dinner 2011**
**A GREAT
EVENING HAD
BY ALL**



Economic Brief: Ian James - Economic Sub Program, National Vegetable Industry Development Program

A bad news week on the economic front.

It was one of those weeks where you wished you should have stayed in bed. The economic news on all fronts was bad. On the external front, the Greek tragedy refuses to go away. The Greek population is paying a high price for an inefficient tax collection system, a bloated public service, excessive expenditure and consequent high debt levels. From an Australian economic perspective, Greece is not that important. However, how Greece handles its economic difficulties is. The European banks, particularly in France, hold a lot of Greek debt and are exposed if Greece defaults on its debt obligations. More frightening is the possibility of the contagion impact on other highly indebted countries namely, Ireland, Portugal and more importantly Spain. A financial crisis in Europe triggered by the Greek situation would reverberate around the world.

Employment numbers weak.

Domestically, employment numbers were very weak. For the second month in a row the Australian economy shed full time jobs. There can often be a rogue month in a general trend. But weak employment numbers for May after a poor April had economists standing on their heads. Over the two months, 79,200 full-time jobs were lost. The job loss may have been a reaction to the weak economic growth recorded in the March quarter, but the ANZ Bank job advertisement series, a good indicator of employment prospects going forward, also fell back 6.5% in May. These figures suggest that the hefty pace of employment generation in the latter months of 2010 may have ended and that Treasury forecasts for jobs growth this year is optimistic.

Confidence falling.

Consumer and business confidence surveys were released during the week. Both went backwards. Consumer confidence fell to its lowest reading in two years in May. A separate report showed that delinquency mortgage rates are on the rise. Clearly, some households have undertaken levels of debt that are unsustainable. Falling house prices cou-

pled with forecasts of more to come will not assist households already under mortgage pressure and are likely to dent consumer sentiment. The National Australia Bank survey of business conditions fell for the second consecutive month, with weakness across all the major indicators of activity. Business leaders across the country went on record attesting to weak economic conditions in all but mining and related industries with worries about interest rate, petrol and utility price hikes.

Glen Stephens to the rescue.

In amongst all this gloom, the Governor of the Reserve Bank, Glen Stephens, gave an upmarket speech in Brisbane extolling the virtues of the resources boom and faith in the underlying strength of the Australian economy. This was coupled with a warning of the inflationary dangers imposed on the Australian economy from the boom and the possible need for a further interest rate rise. Good one Glen.

Interest rates on hold.

At its meeting last week, the Reserve Bank of Australia decided to keep interest rates on hold. While the majority of economists and financial market analysts had forecast no movement, some economists were not so sure following hawkish statements from the Bank in mid May. However, the case for an interest rate rise was never strong given the uncertainties surrounding the stability of some European economies and weak data out of the US. The tone of the Reserve Bank's comments accompanying the announcement was also much softer. Indeed, even with better news from overseas a strong case can be made for not increasing interest rates at all.

The case against an interest rate increase.

To recap, the argument for interest rate increases is that they are necessary to prevent a break out of inflation due to the pressure that the mining boom will place on already stretched labour markets and the boost to incomes and demand flowing from the wealth generated. But interest rate increases are not industry specific. They apply across the



economy. In the present economic climate where the mining sector and related industries are in boom and others clearly struggling, interest rate increases will cause considerable harm to these latter industries. Try selling an interest rate increase to home builders, retailers, manufacturers, tourism operators and vegetable growers facing mounting cost pressures without offsetting price increases. Interest rate increases are not going to curb the mining boom. A lot of the investment is either being financed by the strong cash flows that the mining companies are generating or from overseas funding or from loans already in place. The brunt of interest rate increases will be borne by consumer related industries. Coupled with other cost increases and households under pressure due to high utility and petrol prices and fears about future economic prospects, other industries may pay a high price in the short term for the mining boom.

Census forms on the way.

Agriculture Census forms are in the process of being sent out. The Agriculture Census is conducted once every five years. As the completion of the Census form is compulsory for all agriculture producers, the Census provides a unique opportunity for collection of data on the vegetable industry without the use of grower levy money. Vegetable growers should have no fear over the use of the data that they provide. The information provided by individuals on the form is confidential. The data collected is collated together to provide data to be used on industry-wide activities such as formulating policy. In the past, the vegetable industry has been short changed through under reporting of production and other economic variables. Vegetable growers are urged to fill these forms in conscientiously. The quality of data output depends on the quality of the input.

Build a sustainable future for your business and the horticulture industry by becoming a member of Bowen & Gumlu District Growers Assoc.

Bowen & Gumlu District Growers Association

A strong and cohesive organisation providing a voice for our members and building a more sustainable future for the industry

Bowen & Gumlu District Growers Association

- represents the interests of the horticulture industry in Bowen and Gumlu
- invests in Research and Development projects and programs that best meet the needs of the industry locally
- provides strategic planning and the development and management of programs that provide benefits to the growers
- identify and coordinate activities to address

current and emerging pest & disease issues that impact on the local industry

- Coordinate information flow to enhance farming businesses
- Provide a link between government and industry to support growers
 - Look for initiatives and incentives that grow farming businesses and encourage profitability long term
- Is passionate about every farming businesses sustainability long term

Please tick the boxes that are applicable to your business and fax to: 07 4785 2211

1c per carton capped at \$2500

Minimum amount payable \$500

\$1 per tonne capped at \$2500

Amount payable: \$ _____.



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Address: _____

Ph: _____ M: _____ Fax: _____

Email: _____

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Payment can be made via Direct Debit or posting a cheque.
A tax invoice will be issued upon receipt of this fax back form.

Bank Account Details

Westpac
BSB: 034 166
A/C No: 18 2276
A/C Name: Bowen and District Growers Association Inc

BGDGA

Ph: 07 4785 2860
Fax: 07 4785 2211
M: 0427 701 225

P O Box 489, Bowen Qld 4805

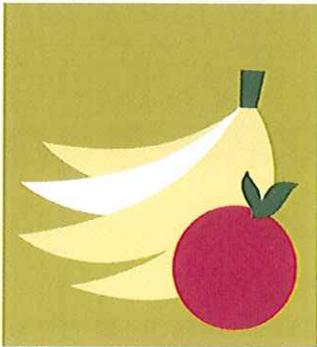
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BRISBANE



**PRODUCE
MARKET**



**INNOVATIVE PACKAGING
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Save the Date

MELON MARKETING FORUM 2011
Townsville, 1st & 2nd July, 2011
REMINDER

The Melon Marketing Forum is fast approaching. Join us in Townsville on 1st & 2nd July to hear speakers on:

- The success of melon marketing programs in the US
- US National Watermelon Association
- Why the Australian avocado industry backs its marketing program
- How and where to export melons
- How market reports will assist your marketing program
- Get the supermarkets perspective on marketing and retailing

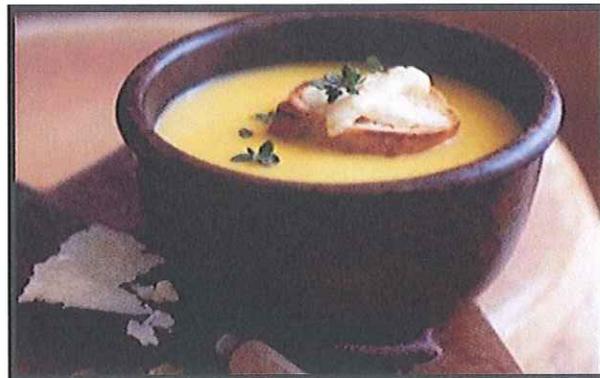
AND this is your chance to hear the draft Marketing Plan for watermelons and discuss the proposed introduction of a marketing levy for watermelons.

Registration and program details are available at:
www.melonsaustralia.org.au

REMEMBER

**National minimum wage
Increase—for further
information please contact
BGGGA on 07 4795 2860**

Parmesan & Butternut & Squash Soup



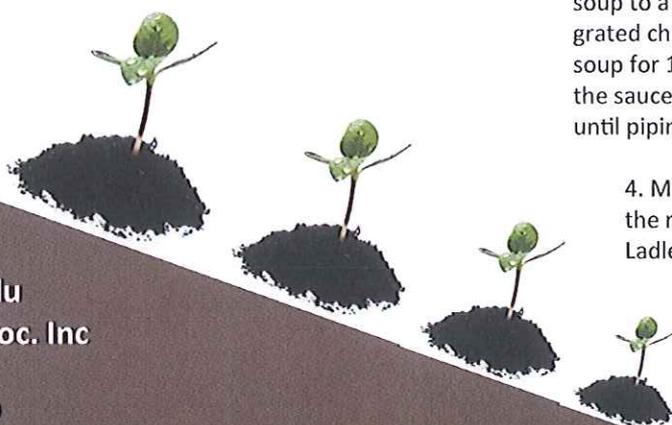
Ingredients

150 g **parmesan**, (parmigiano-reggiano) with rind
25 g **butter**
1 large **onion**, finely chopped
1 medium **butternut squash**, peeled, deseeded and chopped into chunks
900 ml hot vegetable stock
150 ml **milk**
4 - 6 slices French bread
fresh parsley or **thyme**, chopped to garnish

Adding the parmesan rind to this soup while it cooks gives it a fantastic depth of flavour

Method

1. Reserve the rind from the parmesan and cut it into chunks, then finely grate the cheese.
2. Melt the butter in a large saucepan, and gently fry the onion for about three minutes, until softened, but not browned. Add the butternut squash, vegetable stock and parmesan rind. Heat until the mixture is just simmering, then turn the heat to low and cook gently for about 20 minutes, partially covered, until the vegetables are soft and tender.
3. Remove the rind from the saucepan, then transfer the soup to a blender or food processor and add most of the grated cheese, reserving about 25g for garnishing. Blend the soup for 15-20 seconds, until completely smooth. Return it to the saucepan and add the milk. Stir thoroughly and reheat until piping hot. Taste and adjust the seasoning.
4. Meanwhile, toast the slices of french bread, sprinkle the remaining parmesan on top and grill until melted. Ladle the soup into warmed bowls, then top each portion with one piece of toasted french bread. Sprinkle with fresh parsley or thyme and a little extra ground black pepper, then serve.



**Bowen Gumlu
Growers Assoc. Inc**

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the Industry Development Officer project.

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Know-how for Horticulture™

**SPECIAL
POINTS OF
INTEREST:**

- Females lead males in purchasing vegetables
- Check out our sponsors
- Veg Insights—great reading
- What's cooking in the kitchen
- Permits for this month
- Now is the time to be a member of BDGA

INSIDE THIS ISSUE:

Growers search for market history	2
Growing Business Course	3
Brisbane Produce Market Mango Auction	6
Vegetable Imports Flood In	7
New Rules—Elevated Work Platform	9
Endosulfan Cancelled	10
Growcom IR Update	12



Coles partnership a positive for Bowen after a devastating seedling sabotage



A positive step has come out of the devastating Bowen horticulture seedling sabotage in July with Bowen District Growers Association (BDGA) and Enterprise Whitsundays (EW) striking a deal with Coles Supermarkets to display the 'Grown in the Whitsunday's' brand.

BDGA encouraged consumers to look for Whitsunday-grown fresh produce in a key strategy to help growers financially survive the sabotage that saw up to seven million of their seedlings destroyed.

BDGA Industry Development Officer and Director of EW, Denise Kreymborg this month met with Coles Supermarkets to encourage the use of Whitsundays brand on fresh fruit and vegetables supplied by Bowen growers.

The new partnership has secured a deal for growers in Bowen which will see their 'Grown in the Whitsundays' produce on Coles Supermarkets' shelves throughout Queensland next season with the potential to go national the following season.

The recent sabotage wiped out over seven million seedlings with a potential impact on the local community of around \$50 million.

With Bowen growers supply-

ing around 95% of Australia's tomatoes and capsicums during the sabotage impact period of September and October there was some fear around the price consumers would have to pay for tomatoes, capsicums and other commodities out of Bowen.

The sabotage is not the only issue affecting growers and the industry at this time with many other factors impacting on grower's long term sustainability.

Ms Kreymborg said the industry was suffering from non seasonal rain and storm events ruining some crops, the increasing costs of production, pest and disease issues and other potentially devastating issues in the future.

With so many issues affecting grower's sustainability long term, Ms Kreymborg and BDGA developed a strategy for the horticulture industry in Bowen to facilitate a more sustainable future.

Part of this strategy was to look at local branding with a new approach towards marketing fresh produce.

The branding initiative was first developed through funding from the Department of Employment, Economic Development and Innovation (DEEDI) with intensive consultation

with the horticulture industry.

The brand was first launched late last year with the support of Brisbane Produce Market in Brisbane.

During the initial investigation into the sabotage, Ms Kreymborg and BDGA President Carl Walker got consumers thinking about the question 'where does your produce come from?' as part of a strategy to turn a significant negative for the industry into a positive.

This strategy included delivering the 'Grown in the Whitsunday' brand to consumers as part of a 'where does your produce come from?' approach.

"The partnership with Coles supermarkets would not have happened if it wasn't for the support of the Bowen horticulture industry, the BDGA and Koorelah Farms setting up the initial meeting with Coles Supermarket representatives to pitch the idea a week earlier," Ms Kreymborg said.

"The Coles Supermarket partnership is a fantastic outcome and testament to the resilience of the Bowen horticulture industry and its ability to work through issues such as the devastating sabotage we saw in recent months."

Growers search for Markets history

After years of the Bowen region sending its fresh produce by ships, trucks and rail to Brisbane, depending on the era, a call has gone out for any memorabilia, photographs or even good old yarns that growers would have from their days of trading with the Brisbane Markets.

Brisbane Markets has formed a History Task Force to pull together a collection of items that will be exhibited in a purpose-built History Collection Room from late 2011 in the newly refurbished Fresh Centre building. Even the three-storey building it will be housed in once it is refurbished carries a history with it and was once known as the Committee of Direction (COD) or Growcom building.

While the collection will tell the story of the Brisbane Markets from its time in Market Street, Brisbane, in the late 1980s, to the establishment of the Roma Street Markets, in 1884, Turbot Street Markets in 1906 and the move to Rocklea in 1964, it is also a history of horticulture, transport, immigration, invention and people.

The key to collection will be the discoveries people find in their homes

that maybe long forgotten.

Growers are being urged to pull out old photo albums, check their sheds for wooden packing crates and banding stencils and any other items that people today could admire from another time. Items could be either donated or on loan with full credit to the donor, and of course a story to accompany anything is always welcome. Former Brisbane Markets wholesaler and consultant Arch Martin is chairman of the task force, and is backed by a prestigious team of Brisbane Markets Limited (BML) Chairman Tony Joseph, Brismark Chairman Gary Lower and BML CEO Andrew Young. A small administration team works with Mr Martin to help research.

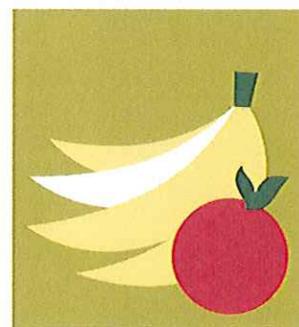
Work has also begun on collecting oral histories from the traders who worked in the City precinct who tell tales of snakes in banana boxes, changing destinies because a holiday job in the Markets for a boy became a career path for a family, and the great acts of larrikinism and strength from the days before regulation and high visibility vests existed.

Anyone interested in talking about the

project, with items to forward or stories to tell are being urged to contact the History Task Force team.

Contact Industry Liaison Officer and History Task Force team member Vanessa Kennedy on vkennedy@brisbanemarkets.com.au, phone 1800 631 002 or mobile 0438 388 111.

BRISBANE



PRODUCE MARKET

Immigration facts for workers booklet

A new information booklet to inform overseas workers of their rights and help reduce the incidence of exploitation has recently been released by the Federal Department of Immigration and Australian Citizenship (DIAC). The booklet contains information on basic employee protections and entitlements, work rights, visa choices,

employer obligations and using a migration agent.

The booklet is specifically targeted at educating both overseas and Australian workers and addresses some common misconceptions on work sites. It is written in English and translated into six other languages based on the main nationalities of vulnerable or illegal workers in Australia. It also contains contact de-

tails for the department, Unions Australia, Fair Work Australia, Office of the Migration Agents Registration Authority and the Translating & Interpreting Service.

You can access a http://www.growcom.com.au/_up-loads/151410Immigration_Facts_for_Workers_Booklet.pdf

Growing Business Business Development Program

*Business
Development
Program designed
to assist growers
to maximize their
potential*

Growing Business is a business skills program designed to assist horticulture businesses maximize their potential. The program has been designed specifically for vegetable growers as part of the Vegetable Industry Development Program. The course focuses on developing business, finance and marketing knowledge and skill through the use of practical projects. There are 4 x 2 day workshops.

Learning includes:

1. Managing the Finances – business planning & building the business
2. Marketing the business – supply chain management & interaction with customers
3. Managing the people – succession planning, managing staff and developing people skills
4. Managing the risk – leadership & risk assessment

This program leads to Certificate IV in Small Business Management. To achieve the qualification, participants must complete the pre-readings and assessments which are all work related and therefore can be applied to the business to make changes. Participants can also receive Recognition for Prior Learning.

When: Session 1 - 16th – 17th February 2011

Session 2 – 2nd – 3rd March 2011

Session 3 – 16th – 17th March 2011

Session 4 – 30th – 31st March 2011

Where: Bowen

Cost: \$450 (incl GST) for the entire program. The remaining cost of \$4,000 per person is funded through the federal government Enterprise-based Productivity Places Program.

To attend or enquire contact

Denise Kreyborg,
Industry Development Officer
Mobile 0427 701 225

Email bdgainc@bigpond.com

Dianne Fullelove,
People Development Sub-Program, VIDP
Mobile: 0413 101 646
Phone: 07 3374 0453
Email diannefullelove@optusnet.com.au



Females lead males in vegetable purchasing

"In the second quarter of this year Veginsights shows that more females purchased vegetables for all but one of the top ten products. This reinforces the trend from previous quarters, that females currently dominate purchasing of popular vegetable products,"

Significantly more females than males are buying the most commonly available vegetables according to a new quarterly vegetable industry report released today.

"In the second quarter of this year Veginsights shows that more females purchased vegetables for all but one of the top ten products. This reinforces the trend from previous quarters, that females currently dominate purchasing of popular vegetable products," AUSVEG spokesperson Andrew White said.

Mr White said the new data may have implications for market development, and would provide vegetable growers with a better understanding of their customers in order to plan new products and capture a greater share of the overall food market.

AUSVEG is the National Peak Industry Body representing the interests of 7,000 growers. In the December 2009 quarter, on average, 76% of females purchased vegetables compared to 64% of males. The new data shows that females continue to have market influence.

"This data indicates an important and loyal customer base that growers must look to maintain in females and also an opportunity for growth in the male demographic," Mr White said.

"Vegetable growers may now be looking to modify product lines and to understand why certain genders purchase particular varieties in order to appeal to a wider market."

The *Veginsights: The Market Q2 2010* report, designed to inform vegetable growers about consumers and markets, reveals that the only product purchased more by males than females was carrots, with around 72 per cent of males compared to 67 per cent of females purchasing the product in the second quarter.

"It's interesting that carrots are the number one product purchased during the quarter on a weekly basis and also the only product purchased by more males than females. This would appear to indicate that preparation options for carrots continue to be widely accessible."

"There has, however, also been a slight trend towards males purchasing more vegetables, with 13 percent of males versus 11 per cent of females purchasing more vegetables, and 78 per cent versus 73 per cent purchasing the same quantity as last quarter," Mr White said.

The report also confirms that the seasoning lines of chilli and garlic continue to be popular with the male palette, with

"In general, the changes in product choice this quarter continued to reflect the vegetable preparation trends with a decline in products that are used in salads like tomatoes and lettuce. This change coincided with increases for low-cost products that are cooked including potato, carrots, pumpkin, mushroom and broccoli," Mr White said.

The Veginsights reports are produced with funding from the National Vegetable Levy and matched funds from the Australian Government. The quarter two report can be downloaded from http://ausveg.com.au/publications/Veginsights/Veginsights_themarketQ22010final.pdf

MEDIA CONTACT: Andrew White, Manager – VIDP Communications, AUSVEG Ph: (03) 9822 0388, Mob: 0409 989 575, Email: andrew.white@ausveg.com.au



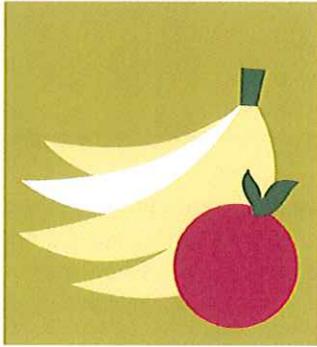
men purchasing more of these products than women, however, neither product made the top ten on a weekly basis.

BDGA thanks the 2010/11 Sponsors

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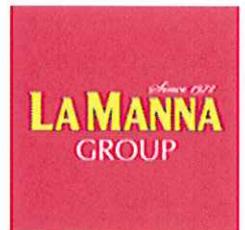
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Brisbane Markets mangolicious auction

Carlo Lorenti from Clayfield Markets Fresh has been crowned Brisbane's Mango King after placing the winning bid of \$50,000 on 2010's symbolic first tray of mangoes at the annual Brisbane Markets Mango Auction.

Bowen growers may know Carlo as one of the team members who flew to the area straight after the seedling sabotage to offer his support, along with the Brisbane Markets wholesalers.

Carlo and his wife are no strangers to Mango royalty winning the crown in 2006 (Carlo), 2008 (Carlo) and 2009 (Susan). Now in its 13th year the iconic fundraising event raised a total of \$65,000 for charity thanks to the Mango Auction, other auction items, raffles and donations.

The funds will be donated to Life Education Queensland – the state's largest non-government provider of drug and health education to children and Red-kite – an organisation that provides emotional and financial support to families of children affected by cancer.

The Mango King said he was proud to make a contribution to such worthwhile causes.

"The Mango Auction is always a hotly contested event but I made a commitment this year to really

dig deep and I'm proud to see the money going where it is needed," he said.

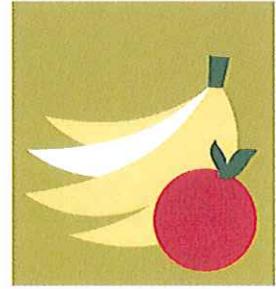
"It's fantastic to support the great work of the two charities involved. Life Education and Red Kite are both committed to Queensland kids in different ways and both are vital organisations which receive little or no government funding."

<<BJP_4762 copy.JPG>>
The 2010 auction was themed "Mangolicious" and featured a spectacular grand parade showcasing Brisbane Bronco Ben Hannant, Australian cricket

greats Jimmy Maher and Andy Bichel, the Fourx Angels Cheerleader Squad and a charity sausage sizzle.

The mangoes in this year's symbolic first tray were sourced from Colton Park in the Northern Territory. This year's tray of mangoes sold for \$5,000 more than last year.

BRISBANE



PRODUCE MARKET

'This year's tray of mangoes sold for \$5,000 more than last year'



Vegetable imports continue to flood Australian food market



Millions of dollars worth of vegetable imports continued to flow into Australia this year, according to AUSVEG, the National Peak Industry Body representing over 9,000 vegetable and potato growers.

New trade data obtained by AUSVEG from the Australian Bureau of Statistics up to June 30 2010, shows that imports have continued to saturate the Australian vegetable market, with Australia's balance of trade in vegetables negative at \$306 million in the 2009-10 financial year.

AUSVEG Communications Manager Hugh Tobin said that imports were a serious ongoing concern for the vegetable and potato industries with \$555 million imported in the past financial year alone.

"There is no doubt that imports from international competitors with lower wages and lower input costs continue to undercut the Australia market, bringing Australian growers to their knees," Mr Tobin said.

"While Australian growers are subject to a range of different quality and pro-

cedural controls to ensure we have the freshest and highest quality products for Australian consumers, there is a cost to bear for this reputation and it's usually born by the grower," he said.

"While horticulture continues to show some positive signs in the context of agricultural production overall, if growers don't get the support they need at this crucial time then our industry may well be irreparably crippled."

Mr Tobin said that increasing imports of fresh vegetables were placing pressure on the fresh section of the market, which had previously been a stronghold of Australian growers. "Fresh vegetable imports have increased alarmingly in the past year from \$48.8 million to \$57.8 million, indicating that growers are under more pressure than ever across all sectors of the vegetable marketplace," Mr Tobin said.

"AUSVEG is working to suggest changes to the food labelling laws in Australia so that consumers can more easily distinguish between locally grown

products and imports. We would encourage all consumers to buy Australian products where they can."

Mr Tobin said that there was a marked contrast between the early years of this century when our vegetable trade balance was positive, to now where the balance is in the red.

"Australia is in the midst of a significant moral dilemma when it comes to food production. Do we want our own clean, green Australian product, or are we happy to become a consumption country and forego primary production?"

New Zealand, China, Italy and the United States continued to be the major countries of origin for imports in 2009-10, as has been the case for the last five years.

MEDIA CONTACT: Hugh Tobin, Communications Manager, AUSVEG
Phone: (03) 9822 0388, Mobile: 0431 939 920, Email: hugh.tobin@ausveg.com.au

Veg consumers shopping more regularly and purchasing smaller portion sizes

Portion size, packaging, smaller households, a higher frequency of vegetable shopping trips, less structured meals and an eye for value are among a range of factors influencing vegetable purchasing according to new findings in this week's Veginsights report. AUSVEG spokesperson Elizabeth Cox said any change in consumer buying patterns was key to understanding the future direction of the vegetable industry. "Households have become less tolerant of waste at home and prefer to visit supermarkets several times a week, rather than buy in large quantities that are more likely to deteriorate within a shorter time period," said Ms Cox.

AUSVEG is the National Peak Industry Body representing the interests of around 9,000 vegetable and potato growers throughout Australia. "Not only do

consumers want smaller quantities of vegetables, they are purchasing vegetables more frequently. With the majority of supermarkets and greengrocers open seven days a week, there is no longer the need to buy large quantities of vegetables in one trip," Ms Cox said. "Carrots, onions, broccoli and pumpkin are four leading vegetables that consumers prefer to purchase in smaller portions," she said.

The Veginsights reports reveals consumers prefer to buy fewer onions than purchase onions in larger 1kg, 1.5kg or 2kg bags. Carrots are available in smaller pre-pack bags of 1kg, with this product type purchased by around 55 per cent of shoppers. Ms Cox said the main target audience for smaller portions of vegetables was singles, couples and smaller households, who don't need or want to

purchase bulk vegetables.

"This has created an opportunity for certain vegetables to be packed in alternative portion sizes to reach target markets such as singles, couples and smaller households that have been missing out on their vegetables in the past," said Ms Cox. "Consumers want their vegetables to stay fresh, and they know that with longer retail opening hours they can go shopping whenever they want." "From this research, growers and packhouses across Australia can now take into account what the consumer wants and needs, and tap into an unlocked market," said Ms Cox.

MEDIA CONTACT: Hugh Tobin, Communications Manager, AUSVEG Ph: (03) 9822 0388, Mob: 0431 939 920, Email: hugh.tobin@ausveg.com.au

Interesting facts and figures—Veginsights

New ways to connect with growers

Foodservice company Reynolds has launched a new development kitchen at its office and warehouse facility in the UK, with the aim of connecting its customers with growers. This £250,000 investment has been five years in the making and is now demonstrating to customers how different kinds of fresh produce can be used, working hand-in-hand with both UK and Dutch growers. The resource will get some high-quality market feedback flowing between growers, chefs and consumers.

Health & convenience on shopping lists

The latest Rabobank Market Update on EU fresh-cut fruits & vegetables (F&V) reveals that sales of pre-packed F&V have continued to grow across the EU despite the recession. Rabobank states that consumers have not turned away from fresh-cut F&V despite the broad availability of often cheaper substitutes, proving that they still want healthy and time-saving solutions. Rabobank estimates that the growth in the F&V sector will continue at 4% a year. The convenience of meal-ready products continues to win support from value discerning consumers.

Convenience the core

benefit for new products

Maritime Foods has launched the Carolina Sun Sweet potato brand into the UK convenience market with the introduction of a "rapid cook" line. This development introduces sweet potatoes enveloped in a contained microwaveable film

that allows the sweet potatoes to steam while cooking, with no need to wash or prepare the product. This ready-to-cook range is designed for the convenience shopper as it is easy and convenient to take into work for lunch or simply as a snack. Carolina Sun "rapid cook" sweet potatoes are priced at 65p each. Meanwhile, four shelfstable pasteurized fresh mashed peppers, including Jalapeno, Red Habanero, Orange Habanero and Thai Chilli, in 32oz. plastic jars have been launched by Tropical Commodities in the US. These products eliminate the traditionally time-consuming process of making hot sauce and salsa for foodservice enterprises and consumers. Thus, this new product line targets particularly the foodservice channel with an easy shelfstable pepper mash solution. These new products reflect the demand for ease of preparation and acceptance by foodservice channels and consumers that this product form reduces the level of taste. These new products are designed to appeal by reducing both preparation time and waste.

How do consumers assess vegetable value?

Vegetable products are made available to consumers in a variety of forms, as growers, wholesalers and retailers balance responding to demand preferences with wholesale trading multiples. This analysis explores the diverse array of influences on this balance and what it has delivered to consumers wanting to buy vegetables.

Major influences on the veg-

etable selling form include:

- Using the wholesale market selling multiples has been a dominant influence on retail selling options. In many products, this has led to products being sold on a kg basis, but it has also led to the likes of lettuce, brassicas, bunched products and melons being sold in "counts" to retail by the each.
- Responding to the consumer demand for preparation has led to trimmed and meal ready products that are often in smaller sizes and pieces of the whole vegetable. In some cases, this has captured a premium for smaller portion sizes.
- A drift to selling by the each as consumers appear to struggle to understand how much of a product is in a "kg".
- Expanding retail product ranges by incorporating a level of packaging that includes a barcode and aids product identification at checkout.
- Capturing the fresh market feel in the retail selling environment by providing a range of product forms and drawing consumers into the positive experience of exploring the retail offer.

These influences have resulted in consumers being presented with an array of vegetable products on per kg basis, by the each, in multiple packs and in pieces of the whole vegetable. While this may provide part of the appealing colour and fabric of buying fresh vegetables, it has evolved without providing a clear view of what makes it easy for consumers to buy vegetables.

'sales of pre-packed F&V have continued to grow across the EU despite the recession'

New rules for elevating work platforms commenced on 1 September 2010

Growers using elevating work platforms (EWPs), or cherry pickers, should be aware that new rules came into place on 1 September 2010 as the rural exemption on EWPs was lifted. From this date, all EWPs purchased new or second hand, as well as any EWP that is modified to alter its structural integrity will require a certificate of registration of registrable plant design.

Certification will continue to be undertaken by the manufacturer, who is also required to provide the certificate of registration to a purchaser. Purchasers of second-hand EWPs will need to ensure that the seller provides them with the certificate of registration.

It is important to note that from 1 September 2010, if the structural integrity of the EWP is altered in away – such as a change to the boom, basket, or levelling system – or if components are replaced with items different to the manufacturer's specifications, then the person who has undertaken these alterations becomes the manufacturer under the *Workplace Health and Safety Act* and will need to

apply for a new certificate of registration.

To make an application for a new certificate of registration a [Form 14 – Application for registration of registrable plant design](#)—fact sheet attached—must be completed and provided to Workplace Health and Safety Queensland. If the application is successful, the certificate will be issued within 28 days after the application is made. An EWP purchased prior to 1 September 2010 that is not design registered can continue to be operated at the workplace after this date if no modifications were made to the machine that would alter its structural integrity.

Further information on design registration of EWPs can be found at Workplace Health and Safety Queensland's website—the fact sheet is attached.

There are legal obligations for employers, employees, and contractors relating to the safe operation of EWPs. Specific requirements include:

- ✦ design registration of all newly purchased or modified machines

- ✦ formal training of operators and record keeping of training undertaken
- ✦ assessment of operator competency by a competent person
- ✦ elimination of EWP roll over risk through risk management
- ✦ safe work procedure development to support training and subsequent safe use
- ✦ operator harnessing where an anchor point has been provided
- ✦ documented inspection, maintenance and repair procedures
- ✦ Lock-out procedures that exclude worker access to faulty machines.

Workplace Health and Safety Queensland has compiled an [information guide to safe operation of EWPs](#).

If you are unsure how the new rules will affect you, or you would like further information on your obligations under the Workplace Health and Safety Act with regards to EWPs, please contact Growcom's IR team on 07 3620 3844 or by email irteam@growcom.com.au

Permits

The following permits have been issued by APVMA

.PER10908 – Tebuconazole / beetroot, chicory, endive, radish, silverbeet, spinach / Sclerotinia rot. Valid from 09/06/2010 to 30/06/2013. Valid for all states excluding VIC.

.PER11732 – Tebuconazole / carrot / Powdery mildew. Valid from

20/10/2009 to 31/03/2011. Valid for NSW, SA and Tas only.

The following emergency permit has been issued by APVMA:

.PER12156 – various fungicides / nursery stock, fruit trees (non-bearing), ornamentals, cut flower & foliage / Myrtle rut (*Uredo rangellii*). Valid from 09/09/2010 to 30/06/2011. Valid for all states.



Full details of all permits are available on the [APVMA web site](#).

Registration of Endosulfan Cancelled in

Australia

The Australian Pesticides and Veterinary Medicines Authority (APVMA) today advises that it has cancelled the registration of the insecticide endosulfan.

This decision follows a recent assessment of new information by the Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) that the prolonged use of endosulfan is likely to lead to adverse environmental effects via spray drift and run-off.

A full risk assessment conducted by DSEWPC concluded that these long term risks could not be mitigated through restrictions on use or variations to label instructions.

From today, agricultural products containing endosul-

fan are no longer registered in Australia. The three current approvals for endosulfan have also been cancelled, and the five products containing the chemical will be phased out over the next two years.

This time period has been imposed because of the relatively limited amounts of endosulfan in use and is in line with phase-out periods imposed by other national regulators who have similarly taken recent action against endosulfan.

Risks to human health were not a factor in the APVMA decision. While recent and emerging toxicological data was assessed by the Office of Chemical Safety and Environmental Health, it has been determined that the current regulatory regime has been effective in managing these

risks.

Some of the new environmental data on which the APVMA's decision is based emerged following the recent nomination of endosulfan to the Stockholm Convention on Persistent Organic Pollutants (POPs). This nomination focussed more attention on endosulfan and produced a large volume of new information on its environmental fate and effects.

ENDS

For further information contact

Dr Simon Cubit
Manager, Public Affairs
Ph 02 6210 4869
Mob 0417 34 22 51

Rural Chemicals Guide 2010

Workplace Health and Safety Queensland has released *Rural Chemicals Guide 2010*. The Guide, whilst not legislation, provides easy to read advice on what is recommended and legislated for chemical use, storage, transport and disposal within the rural sector. It has useful applications for a broad range of people including farmers, pastoralists, horticulturists,

orchardists, foresters, trainers and educators, medical practitioners and government officers. The Guide spells out the relevant legislation affecting all things chemical related in the rural sector and the role of various governing and regulatory bodies, and the legal requirements for employers and workers. As to be expected, there is a strong focus

on the health and safety of the affected parties and environmental safety. The Guide also has a number of handy examples of suitable record keeping documents. The *Rural Chemicals Guide 2010* is available online from the [Queensland Government Workplace health and Safety web site](#).

For more information contact Growcom's Pest





Bowen District Growers Assoc. Inc Membership 2010

A strong and cohesive organisation providing a voice for our members & the community

What does membership provide?

This year BDGA has provided support, up to date information and acted as a voice for growers in the following areas:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Water for Bowen | <input checked="" type="checkbox"/> Water Use Efficiency Grants |
| <input checked="" type="checkbox"/> Biodegradable Mulch Film | <input checked="" type="checkbox"/> Reef Rescue Incentives/Grants |
| <input checked="" type="checkbox"/> Loss of Dimethoate Use | <input checked="" type="checkbox"/> Plant Health |
| <input checked="" type="checkbox"/> Water for Bowen | <input checked="" type="checkbox"/> Labour Shortages |
| <input checked="" type="checkbox"/> Horticulture Code of Conduct | <input checked="" type="checkbox"/> Market Access |
| <input checked="" type="checkbox"/> Industrial Relations Issues | <input checked="" type="checkbox"/> Legislation |
| <input checked="" type="checkbox"/> Workplace Health & Safety | <input checked="" type="checkbox"/> Transport |

BDGA also has access to information on industry programs & initiatives such as Research & Development, grants and more. If you become a member of BDGA you are supporting vital information flow and representation within the industry. BDGA is here to support growers.



Fill out your membership details

Please tick the boxes that are applicable to your business and fax to: 07 4785 2211

1c per carton capped at \$2500

Minimum amount payable \$500

\$1 per tonne capped at \$2500

Amount payable: \$ _____.

Company Name: _____

Bowen District Growers Association Inc

Address: _____

Phone: 07 4785 2860

Fax: 07 4785 2211

Mobile: 0427 701 225

Contact Name: _____

Email: bdgainc@bigpond.com

Web: www.bdgainc.com.au

Ph: _____ Fax: _____

Email: _____

P O Box 489

Bowen Qld 4805

ABN: 35 729 953 455

Payment can be made via Direct Debit or posting a cheque. A tax invoice will be issued upon receipt of this fax back form.

Bank Account Details

BSB: 034 166 A/C No: 18 2276 A/C Name: Bowen and District Growers Association Inc

I am a Gumlu grower

I am a Bowen grower

GROWCOM—IR UPDATES

'From the first full pay period on or after 1 July 2010, the FMW was increased and all partnerships, sole-traders and other unincorporated entities were required to pay not less than the new FMW of \$569.90 or \$15.00 per hour'

State employers (sole traders / partnerships) – What do I pay?

Growcom has received numerous enquiries from growers operating as Sole Traders/Partnerships asking if the 2010 Queensland state wage case increase applies to their business.

The state wage case does not apply and has no bearing on current or future wage rates for partnerships, sole traders and other unincorporated entities. Wage rates for these entities are adjusted annually by Fair Work Australia's Minimum Wage Panel.

The 2010 Queensland state wage case only affected:

- State government employees
- local government employees
- employees engaged by statutory authorities (e.g. Qld Residential Tenancies Authority)
- employees of P&C Associations.

Changes from 1 January 2010: the referral of Queensland's IR Powers

Queensland's private sector industrial relations powers were referred to the Commonwealth from 1 January 2010. The referral of powers meant that from that date, all partnerships, sole-traders and other unincorporated entities in the Queensland private sector became

National system (or 'federal') employers. Because of this change they were required to pay not less than the federal minimum wage (FMW) of \$543.78 per week, or \$14.31 per hour (excluding any applicable casual loading). This is because the rate contained in the 'old' pre-1 January Award was lower than the FMW at 1 January 2010.

However, all other provisions of the *Fruit and Vegetable Growing Industry Award* will continue to apply to these employers until 31 December 2010, at which point the Award will cease to exist and employers will move to the *Horticulture Award 2010* from 1 January 2011. Advice regarding transitional arrangements for partnerships, sole-traders and other unincorporated entities is yet to be released by FWA. Until 31 December 2010, the National Employment Standards (NES) will operate alongside the *Fruit and Vegetable Growing Industry Award* and will override any clause from the Award that is detrimental to the employee in comparison with the NES; for example employees are entitled to 10 days personal/sick leave as opposed to 8 under the current Award.

As a sole trader / partnership, does the 1 July National Minimum

Wage increase apply to my business?

Yes, from the first full pay period on or after 1 July 2010, the FMW was increased and all partnerships, sole-traders and other unincorporated entities were required to pay not less than the new FMW of \$569.90 or \$15.00 per hour.

Information on minimum wage requirements and transitional arrangements for partnerships, sole-traders and other unincorporated entities is available to download from the www.growcom.com.au

Paid parental leave

The federal government's new Paid Parental Leave Scheme (PPL) comes into effect with payments available to eligible working parents of children born or adopted on or after 1 January 2011.

Existing NES provisions to >48 months unpaid leave

Under the National Employment Standards, an employee employed for 12 months or more prior to the birth or adoption of a child may be entitled to access up to 12 months of unpaid parental leave associated with the birth or adoption of your child. An employee also request an additional 12 months unpaid leave on top of this.

The PPL scheme will operate in conjunction with the NES and will deliver up to 18 weeks of paid parental leave to new parents (mothers or fathers, including adopting parents) at the minimum wage of \$569.90 per week. The scheme is wholly funded by the federal government but will be administered by employers from 1 July next year.

Who is eligible?

An employee may be eligible for PPL if he/she:

- Is the primary carer of a new-born child or recently adopted child.
 - The primary carer is the person who is most meeting the child's physical needs.
- Is an Australian resident.
- Has met the PPL work test before the birth or adoption occurs.
 - Worked for at least 10 of the 13 months prior to the birth or adoption of the child, and
 - Worked for at least 330 hours in that 10 month period (just over one day a week), with no more than an eight week gap between two consecutive working days.
- Has received an individual adjusted taxable income of \$150 000 or less in the previous financial year.
- Is on leave or not working from the time they become the child's primary carer.

When must PPL be taken?

The PPL must be finished within 12 months of the date of birth or adoption, and may be transferable (e.g. to the other parent). However additional available periods of unpaid leave may be accessed up to a total of two years.

Is superannuation payable?

Superannuation payments are not required to be paid on PPL payments

Leave accrual

As a general rule, employees will not accrue additional leave entitlements (e.g. annual or personal/sick leave) while receiving PPL, although the type of leave they access while receiving PPL will determine whether additional leave is accrued. For example, if PPL is received while the employee is taking long service leave, accrual rules relating to long service leave will apply.

Existing employer PPL schemes

Where an employer has an existing paid parental leave scheme in place, the employer is required to continue to provide those payments. The government's scheme will also still apply.

For more information



growcom
together we grow

For comprehensive information about the PPL Scheme for employers and employees, visit the Family Assistance web site <http://www.familyassist.gov.au/payments/family-assistance-payments/paid-parental-leave-scheme/index.html>

Casual pieceworkers – calculating the loadings

The new *Horticulture Award 2010* underwent another review last week, when Fair Work

Ombudsman (FWO) met with industry representatives to clarify the situation regarding casual pieceworkers. Prior advice from FWO throughout 2010 was that the two applicable loadings (the 25 per cent casual loading and the 15 per cent piecework loading) were not compounded. This interpretation fits with traditional approaches to multiple loadings – i.e. they are not compounded. However FWO had a change of heart recently and called in the industry representatives to assist.

The wording of the award is ambiguous, and in fact the clause could be just as easily read to require the loadings to be compounded; that is, calculate the casual rate (\$15.00 per hour x 25 per cent casual loading) and then apply the 15 per cent piecework loading on top of that rate. Using this method, the compounded rate delivers a .56c higher rate than the cumulative (non-compounded) rate.

However, we are happy to report that FWO has determined not to change its advice and the loadings should continue to be applied separately. For the majority of Queensland employers who are transitioning across from the *Fruit and Vegetable Growing Industry Award*, the casual and piecework loadings are subject to the transitional provisions in the new award.

If in doubt or for more information please contact Growcom's IR team on 07 3620 3844 or email ir-team@growcom.com.au.

'The federal government's new Paid Parental Leave Scheme (PPL) comes into effect with payments available to eligible working parents of children born or adopted on or after 1 January 2011'



P O Box 489
Bowen Qld 4805
Phone: 07 4785 2860
Fax: 07 4785 2211
Mobile: 0427 701 225

*A strong and cohesive organisation providing
a voice for our members*

Grilled Eggplant Sandwich

Ingredients -

Eggplant:

4 teaspoons Olive Oil
1 clove Garlic, finely chopped
1 1/2 teaspoons chopped, Fresh Basil
Salt, to taste
Fresh Ground Black Pepper
2 small Eggplants

Sandwiches:

1/2 cup Cream Cheese, Low-Fat Whipped, or Goat Cheese
4 pieces Focaccia or other good quality bread, sliced in half, lengthwise
2/3 cup Spinach, washed and dried
4 slices Tomato

Preparation:

Eggplant:

Preheat grill to medium heat.
Add olive oil, garlic, salt, and fresh ground pepper and 1/2 teaspoon fresh chopped basil to small bowl. Stir to combine. Brush both sides of eggplant slices with olive oil mixture. Grill eggplant over direct heat, 3 minutes per side.

Sandwiches:

Mix cream cheese, 1-tablespoon fresh chopped basil, salt, and fresh ground pepper in small bowl.

Spread 4 halves of focaccia bread with cheese mixture. Top with spinach, slice of tomato and focaccia bread slice.



The Industry Development Officer project is facilitated by HAL in partnership with Bowen District Growers Association. It was funded by voluntary contributions from industry. The Australian Government provides matched funding for all HAL's R&D activities."

Know-how for Horticulture™

Support your local—Bowen Soup Kitchen

The Bowen Soup Kitchen, developed out of a need in the Bowen community for access to a hot nutritious meal, especially seen by local emergency relief providers and other support agencies in town. The Bowen Neighbourhood Centre has received a grant from HPC as part of their kick start grants to implement the program, and develop it around a model of providing healthy nutritious meals for the community, especially those who are most disadvantaged.

The Bowen Neighbourhood Centre has received great support from the Zonta Club of Bowen, who have volunteered to help out in the kitchen and help prepare some of the meals, as well as the Lions Club with the donation of a BBQ, and various community members who have volun-

teered their time or donated other goods.

However, as the Bowen Neighbourhood Centre is a not for profit community organisation, heavily reliant on volunteers, we are greatly limited by funding and have to rely on donations and limited funding to run any new programs, and therefore have put the call out to our wonderful community.

However, as we are so lucky to live in a community surrounded by farms who produce some of the best fruit and veges in Australia, we thought that this might be an excellent resource for the soup kitchen.

So we would like to put the call out there to any farms or farmers, who

may have a little bit of fruit or veges that are too old, too ripe or maybe just not the right size/shape to sell to think about donating it to the Bowen Soup Kitchen.

We could organise pick up if that makes it easier and are greatly appreciative of anything and everything. If you would like some more info about this or anything else happening at the Bowen Neighbourhood Centre please don't hesitate to contact me my door is always open, on bowennnc@bigpond.com or 47862111.



**SPECIAL
POINTS OF
INTEREST:**

- Enviroveg—try it
- Check out our sponsors
- Growcom's IR Update
- What's cooking in the kitchen
- Health & Well-being in hort
- Now is the time to be a member of BDGA

INSIDE THIS ISSUE:

Permits	3
Hygiene Key to reducing costs	4
Qld Budget	5
Economic Brief	8
Fair Work Australia Wage Increase	10
Horticulture Award Frustration	11
Financial Performance	14

Bowen & Gumlu Annual Gala

Dinner a huge

success

This year's Bowen and Gumlu Annual Gala Dinner was a huge success with growers, and industry enjoying the Casino Royale themed event.

Chris Monsour facilitated as MC of the evening which saw almost everyone involved in the evenings activities. The event saw the introduction of a charity crab race which was also a huge success. Each of the 20 crabs was auctioned off by Bowen celebrity Auctioneer, Peter Lawton, raising over \$7000 for the McGrath Foundation.

A cheque was presented to Glen McGrath at this years AUSVEG National Vegetable Convention by Denise Kreymborg on behalf of Bowen District Growers Association. Glen was certainly very appreciative of all the support given to his foundation and organisations such as BDGA.

The Brisbane Markets Limited board was also in attendance spending the whole weekend in Bowen touring the horticulture industry throughout the region and

holding their Board meeting earlier on the Saturday.

The Brisbane Markets Limited CEO, Andrew Young commented that it was one of the best events he had attended.

The evening also featured real 'Black Jack' and 'Roulette' tables with professional dealers. Each attendee was given \$2000 to play with

sponsors. This event would not be possible without all the support from industry through the sponsorship partnerships program run by BDGA.

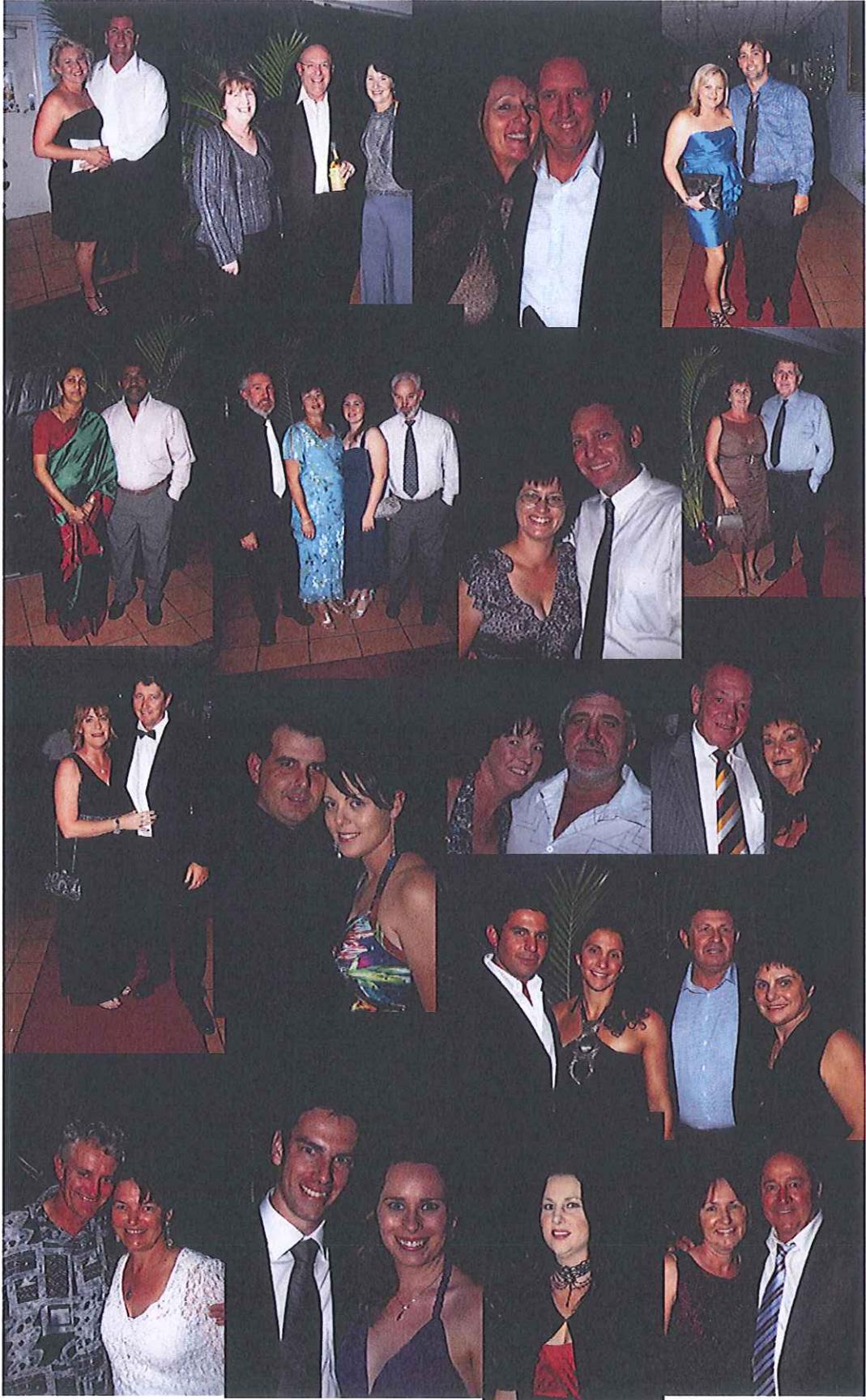


on arrival.

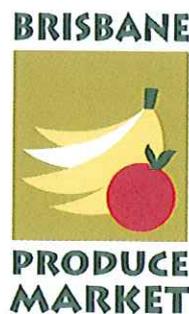
Many thanks needs to go to all those who organised the event with special mention going to the BDGA President - Carl & Trudy Walker, Chris Monsour, Peter Lawton, Tony Soden, Elders and all the



BDGA Annual Gala Dinner photo's



Comments from Brisbane Markets CEO, Andrew Young



Results on Track

Brisbane Markets Limited's (BML) half year results again show an ongoing strong performance with dividends continuing to be paid to shareholders.

We are now seeing our masterplanning work coming to fruition with further new developments about to commence.

The company achieved a realised profit after tax of \$3.726 million for the half year and as at 31 December 2009, had net assets of \$100.69 million. The report on page 6 highlights BML's results.

BML Board meeting in Bowen

The BML Board of Directors headed north in mid May to meet with representatives from the Bowen District Growers Association (BDGA), discuss industry issues and view first-hand the infrastructure in the region.

The two-day visit was a great success with both the BDGA and the BML Board gaining a better understanding of the opportunities and threats faced by the industry and the need to work collaboratively in dealing with these issues.

The highlight of the visit was the BDGA Annual Dinner which included some fierce bidding for crabs to compete in the crab-racing contest. It was

all in good fun with over \$7,000 raised for the

Glen McGrath Foundation, the funds from which go to breast cancer research.

The BML Board has a memorandum of understanding in place with the BDGA, and a similar agreement with the Bundaberg Fruit and Vegetable Growers. It is hoped that we will be working more closely with other growing regions in the future.

Our thanks go to the BDGA Chairman, Carl Walker and Executive Officer, Denise Kreyborg for coordinating what was an enjoyable and successful trip.

Permits

PERI 1988 – Chess

(pymetrozine) / cucurbits, eggplant, tomato, lettuce, broccoli, chicory, endive, radicchio & pistachio / Silverleaf whitefly, Lettuce aphid & Green peach aphid - Valid 28/05/10 to 30/04/11. Valid for all states (except Vic)

PERI 2177 – Switch (cyprodinil + fludioxonil) / Strawberries / Stem end rot and Leaf blotch (*Gnomonia comari*) - Valid 26/05/10 to 31/3/12. Valid for NSW, Qld and WA only. APVMA requires 4 residue trials in strawberries for renewal of the permit.

PERI 1618 – Fenbutatin oxide and abamectin / Papaya (Pawpaw) / Two-spotted or Spider mites Valid 8/4/10 to 30/6/13. Valid for NSW, Qld, NT and WA only - APVMA requires 4 trials in with each product for renewal of the permit.

PERI 1986 – Filan (boscalid), iprodione & chlorothalonil / onion & onion seed / Neck rot (*Botrytis*) Valid 1/4/10 to 31/3/11. Valid for NSW and Tas only. Residue data required PERI 1986 – Filan

(boscalid), Rovral (iprodione) & Bravo (chlorothalonil) / onion & onion seed / Neck rot (*Botrytis*) to support permit extension in boscalid (needed asap) and iprodione (in progress).

PERI 1952 – Amistar (azoxystrobin) / brassicas, beans & lettuce / various diseases Valid 1/4/10 to 30/9/11. Valid for all states (except Vic)

PERI 1949 – Lambda-cyhalothrin / beetroot & radish / various insects Valid 1/4/10 to 31/3/15. Valid for all states (except Vic)

PERI 1572 – Chlorothalonil / spinach & silverbeet / various diseases Valid 23/2/10 to 31/3/13. Valid for all states (except Vic). Additional residue data required for spinach & silverbeet with 2 trials in each crop.

PERI 1939 – Insegar (fenoxycarb) / olives / Black olive scale Valid 1/3/10 to 31/12/11. Valid for all states (except Vic). Additional efficacy, crop safety and residue data required for this permit to be renewed. But this will be waived if the manufacturer registers the use

as planned.

PERI 1987 – Linuron / celeriac / weeds Valid 1/5/10 to 30/4/12. Valid for all states (except Vic)

PERI 1941 – Pirimicarb / almonds, eggplant / aphids. Valid 1/4/10 to 31/3/12. Valid for all states (except Vic)

PER9853 - Regent 200SC & Talstar 100EC & 250EC / Pineapple / Symphyliids. Valid from 09/01/2008 to 31/03/2012. For us in Qld only. The permit has been extended by the APVMA on the basis that data from residue trials will be provided to the APVMA in the second half of 2011 onwards.

Full details of all permits are available on the APVMA website, <http://www.apvma.gov.au/permits/permits.shtml>

Hygiene key to reducing costs and losses

A disease prevented is a disease that doesn't have to be identified, doesn't need to be sprayed and doesn't have to be controlled.

Early detection and knowing which pests or diseases are present in what quantities could be the difference between a good or bad decision.

The profitability and productivity of a horticultural business can be significantly improved by minimising the losses caused by pests and diseases. Effective pest and disease management practices, once established, are also very likely to reduce overall input and labour costs. While it may not be the most compelling area of farm management, keeping the orchard, greenhouse or field clean is one of the most important and cost effective ways to manage pests and diseases.

A disease prevented is a disease that doesn't have to be identified, doesn't need to be sprayed and doesn't have to be controlled. This concept is a cornerstone of much of the work of Plant Health Manager*, Brad Wells. "Good hygiene can be as simple as using a footpath before entering the greenhouse, washing your tools between each plant or tree when pruning or removing dead or decaying vegetation from around the plant or tree," Mr Wells said.

A recently finished HAL-funded project, carried out by greenhouse industry specialist Jeremy Badgery-Parker from NSW Department of Industry and Investment, produced a manual, called Keep it Clean, full of easy-to-adopt practices that will save greenhouse growers money and effort. "Plant diseases in a typical greenhouse enterprise may be costing a grower as much as 15 per cent of their income. In some greenhouse crops the aver-

age loss from disease can be as high as 30 per cent. Add to that a couple of pest incursions and the cost to your business can really escalate," Mr Badgery-Parker said. "Keeping the greenhouse clean is one of the most cost effective and important ways to manage pests and diseases.

Effective and practical strategies and tactics focusing on prevention are a fundamental requirement for successful integrated pest management (IPM) and had been largely overlooked until now. "This particular project looked at reducing crop losses through the adoption of preventative pest and disease management practices." No single practice on its own can completely prevent pests and diseases causing losses to your crop and to your business. There are many different strategies and specific control options or tactics that can be used on farm to manage pest and disease problems. However, there are three important principals to follow which can be applied to all farming enterprises:

- Sanitation – keep everything clean, from tools to the aisles between rows, to your own boots.
- Quarantine – follow proper quarantine procedure for seedlings or new plantings.
- Monitoring – all growers need to regularly monitor their crops.

Early detection and knowing which

pests or diseases are present in what quantities could be the difference between a good or bad decision.

Through the project the research team identified 77 preventative pest and disease management practices that can be used to reduce the costs and losses associated with pests and diseases in a greenhouse. The Keep it Clean manual is available free of charge to all levy-paying greenhouse growers. An online request form is available at www.dpi.nsw.gov.au/agriculture/horticulture/greenhouse

** The plant health portfolio encompasses the research, development and extension activities for all pest management strategies which can be applied to horticultural crops prior to planting and up to harvesting the produce. This includes the management of any impacts on horticultural produce created as a result of the pest management practices.*

For more information contact: Brad Wells Plant Health Manager,
HAL T 02 8295 2300 E
brad.wells@horticulture.com.au



Know-how for Horticulture™

Queensland Budget: what's in it for horticulture?

The Queensland Budget has little to cheer about for the horticulture industry.

As mentioned in the previous story, Growcom welcomed an allocation of \$3.5 million to implement the Biosecurity Strategy and Biosecurity Act.

Of further interest to our industry is an allocation of \$1.5 million to establish the Queensland Centre for Emerging Infectious Disease at Coopers Plains to continue research into the behaviour of flying foxes in the study of Hendra virus, and \$300,000 for eradication of fire ants, which have now spread in south east Queensland westwards almost to Laidley.

The government has announced it will draft a food policy for Queensland, and consultations with groups like Growcom are expected to commence soon. The

Opposition has replied to this with a commitment to create an independent Commission for Future Foods and Fibre that will focus on food security, including threats from mining. Commitments to upgrade parts of the Bruce, Warrego, Dawson and Capricorn highways will be welcomed by growers in these areas. Mackay and Nambour TAFEs will receive \$12.7 million between them for trade training, and a number of dams and irrigation schemes will be upgraded, including the Burdekin.

Drivers will receive a \$24 per year decrease in Compulsory Third Party insurance, while the LNP has promised that if they are elected, registration cost for cars, light vehicles, trailers and horse floats will be frozen for three years.

Perhaps one of the biggest new imposts on growers trying to eradicate pests such as feral pigs is the increase in gun licensing fees. From 1 August, a 5-year shooters' licence will increase from \$94 to \$210. This increase of more than 100 per cent seems hard to justify.

With changes at the agricultural colleges and regional DEEDI (formerly DPI&F) offices, the LNP has calculated that full-time staff in Agriculture, Food, Tourism and Regional Services have been cut from 800 to 716 and will reduce to 708 in the next year.

Growcom welcomes the above commitments to infrastructure, biosecurity and food security. We will continue to monitor what resources are provided to Agriculture, Food, Tourism and Regional Services for the betterment of horticulture.

Teachers give A+ for Queensland Kids Fresh

The Queensland Kids Fresh Net (QKFN) program has had a successful start to the 2010 school year with Queensland primary school teachers giving the program top marks in a recent survey.

From the teachers who were surveyed after hosting a healthy eating classroom presentation conducted in Term 1 of 2010, 80% responded that the presentation had encouraged more in-class discussion about healthy eating and different types of fruits and vegetables.

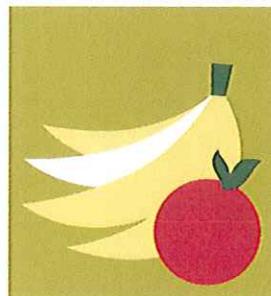
Over 90% of respondents firmly believed that the presentations made a difference to the health and

nutrition of the students. Brisbane Markets Limited (BML) launched the program in 2003 with the wholesaler representative organisation Brismark in response to research which demonstrated that diet related health problems were increasing in children.

The QKFN program encourages primary aged children to make healthy eating choices and live active lifestyle.

Since 2003 the QKFN team has presented classroom presentations and conducted Market tours to over 40,000 primary school children about fruit and vegetables.

BRISBANE



PRODUCE MARKET

What should growers consider if they have a pest or disease problem that may not be included on a product label or in a permit

If growers perceive they have a problem that needs addressing by using an alternative control method, they should first try to define the problem by knowing:

- The issue about the crop giving rise to the problem
- The type/s of disease, insects or weeds present

Growers are advised to refer the situation to their state pri-

mary industry personnel or a horticultural consultant for further assessment and advice. In addition to seeking a pesticide solution, growers should also consider alternative methods. Alternative strategies include Integrated Pest Management (IPM) or cultural/mechanical control where as a last resort pesticides are required, growers should select

'softer' products that do not adversely affect beneficial tactics.

More information on IPM systems is available from the IPM section of the AUSVEG website www.ausveg.com.au and the websites of various state government agricultural departments.

Surveying Australian farmers' attitudes to climate change



Ask a farmer his opinion on the weather, and you'll get a succinct answer. Ask his opinion on climate change ... well, the answer is bound to be more complicated. That's why an honours student at the University of New England is conducting a survey of Australian farmers and their perceptions of climate change, attitudes to the environment, and levels of trust in government.

Methuen Morgan – himself a beef producer on a property outside Armidale – is a fourth-year honours student in psychology at UNE, and for his thesis is attempting to develop cognitive profiles of Australian farmers. To do so, he has chosen to focus on farmers' attitudes to climate change, which, he says, are not generally well understood.

"Farmers in this country are too often considered as climate change rednecks," Mr Morgan said.

"Yet many of them are engaging in climate change mitigating behaviours, and studies have shown that over the past 10 years primary industry has been the largest single sector of greenhouse gas reduction in Australia.

"By conducting this study, we're hoping to develop profiles that could be used by policy makers to better understand and engage with farmers on important issues such as climate change."

Mr Morgan is seeking about 500 participants for his survey, which takes 20-30 minutes and can be completed online. He said he had received an excellent response to the survey so far, but still needed many more participants.

"This is a chance for farmers to have their say on climate change, rather than people, governments and academia assuming they

know what farmers are thinking," he said. "As a farmer myself, I'm keen to see the horse put in front of the cart by asking farmers what they think about climate change before attempting to impose policy on them."

To participate in the survey, which is completely anonymous, you must be 18 years of age or older, and should be an owner, co-owner or manager of a property/farm. To receive a copy of the survey, Mr Morgan can be e-mailed at mmorgan5@une.edu.au; alternatively, the survey can be completed online at http://unebcss.qualtrics.com/SE?SID=SV_720fKz3dTek0ID&SVID=.

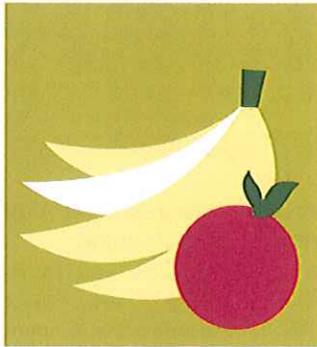
Media contact: Methuen Morgan on 0429 192 087 or Leon Braun (UNE PR manager) on (02) 6773 3771.

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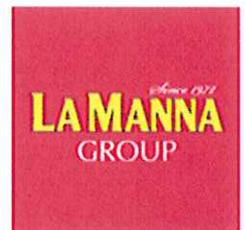
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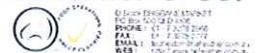
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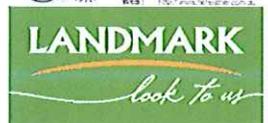
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Economic Brief: Ian James - Economic Sub Program, National Vegetable Industry Development Program

Good signs from overseas.

After the torrent of negative news about sovereign debt in Europe in recent weeks there were indications that the world economic recovery remains on track. Not that we are seeing any sharp rebound. Rather the economic indicators suggest that the recovery is occurring as expected. Indicators out of the US last week suggested that recovery is underway although there is still a long way to go before we see any substantial fall in unemployment. Data out of Japan surprised on the upside as did figures out of China with strong export growth.

Nervous Nellies abound.

If you want to lie awake at night worrying about the world economy you can find plenty to assist you. Government debt in Europe is only a start. Japan's debt position is much worse with all those bridges and roads they built to nowhere having to be paid for. Nor can you find much comfort looking at the US debt situation. And what if the authorities tightening of credit to curb China's property boom strangles if not kills the golden goose? Export? Not all countries can export their way out of trouble. One country's exports are another's imports. For highly indebted countries the name of the game is to combine economic growth with withdrawal of government expenditure and increasing taxation revenue. Try thinking of something else in bed.

Good news at home too.

Local data was also a good news story. The ANZ job advertisement series, an indicator of future employment trends, showed that employers intended to expand their workforce. The labour force figures, a lagging indicator, revealed that the economy created a net 27,000 jobs in May, causing the unemployment rate fell to 5.2%. While over 9,000 part time jobs disappeared this was offset by an increase of 36,400 full time jobs. The number of hours worked also grew.

So where's the champagne?

Still in the cellar I suspect. Why? The answer is one word confidence (or lack thereof). The results of the latest business and consumer confidence surveys were released last week and both showed a sharp deterioration south. The confidence surveys are in contrast to the economic fundamentals. Uncertainties abound and caution is rife. Both business and consumers are playing safe until the fog lifts.

A warning on debt?

The following from a speech given in western Sydney by the Governor of the Reserve Bank may be instructive. "Australia does not have a problem with public debt...Nor do we have a problem with corporate debt...The big rise in debt in the past couple of decades has been in the household sector. There have been many reasons for that and, overwhelmingly, households have serviced the higher debt levels very well...One would

have to think that, however well households have coped with the events of recent years, further big increases in indebtedness could increase their vulnerability to shocks - such as a fall in income - to a greater extent than would be prudent."

Young Grower Tour to New Zealand

Applications for the next Young Grower Tour to New Zealand are still open.

Only nine places are available for the tour, which will run from 28 July to 5 August 2010, but applications are already being received.

Growers between the ages of 18 and 35 (approx) are eligible for the opportunity to travel to the North Island of New Zealand. The tour will also incorporate the chance to attend the Horticulture NZ Conference.

The tour cost is substantially subsidised by the National Vegetable Levy with growers required to make a small voluntary contribution of just \$1,100 towards the cost of the tour. All air and land travel, single room accommodation and most meals will be included as well as registration for the Horticulture NZ Conference in Auckland.

For further information or to express interest, please contact Erin Lyall at AUSVEG on 03 9822 0388 or

erin.lyall@ausveg.com.au

Federal Treasurer, Wayne Swan, was more circumspect. He warned that despite the relative strong performance, the economy was still patchy with the danger that Australia may be developing a two speed economy.

Enviroveg

PROGRAM

About EnviroVeg

"EnviroVeg is the vegetable industry's own environmental program developed specifically for vegetable growers"

"We get emails and phone calls from consumers thanking us for being thoughtful about the environment" - Steve Skopilianos

Overview of EnviroVeg

EnviroVeg provides growers with guidelines and information on how to manage their business in an environmentally responsible manner. It provides a visible way of demonstrating a responsible attitude towards the environment. It also assists growers by showing the community that they are responsible environmental managers. Growers achieving environmental

certification may also benefit from a marketing edge. EnviroVeg is an industry owned and developed environmental program for vegetable growers. It is **FREE** to all levy paying vegetable growers

Why should I join EnviroVeg?

- To have your environmental practices recognised and acknowledged
- To identify the farming practices that you already have in place which have a beneficial environmental impact
- To demonstrate to the community that you are actively engaged in environmentally responsible vegetable production
- To get information from the program's website and newsletters on

Why Join?

useful sites, courses and information

To get information about any subsidies, grants or funding this is available to growers wishing to make environmental improvements on farm

This project is facilitated by HAL in partnership with AUSVEG and was funded by the National Vegetable levy. The Australian Government provides matched funding for all HAL's R&D activities.



Endosulfan banned by the United States

The United States Environmental Protection Agency has decided to seek a voluntary phase out of the use of the insecticide endosulfan in that country. According to the Australian Pesticides and Veterinary Medicines Authority (APVMA) the decision is important given current international discussions about the use of endosulfan. The APVMA is liaising with the EPA to obtain more detailed information about its decision. The EPA based its decision on risks to farm workers applying the agricultural chemical and to aquatic and terrestrial wildlife. The APVMA reports that it is not aware of any current evidence suggesting a similar occupational health and safety risk to Australian farm workers. Tight controls placed on endosulfan in Australia in

2005 addressed this risk. Recent advice from the Australian Government Department of Health and Ageing has confirmed that these controls adequately protect human health. Some continuing environmental risks outside Australia, however, were acknowledged by the APVMA. These relate to those particular properties of endosulfan that have found small but measurable quantities of the chemical in the body fat of arctic species.

The APVMA has sought advice on this matter from the Australian Government Department of the Environment, Water, Heritage and the Arts. The Department has confirmed these risks exist and will soon provide advice to the APVMA whether it believes they trigger legislation that

might enable the APVMA to take action on endosulfan in Australia.

Neither the APVMA nor the EPA has identified any risks to human health through dietary exposure. Similarly, there are no concerns about household exposure as endosulfan is not approved for household use in either country.

Growcom and the Queensland horticulture industry have full confidence in the regulatory decisions made by the Australian Pesticides and Veterinary Medicines Authority (APVMA) which are based on scientific evidence.



Fair Work Australia awards \$26 wage increase from 1 July



Because workplace agreements cannot undercut the modern award base rate of pay, the increase will apply to the minimum rates in federally registered workplace agreements (Employee Collective or Certified Agreements).

**MINIMUM WEEKLY WAGE: \$569.90
BASE HOURLY RATE: \$15.00 per hour**

On 3 June, Fair Work Australia's minimum wage panel released its decision on the minimum wage review. The increase of \$26.00 (nearly 5 per cent) brings the national minimum weekly wage to \$569.90. The minimum hourly rate increases from \$14.31 per hour to \$15.00 per hour and casual loadings must be paid on top of this for casual employees.

Casual loading increased
FWA also decided to increase the casual loading for award and agreement-free employees increase from 20 per cent to 25 per cent by July 2014, with a 21 per cent increase applying from the first pay on or after 1 July 2010. Queensland employers will transition to the new casual loading, increasing from 23 per cent to 25 per cent in the same period:

From 1 July 2010, the casual rate for Queensland employers will be \$18.51 per hour. This includes the wage increase and the phased-in increase to the casual loading. An employer may choose to bring in the changes earlier, e.g. move to 24 per cent in 2010 and 25 per cent in 2012 for example, but not later.

Workplace agreements?
Because workplace agreements cannot undercut the modern award base rate of pay, the increase will apply to the minimum rates in federally registered workplace agreements (Employee Collective or Certified Agreements).

"State" employers (Sole Traders/ Partnerships until 1 January 2010)
However, the increase does not apply to those currently operating under state awards or agreements, but will apply when these employers move to the national system on 1

January 2011. The old Fruit and Vegetable Growing Industry Award 2002 will cease to exist on 31 December this year.

While many were surprised at the extent of the increase (it is only \$1 short of the ACTU's claim for \$27 per week), no increase was awarded in 2009 due to the Global Financial Crisis, so there is little doubt that a catch-up was always going to be an issue. Employers without a workplace agreement now need to ensure that the wage increase is incorporated into their arrangements for transitioning across to the new award. Growcom will be sending out new Wage Summary Sheets to members and it will also be available on the [Growcom web site](http://www.growcom.com.au).

If you would like some assistance with understanding your obligations please call our IR team on 07 3620 3844 or email irteam@growcom.com.au.

Pre 1 July	1 July 2010	1 July 2011	1 July 2012	1 July 2013	1 July 2014
23%	23.4%	23.8%	24.2%	24.6%	25%

Award ambiguities frustrate transition to new Horticulture Award 2010



In the last edition of *Horticulture Now*, Growcom provided a table outlining how to transition across to the new Horticulture Award 2010. Fair Work Australia has recently released advice that overtime provisions are not to be phased in.

In our new Horticulture Award 2010, there is no clear distinction made between a weekend penalty (i.e. payable for ordinary hours worked on Saturday or Sunday) and overtime (i.e. payable for

hours worked over 38 per week on any day). This has thrown the transitional arrangements into an ambiguous light. We have therefore removed the transitional table until we can clarify this matter and provide you with clear, unambiguous advice.

To refresh your memory, from 1 July 2010 Increases and decreases brought about by the new award will start to be phased in over five

annual instalments at a rate of 20 per cent each year.

Growcom will continue to seek clarification on those ambiguous matters and present a full transitional table to members soon. **For more information on the transitional provisions for the Horticulture Award 2010 for your business, please contact the Growcom IR team on 07 3620 3844 or email irteam@growcom.com.au.**

Provision	Pre 1 July 2010	From 1 July 2010
Minimum wage	\$14.31 per hour \$543.78	\$15.00 per hour \$569.90 per week Five (5) new job classification levels: Compare employees' roles and duties to those in the classification structure and Schedule B job description to ensure employees are paid at the appropriate level / rate
Leading Hand Allowances	\$13.10 (one only)	4 new levels Check to ensure that all employers charged with supervising other staff are paid the appropriate allowance
Casual Loading	23%	Phase in rate: 23.4% Casual wage from 1 July \$18.51 per hour
Saturday [award refers only to "overtime"]	100%	150% [requires clarification]
Sunday [award refers only to "overtime"]	100%	200% [requires clarification]
Public Holiday	250%	Phase in rate: 240%
Shiftwork Allowance	n/a	15%

Health and well-being in horticulture

A searchable database will be established to further extend the use of the information and provide the longer term capability for industry to request specific search information relevant to marketing or other activities.

Consumers are more interested than ever in the health attributes of the foods they eat and in living in a healthy environment. Through the across industry funded HAL project, *Health and well-being in horticulture*, horticultural industries will have access to a wealth of information about the health and wellbeing attributes of fruit, vegetables, nuts, turf and greenlife to use in marketing and communication activities.

The CSIRO has been engaged through the project to undertake a world-wide literature review focused on health and wellbeing. This will encompass journal articles on all horticultural products, edible and non-edible. The project will also provide a watchdog service to industry with regard to policy and legislation announcements. It will be jointly led by accredited practising dietitian, Karen Kingham, and communications consultant, Chris Rowley. "The project will gather together articles published on fruit, vegetables, nuts and ornamental horticulture to demonstrate just how good for your health and wellbeing horticultural products are," Chris Rowley says. "It will also stay abreast of policy and regulatory issues and inform the relevant industry as things come up. The idea here is to provide industry with the information it needs to make decisions and act in the area of policy and regulation."

Research

Information gathered by the CSIRO will be assessed by the wellbeing team and circulated to HAL member industries via a newsletter and for more urgent items, via an email alert. Materials will also be made available via a monthly bulletin that will seek to tie together the whole of industry approach and build a wider understanding of research that may ex-

tend across a number of industries.

A searchable database will be established to further extend the use of the information and provide the longer term capability for industry to request specific search information relevant to marketing or other activities. A separate part of the research approach will be the establishment of a process that collects information on trends relevant to HAL members. This could include food and eating trends or lifestyle trends that impact on non-edible horticultural products. "What we now have is a starting point of close to 400 items in the searchable database, stretching back over the past few months of 2009, and even a few older items of interest," Mr Rowley said. "Given the timeframe for this initial batch of references there will most likely be articles that industry may already be aware of, however as we roll out this process, we expect an increasing number of new items of interest to appear on a month to month basis." Generic fruit and vegetable research features most prominently as the scientific community attempts to tease out relationships between diets rich in fruit and vegetables and diseases such as cancer, diabetes and heart disease, and weight control. Nuts as a group also featured prominently in the first review round.

Reviewing epidemiological evidence for nuts and health, the CSIRO researchers commented on the consistency of associations between nuts and reduced risk of heart disease, the benefits of long-term nut consumption and frequency of intake and protection from gallbladder disease. In the realm of non-edible horticulture, research shows differences in sick leave and produc-

tivity among office workers who were in close proximity to indoor plants and less need for pain medication, lower blood pressure and a more positive outlook amongst hospital patients who had flowering or foliage plants in their rooms. All of the research gathered by the CSIRO will be maintained in a central searchable database that can be accessed by contacting the project team.

Policy and Regulatory Affairs

The other key area of activity within the wellbeing project is that of policy and regulatory affairs. The project will develop a list of all current and ongoing reviews of interest to horticultural industries to ensure regular monitoring of regulatory bodies. As policy or regulatory issues arise, the relevant industry or industries will be contacted by the wellbeing team and provided with the information needed to make decisions and act. As an example of the way this service will work, in late January the wellbeing team became aware of a proposal from Food Standards Australia New Zealand (FSANZ) to consider varying the Australia New Zealand Food Standards Code to include traceability and processing requirements for semi-dried tomatoes, tomatoes and other food likely to be used in semi-dried tomatoes. To facilitate its consideration of the proposal the tomato industry was alerted to the fact that FSANZ was seeking public comment. This across industry project is funded by HAL using levies and voluntary contributions from industry with matched funds from the Federal Government.

For more information contact:
Chris Rowley
T 02 8901 0329
E ris.rowley@optusnet.com.au





Bowen District Growers Assoc. Inc

Membership 2010

A strong and cohesive organisation providing a voice for our members & the community

What does membership provide?

This year BDGA has provided support, up to date information and acted as a voice for growers in the following areas:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Water for Bowen | <input checked="" type="checkbox"/> Water Use Efficiency Grants |
| <input checked="" type="checkbox"/> Biodegradable Mulch Film | <input checked="" type="checkbox"/> Reef Rescue Incentives/Grants |
| <input checked="" type="checkbox"/> Loss of Dimethoate Use | <input checked="" type="checkbox"/> Plant Health |
| <input checked="" type="checkbox"/> Water for Bowen | <input checked="" type="checkbox"/> Labour Shortages |
| <input checked="" type="checkbox"/> Horticulture Code of Conduct | <input checked="" type="checkbox"/> Market Access |
| <input checked="" type="checkbox"/> Industrial Relations Issues | <input checked="" type="checkbox"/> Legislation |
| <input checked="" type="checkbox"/> Workplace Health & Safety | <input checked="" type="checkbox"/> Transport |

BDGA also has access to information on industry programs & initiatives such as Research & Development, grants and more. If you become a member of BDGA you are supporting vital information flow and representation within the industry. BDGA is here to support growers.

Fax Back Form

Fill out your membership details

Please tick the boxes that are applicable to your business and fax to: 07 4785 2211

1c per carton capped at \$2500

Minimum amount payable \$500

\$1 per tonne capped at \$2500

Amount payable: \$ _____.

Company Name: _____

Bowen District Growers Association Inc

Address: _____

Phone: 07 4785 2860

Fax: 07 4785 2211

Mobile: 0427 701 225

Contact Name: _____

Email: bdgainc@bigpond.com

Web: www.bdgainc.com.au

Ph: _____ Fax: _____

Email: _____

P O Box 489

Bowen Qld 4805

ABN: 35 729 953 455

Payment can be made via Direct Debit or posting a cheque. A tax invoice will be issued upon receipt of this fax back form.

Bank Account Details

BSB: 034 166 A/C No: 18 2276 A/C Name: Bowen and District Growers Association Inc

I am a Gumlu grower

I am a Bowen grower



“Average farm income in New South Wales, Western Australia, and Victoria, rose by 8-11% in 2007-08. Average income in the Northern Territory rose a more modest 2.6%. Average incomes fell by 27% in Queensland, and by 11% in South Australia.”



Financial Performance of vegetable Growers'

Financial performance of vegetable farms, by State

- Average cash income per vegetable farm in Australia fell by 3.4% in 2007-08 from the previous year. Average cash receipts were flat in 2007-08, but costs rose by 1.6%.
- The largest increase in average income in 2007-08, by a considerable margin, was in Tasmania; a substantial rise in income due to higher prices received led to a 56% increase in receipts which outstripped a 31% rise in costs. Tasmanian growers still had the lowest average income but the figure was closer to the national average than in the previous two years.
- Average farm income in New South Wales, Western Australia, and Victoria, rose by 8-11% in 2007-08. Average income in the Northern Territory rose a more modest 2.6%. Average incomes fell by 27% in Queensland, and by 11% in South Australia.
- Western Australia displaced Queensland to become the state with the highest average farm income in 2007-08, with incomes 30% above the national average.
- Average cash receipts rose in all states in 2007-08 except Queensland which experienced a 17% decline following the substantial 72% increase achieved in 2006-07 following the drought impacted 2005-06.. Queensland was also the only state where average costs fell, declining by 12% in 2007-08, again following a strong 60% increase in the previous year. Increases in

average costs in the other states ranged from 1.4% in Victoria to 24% in Western Australia and 31% in Tasmania (and 46% in the Northern Territory).

Vegetable farms with negative farm cash income

- Negative farm cash income (receipts – costs) is non-sustainable in the long run. In the short term growers in this situation have to rely on borrowed funds or off farm income.
- Although there was an improvement in the number of vegetable growers reporting negative cash income, 13% had negative cash income in 2007-08, down from 17% in 2006-07.
- There is significant variation in the performance of farms in individual states, both within a specific year and from year-to-year.
- In the latest vegetable farm survey, no farms in the Northern Territory and only 2% of farms in New South Wales reported negative cash income, compared with proportions of over 20% doing so in South Australia and Victoria. In Tasmania, 19% of farms had negative cash income in 2007-08, down sharply from 44% in 2006-07 due to improved receipts. The proportion of farms with negative cash income also declined in New South Wales, Queensland, and the Northern Territory, but rose in the other states.

Farm business profit of vegetable farms

- Farm business profit reflects the business return to vegetable growers and

takes account of all costs including depreciation, changes in stocks and an imputed cost for own and family labour.

- Average farm business profit in Australia which rose sharply in 2006-07 following the drought impacted 2005-06 but fell back 9% in 2007-08 to \$75,000.
- The biggest change was in Tasmania, with the strong rise in income reflected in an average profit of \$32,000 per farm, a major turnaround from an average loss of \$55,000 incurred in 2006-07.
- Average profits in 2007-08 rose by 55% in Victoria and by 20% in Western Australia, but declined in other states.
- Reflecting the changes in average incomes, farms in Western Australia became Australia's most profitable in 2007-08 with average profit of almost \$123,000, ahead of Queensland where average profits fell to \$110,000, 40% below the previous year's result. The lowest average profits were in New South Wales which, at around \$29,000 in 2007-08, were less than 40% of the national average. This reflects the dominance of smaller vegetable farms in the Sydney basin area.

Rate of return to capital, excluding capital appreciation

- The average rate of return to capital, excluding capital appreciation, for Australian vegetable farms fell slightly to 4.0% in 2007-08 from 4.2% in 2006-07. These returns in general exceed the rates of return achieved in the broadacre

industries.

- The strongest rates of return were recorded in the Northern Territory (5.8%), Western Australia (5.0%), and Queensland (4.9%).

- The lowest rates of return were New South Wales (2.4%), Tasmania (3.3%), and Victoria (3.6%).

The biggest improvements were in Tasmania (from -0.9% in 2006-07 to 3.3% in 2007-08) and Victoria (from 2.4% to 3.6%), and the sharpest deteriorations were in Queensland (9.4% to 4.6%) and the Northern Territory (9.6% to 5.8%).

Financial performance and debt characteristics of different vegetable farms

- Farm cash income of specialist potato growers rose by 2.9% in 2007-08 from 2006-07 to \$164,000, reflecting a 1.1% rise in cash receipts and a 0.4% increase in cash costs.

- Profits of specialist potato growers rose by 11.2% over the same period to \$69,000, and the rate of return on capital excluding capital appreciation improved from 3.2% in 2006-07 to 6.7% in 2007-08. The equity ratio was steady at 90%, farm business debt rose by 11% to \$341,000, and the debt servicing ratio rose from 4% in 2006-07 to 5% in 2007-08.

- Farm cash income of specialist tomato growers fell by 21% in 2007-08 from 2006-07 to \$147,000, reflecting declines of 19.1% and 18.4% in cash receipts and cash costs respectively.

- Profits of specialist tomato growers fell by 47.1% over the same period to \$56,000, and the rate of return on capital excluding capital appreciation fell from 7.0% to 4.6%. The equity ratio dipped from 86% to 84%, farm business debt rose by 8% to \$295,000, and the debt servicing ratio rose from 2% to 3%.

- Comparisons between growers of potatoes, tomatoes, and other vegetables show that those in the other category had the highest cash income and best profit in 2007-08, displacing tomato growers who had the leading position in these catego-

ries in 2006-07.

A prominent feature of the financial performance of growers in the other category in 2007-08 was a sharp increase in farm business debt from \$222,000 in 2006-07 to \$423,000 in 2007-08, compared to the more modest increases in the farm business debts of tomato and potato growers.

Cost of production per tonne for vegetable producers

- Cash costs for root vegetables are much lower than above the ground vegetables reflecting lower harvesting costs.

- Carrot growers had the lowest costs per tonne at \$213 in 2007-08 and it is no coincidence that carrots are Australia's leading fresh vegetable export.

- Potato growers have experienced the lowest increase in cash costs per tonne since 2004-05 with a cumulative rise of 13% to \$240.

Cash costs per tonne (excluding imputed labour costs) in 2007-08 were only 2.3% lower than if these costs are included for carrots, but 8.7% lower in the case of cauliflowers.

Components of costs of production for vegetable growers

- The components of costs of production of ten vegetables are examined and broken into thirteen components.

- The actual dollar cost of production in 2007-08 is highest for broccoli (\$1113), with broccoli production incurring the highest actual dollar costs in 8 of the 13 categories.

- The next most costly vegetables to produce are tomatoes (\$764), cauliflowers (\$727), and pumpkins (\$661). Tomatoes incur the highest actual dollar costs for contracts paid and freight, cauliflowers for packing material and labour, and pumpkins for repairs and maintenance.

- The most significant cost components for all surveyed vegetables are hired labour (19% of total costs), fertiliser (10.5%),

contracts paid (10.4%), and repairs and maintenance (8%). A miscellany of small cost items are grouped together in an 'other costs' category, which accounts for 20% of total costs.

- Analysis of individual cost components as a proportion of total costs reveals that fuel and oil costs are heaviest for potatoes, accounting for 10.4% of total costs, well above the average of 6.6% for all vegetables.

- Hired labour costs are highest for lettuce (almost 27% compared with an average of 19%), contracts paid are highest for tomatoes (22% vs 10.4% average), fertiliser for potatoes (16.3% vs. 10.5% average), repairs and maintenance for beans (10.2% vs. 8.1%), seed for broccoli (11.7% vs. 7.6%), spray and chemicals for onions (7.5% vs. 5.5%), and labour costs for cabbages (11.2% vs. 5.6%).

The other individual components account for 2.5% or less of total costs on average for all vegetables. Electricity costs account for 2.5% of the total, administration for 2.4%, freight for 1.1%, and packing materials for just 0.3%.

Financial performance and debt characteristics of different vegetable farms
Farm cash income of specialist potato growers rose by 2.9% in 2007-08 from 2006-07 to \$164,000, reflecting a 1.1% rise in cash receipts and a 0.4% increase in cash costs.



AUSVEG



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*A strong and cohesive organisation providing
a voice for our members*

Chicken, corn and noodle soup



Warm up with a bowl of this soothing chicken soup - it's like food for the soul.

Ingredients (serves 6)

- 2 tablespoons olive oil
- 1 large white onion, finely chopped
- 2 garlic cloves, crushed
- 3 stalks silverbeet, stems finely chopped, leaves shredded
- 6 cups chicken stock
- 3 small chicken breast fillets, trimmed, diced
- 80g egg vermicelli noodles
- 3 fresh corn cobs, kernels removed

Method

Heat oil in a large saucepan over medium heat. Add onion, garlic and silverbeet stems. Cook, stirring, for 2 minutes or until soft. Add stock and increase heat to medium-high. Bring to the boil. Add chicken and noodles. Stir until noodles have separated. Simmer, uncovered, for 8 minutes.

Add corn and silverbeet leaves. Cook for 3 to 4 minutes or until corn is cooked through. Season with salt and pepper. Ladle soup into warmed bowls. Serve



The Industry Development Officer project is facilitated by HAL in partnership with Bowen District Growers Association. It was funded by voluntary contributions from industry. The Australian Government provides matched funding for all HAL's R&D activities."

Know-how for Horticulture™

Support your local—Bowen Soup Kitchen

The Bowen Soup Kitchen, developed out of a need in the Bowen community for access to a hot nutritious meal, especially seen by local emergency relief providers and other support agencies in town. The Bowen Neighbourhood Centre has received a grant from HPC as part of their kick start grants to implement the program, and develop it around a model of providing healthy nutritious meals for the community, especially those who are most disadvantaged.

The Bowen Neighbourhood Centre has received great support from the Zonta Club of Bowen, who have volunteered to help out in the kitchen and help prepare some of the meals, as well as the Lions Club with the donation of a BBQ, and various community members who have volun-

teered their time or donated other goods.

However, as the Bowen Neighbourhood Centre is a not for profit community organisation, heavily reliant on volunteers, we are greatly limited by funding and have to rely on donations and limited funding to run any new programs, and therefore have put the call out to our wonderful community.

However, as we are so lucky to live in a community surrounded by farms who produce some of the best fruit and veges in Australia, we thought that this might be an excellent resource for the soup kitchen.

So we would like to put the call out there to any farms or farmers, who

may have a little bit of fruit or veges that are too old, too ripe or maybe just not the right size/shape to sell to think about donating it to the Bowen Soup Kitchen.

We could organise pick up if that makes it easier and are greatly appreciative of anything and everything. If you would like some more info about this or anything else happening at the Bowen Neighbourhood Centre please don't hesitate to contact me my door is always open, on bowennnc@bigpond.com or 47862111.





Tomatoes, mangoes and holidays need good branding

Seventy eight percent of Australians know very little about farming or from where their food originates.

This statistic emphasises the need for growers to get out and market their product according to Denise Kreymborg, Industry Development Officer with Bowen District Growers Association.

She was speaking at the launch of the new produce label, MIW, for Made in the Whitsundays products. Denise said the good news is that 22% of Australians have a connection with the farming community. Launch of the MIW label had the assistance of Qld Primary Industries Minister, Tim Mulherin, and was hosted by Alfred E Chave, the Brisbane Markets wholesale outlet of Tony Joseph and sons.

Denise continued, "branding of produce is very important from a consumer and tourism perspective because a brand will be synonymous with quality produce like mangoes, tomatoes and capsicums from the region that includes Bowen. "Bowen tomatoes supply 55% of the Australian market, something most consumers would not know. For this and other reasons the area of Whitsundays will benefit greatly by the branding MIW.

"Good chefs today are treated a bit like rock stars in the kitchen because people want to know the story of the produce. They want to find the skills they missed out on regarding cooking and they don't want their food to be treated like a commodity," Denise said.

Josh Job, Daydream Island Chef came to cook at the launch of MIW and said that guests want to know where their produce originates. Guests are asking questions and we like to give them the answers, he said.

We developed the idea into a project called 'Made in the Whitsundays' and successfully applied for State Government funding.

Potential for this type of branding project increased with the amalgamation of Bowen and Whitsunday councils. The 'MIW' brand covers Airlie Beach, Proserpine, Bowen (which is the largest winter growing region in Australia), Collinsville and the beautiful 74 Islands of the Whitsundays.

The Made in the Whitsunday brand is all about getting brand recognition during our growing season and it has come along at just the right time, said Denise Kreymborg.

What consumers want

This year Denise attended the Australian Vegetable Industry Conference 2009 where there was an emphasis on what consumers want.

Groundbreaking comments from the Conference included:

Peter Pokorny, General Manager, Fresh Produce, Coles said the survey shows that consumers want to know where their fresh produce comes from. He also said that we need to get back to seasons and local branding.

Jin Ju Wilder, President, Coast Produce Company, Los Angeles – said she checked out our supermarkets and couldn't believe we sell fresh produce with no branding. She also said there was huge potential in Australia for branding and marketing of fresh produce.

Brand Story who has the **Vegetracker** program (based around what consumer want) say that every brand large or small has the potential to tell a unique and captivating story – Particularly true, but unrealised for vegetables. They also said Evoking seasonal consumption rituals is a potent area for generating interest in getting consumers to buy more fresh produce. They also said Consumers need assistance, education, involvement and engage-

Inside this issue:

Mango Queen Crown	2
Water Risk	3
IR Update—Award Modernisation	4
CPRS	5
BDGA Membership	7
Made in the Whitsundays	8
Permits	15

Special points of interest:

- *Brak Pak win 1st Prize*
- *Keep It Real*
- *New Clearing Laws in place*
- *What's cooking in the kitchen?*

Susan snaps up first ever "Mango Queen" crown

SUSAN Lorenti of Clayfield Markets Fresh has been crowned the first ever "Mango Queen" after making the winning bid of \$45,000 for the 2009 season's symbolic first tray of mangoes at the Brisbane Markets "Mango Memories" auction for charity. Marking the 12th year of the event, proceeds from the auction and other activities totalled a massive \$70,000, and will be shared between Life Education Queensland, the largest non-government provider of drug and health education in Australia, and Redkite, an organisation that provides emotional and financial support to children affected by cancer and their families. The newly crowned Mango Queen follows in the footsteps of her husband Carlo, also from Clayfield Markets, who won the crown last year as well as in 2006. Susan said she was happy the \$45,000 was going toward helping Queensland children and their families. "There are generous people within the Brisbane Markets community who look forward to this auction every year so we expected some tough competition," Ms Lorenti said.

"Carlo and I wanted to make a difference and it is a privilege to

know our winning bid will support such worthy causes. "We dug deep and are so proud we won this year's auction. It is a strong personal motivator of mine to help children in need and the reason I participate is because the money raised goes towards supporting children and their families who need it most whether through Life Education Queensland or Redkite. "It's also good to know we also did better than our New South Wales counterparts. "I delivered the tray of mangoes to the kids at the Banksia Ward of the Royal Brisbane Children's Hospital and it was such a joy to see their faces light-up as they tasted some of the season's first fruit."

Brisbane Markets CEO Andrew Young said the auction was a great success thanks to the combined effort of the Brisbane Markets community. "The annual mango auction is an opportunity for fresh produce retailers and wholesalers to show their support for some of our state's finest children's charities and cele-

brate the beginning of the mango season," he said.

"Congratulations to Susan as our 2009 Mango Queen and a big thank you to her and the whole Brisbane Markets community who faithfully get behind the auction year after year. "We had a large number of retailers and wholesalers bidding for the prized mangoes which is one of the best turnouts yet. The auction along with donations and raffles raised a grand total of \$70,000." This year's "Mango Memories" featured a spectacular grand parade showcasing the Brisbane 'Hogs Breath Brisbane Broncos' Cheerleader Squad, Brisbane Broncos Vice-Captain Corey Parker along with Broncos Players Joel Clinton, Tonie Carroll, Nick Kenny, 'Alfie' Langer and Peter Ryan.



Since the inaugural event in 1998, the Brisbane Market Mango Auction has raised over half a million dollars for worthy charities.

The mangoes were supplied by Pine Creek Plantation in Pine Creek.

National chemical harmonisation process

Growers need to be aware of changes currently being discussed about the regulation of agricultural and veterinary chemicals. In 2008, the federal, state and mainland territories governments agreed to begin introducing a single national system for regulating the use of agricultural and veterinary chemicals. The aim is to manage chemical risks to users, consumers, trade, and the environment, without increasing associated costs and red tape.

However, Growcom is concerned that a review covering both a National Registration

Scheme and the Control of Use, is too wide for everyone involved with handling and use of agricultural and veterinary chemicals to properly respond in the allotted timeframe. Recently, Growcom Chairman John Bishop, and Gary Artlett, Growcom's Industry Development Officer – Pest Management, attended a meeting of the National Registration Scheme for Agvet Chemicals with the consultants engaged by the Department of Agriculture, Fisheries and Forestry (DAFF).

The meeting was arranged so that the consultants could gather facts to find out what

does and doesn't work. The DAFF consultants appeared to be across the key issues and were able to identify emerging themes from their previous meetings, when Growcom raised certain points of concern. Growcom will continue to be involved in the process on behalf of its members. Further updates will be published in *Horticulture Now* and *Fruit and Vegetable News*.

For more information contact Growcom Industry Development Officer – Pest Manager Gary Artlett on 3620 3844 or gartlett@growcom.com.au

Tomatoes, mangoes and holidays cont...

ment to drive consumption.

These conference comments were exactly what Made in the Whitsundays branding is all about," said Denise.

"DO you realise when you go and see a movie you are paying for a feeling!! You walk in you pay for a ticket you walkout with nothing but a feeling.

"I see that not only are we building a brand around our season but we are also instilling a feeling. I would like to see a consumer in Brisbane,

Melbourne, Sydney anywhere for that matter pick up a good quality fresh tomato branded MIW and then also think about the Whitsundays, the Islands, the White Sand, the



Relaxation of a Holiday or a memory of a holiday they once took. So when they buy that tomato, capsicum, corn they also get a feeling which if we look at the movie scenario is something worth paying for," Denise Kreymborg said.

www.madeinthewhitsundays.com.au



Water used for food production at risk from mining developments

AUSVEG today called on governments at all levels to prioritise land for food production over proposed mining developments.

AUSVEG is the national peak industry body representing the interests of Australian vegetable and potato growers.

Communications Manager Hugh Tobin endorsed the position of Queensland Horticulture body Growcom who recently cautioned the government about the risks of placing mines in locations such as Felton on the basis that they threaten the quality of water feeding into irrigation aquifers in Queensland.

"Mining developments in vegetable growing regions will put at risk the supply of good quality ground water for food production," Mr Tobin said.

"Australia's population is going to grow to 35 million by 2049. Governments need to recognise that we are going to need to feed more people and, as a consequence,

they need to zone land accordingly."

"The government needs to make protecting food producing land a higher priority or else consumers will pay more for food and local economies will suffer. There are long term consequences of these decisions for future generations."

In a submission to the Senate Inquiry into the impacts of mining in the Murray Darling Basin, Growcom noted that good quality agricultural land comprised less than five per cent of Australia's total land mass.

Figures from Growcom also show that the value of horticultural production in the Felton/Cambooya area is in excess of \$23 million per year, employing 400 people to provide a range of vegetables including lettuce, cauliflowers, cabbages, onions and potatoes.

"While the proposed mine in the Felton/Cambooya region will create 125 jobs, the long term future of agriculture in the region will be

put at risk," said Mr Tobin.

"The other significant issue relating to the proposed mines is water usage. The mine and petrochemical plant proposed for Felton will require 16,000 megalitres of water per year."

"The proposed mine will draw large amounts of water from groundwater sources with negative consequences on flows into the Murray Darling system from southern Queensland."

"The potential pollution of aquifers by mining is also of serious concern for locals who rely on this water for drinking," he said.

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Industrial Relations Update

New restaurant award may be indication for growers

The new Restaurant Award 2010 released recently by the Australian Industrial Relations Commission (AIRC) may be a good indication of what growers can expect when the Horticulture Industry Award (HIA) is finalised.

Like the horticulture industry, earlier this year Restaurant and Catering Australia (R&CA) were successful in their request to Workplace Relations Minister Julia Gillard to refer their original award back to the AIRC for variation.

The R&CA sought to have the Saturday penalty rate of 25 per cent that applied to employees in some states removed, as well as the evening penalty rate of 15 per cent that began at 7 pm.

Whilst the R&CA received some concessions on penalty

rates in the latest version of the Restaurant Award released by the AIRC, their industry is still facing Sunday penalty rates of 150 per cent, 250 per cent on public holidays and 10 per cent after 10 pm.

Growcom continues to work hard with partners and industry bodies on the arguments to support our claim for necessary flexibilities in the new award. The process of review by the AIRC will continue into November, with the likely release of the final award unlikely until December. While Growcom is confident our position is the most appropriate for our industry, the AIRC will make the award in a form that it considers most appropriate for the industry.

When the variation to the HIA is released by the AIRC, growers are likely to see similar compromises between penalty

rate requests and grower needs.

Time is running out to undertake the necessary work required to put an agreement in place, and requests for assistance after mid-November can carry no guarantee of completion.

To protect yourself from the unknown when the HIA is released and comes into effect on 1 January 2010, Growcom is strongly encouraging members to put in place a Workplace Agreement with their employees.

For more information, contact Growcom's IR team on 07 3620 3844 or irteam@growcom.com.au

Brak Pak wins first price at EKKA

Better late than never—Congratulations goes to Brak Pak who won first prize for their Gourmet Class tomatoes at the Brisbane Ekka this year. This is a fantastic effort considering how many others they were competing against. Well Done.



Keeping compliant with the Code

Growers who request a Brisbane Markets' Growers Kit to help them understand more about trading with its wholesalers receive an important document included within the pack to help them attempt compliance.

A Guide to the Horticulture Code for Growers and Wholesale Traders in the Horticulture Industry, produced by the Australian Competition and Consumer Commission (ACCC) is still up to date, until the Federal Minister for Agri-

culture announces changes.

The Growers Kit can be requested by phoning the Brisbane Markets hotline on 1800 631 002 or emailing Industry Liaison Officer vkenedy@brisbanemarkets. Alternatively, look up the ACCC website on www.accc.gov.au/horticulturecode for a copy of the guide.

NFF PUSHES THROUGH ON CPRS STRATEGY

MEMBERS will be aware the NFF has been pursuing a concerted strategy for the past 18 months to have agriculture excluded from the cap under the Federal Government's Carbon Pollution Reduction Scheme (CPRS), while developing the opportunity for farmers to benefit from a complementary offset program. We are now at the pointy end of negotiations and the political dynamic is intensifying. For the record, the NFF does not want a CPRS. However, both sides of politics have committed to the policy intent. Covering agriculture's emission under such a scheme would decimate Australia's farm sector. As such, we have consistently asserted that

the CPRS doesn't work for agriculture. Yet, we also need to ensure farmers can benefit from their ability to capture and store carbon. We took our amendments to the Rudd Government months ago. We engaged in negotiations accordingly. However, the Government refused to make the concessions upfront. The NFF subsequently took our amendments to the Coalition, who have adopted all of our imperatives as their policy platform. This now forms the basis for negotiations between the Coalition and Government over the CPRS legislation. While the Canberra rumour mill is suggesting agriculture's exclusion is likely to be an historic win

for the NFF, it's far too early to get cocky. In addition to exclusion of direct emissions, farmers need credits to recognise the good environmental work they are doing and we need processor costs excluded because they will flow back to farmers. NFF President David Crombie summed up the NFF's position on ABC 2's Breakfast program this week. The interview is available online at: <http://www.abc.net.au/news/breakfast>.
NFF Contact: Ben Fargher.

Growcom launches policy on Carbon Pollution Reduction Scheme

This week Growcom launched its policy for the horticultural industry on the Carbon Pollution Reduction Scheme (CPRS) after consultations with growers.

Growcom's policy on the CPRS urges the federal government to make an earlier decision about whether the sector would be included in the CPRS before its arbitrary decision deadline of 2013.

The federal government's scheme in its current form would artificially increase the cost of producing food at a time when authorities are predicting a rapidly increasing demand for food as populations increase in Australia and overseas in the next 40 years.

As price-takers, horticultural producers have extremely limited capacity to pass on increased production costs through the value chain. Growcom cannot support a policy where the only real option for growers to reduce costs is to reduce production or switch to alternative land uses.

For this reason, Growcom welcomes the federal opposition's proposal to amend the CPRS by excluding agricultural emissions and introducing an agricultural offset scheme to compensate food producers for increased input costs which growers would find difficult to pass on down the supply chain.

Growcom's policy is that horticulture should be excluded from

the CPRS because of the low levels of emissions produced by the sector – about 1 per cent of agricultural emissions or about 0.2 per cent of total emissions. The cost to administer the scheme across thousands of small independent businesses would be crippling, as would the difficulty of measuring agricultural emissions on individual farms.

For more information, contact Growcom Climate Change Project Officer David Putland on on 07 3620 3844 or dputland@growcom.com.au

Keep it Real 2009—6th National Food Safety, Quality and Environmental Assurance Conference

9th—12th November, Launceston Australia

Celebrity environmentalist headlines food sustainability

Internationally recognised sustainable living advocate, writer, television presenter and

environmentalist Tanya Ha has been announced as the key-note speaker for the upcoming

Tasmania-based Keep it Real® 2009 Food Safety, Quality and Environmental Assurance conference.

Tanya Ha is best known as the “eco coach” in the landmark SBS reality TV series *Eco House*

Challenge, the author of the acclaimed eco-guide book *Greeniology* and a prominent media

commentator on environmental issues.

She will give delegates an overview of what it means to be “green,” and discuss the difference

between “greenwashing” and best practice environmental communication.

To help delegates navigate the difficult and rapidly changing world of environmentally friendly goods

and services Tanya will discuss the importance of accurate product labelling, proving your “green”

claim, and what standards apply to products deemed environmentally friendly. She will also highlight

common mistakes made in mar-

keting a product as “green” and provide an overview of examples of

environmental labelling in the consumer marketplace.

“The idea of ‘green’ goods and services has become a part of our everyday language, and proving

the environmental credentials of food is a major challenge facing primary industry,” Tanya Ha said.

“With rapidly changing consumer attitudes to environmental sustainability, primary producers need to

be aware of these issues and this conference is an essential forum to gain information on current and emerging market trends.”

The conference is run by TQA Australia, a not for profit, independent leader in quality solutions

inspiring agri-business to be effective and innovative.

TQA Australia Managing Director, Jane Lovell, said she was delighted to have a personality like

Tanya Ha lending her knowledge to the conference program.

“Sustainability is a big theme for us this year, as are other environmental issues such as carbon

footprint reporting and climate change – and Tanya Ha is more than qualified to assist in

communicating these ideas to those involved in primary industry.

“It is the perfect opportunity, too, for Australian food producers to network and share with their industry peers, retailers and government representatives while they learn about the most up-to-date

issues surrounding food safety, quality and environmental assurance.”

The conference is held every two years, and this year will feature workshops and field visits as

well as traditional conference presentations from local, national and international speakers.

The 6th Keep it Real 2009 event is being held in Launceston, Tasmania at the Hotel Grand

Chancellor from November 10-12. Tanya Ha will speak to delegates at 9am Wednesday November

11.

Registrations close November 5 and can be made via www.tqainc.com.au or by contacting Amanda

at TQA Australia on (03) 6423 6008.

*A copy of the conference program is attached

ENDS



Bowen District Growers Association Inc Membership

Vision : A strong and cohesive organisation that provides a voice for our members.

Mission : BDGA efficiently and effectively represents and promotes the members interests by providing beneficial services that will help support their business.

How does BDGA membership support growers?

This year BDGA has provided support, up to date information and acted as a voice for growers in the following areas:

- Water for Bowen
- Biodegradable Mulch Film
- Loss of Dimethoate Use effecting tomatoes, capsicums, melons and their markets
- Water Allocations for Bowen
- Horticulture Code of Conduct
- Industrial Relations Issues
- Workplace Health & Safety
- Water Use Efficiency Grants
- Reef Rescue Incentives/Grants
- Plant Health
- Labour Shortages
- Market Access
- Legislation
- Transport

To become a member of BDGA
fill out and return this form to BDGA

“BDGA is looking after growers interests and delivers real outcomes for growers within the horticulture industry”.

Membership payment amount is a voluntary amount at your discretion

Amount

1c per carton capped at \$2500 GST inclusive a year

\$ _____

\$1 per tonne capped at \$2500 GST inclusive a year

\$ _____

Subtotal:

\$ _____

Membership Contact Details

Total:

\$ _____

Name:

Postal Address:

Phone:

Fax:

Method of Payment

- Cheque
- Money Order
- Cash

Bowen District Growers Association
P O Box 489
Bowen Qld 4805

Ph: 07 4785 2860
Fax: 07 4785 2211

Email: bdgainc@bigpond.com

THE HON TIM MULHERIN, MINISTER FOR PRIMARY INDUSTRIES AND FISHERIES AND RURAL AND REGIONAL QUEENSLAND, MADE IN THE WHITSUNDAYS' CAMPAIGN LAUNCH—Speech

I am delighted to be here representing the Premier this morning to launch the 'Made in the Whitsundays' campaign. We are of course at a most fitting venue to announce this exciting Blueprint for the Bush project.

The Brisbane Produce Markets are the very heart of Queensland's fruit and vegetable distribution, trading in excess of 600 000 tonnes of produce each year. It is a significant venue - a key link in the chain between Queensland producers and the consumer.

Primary Industries and Fisheries is also a key player in the food chain. As an organisation, we are committed to working with the entire supply chain - from paddock to plate - research to commercialisation - from production through to the consumption. Queensland's 28 000 farmers will this year contribute approximately 13.4 billion dollars to the State's economy and the primary industries sector will continue to employ more than 100 000 people in rural and regional centres of the State.

When I think of fresh Queensland produce two words come immediately to mind - diversity and quality. Every day, Queensland and Australian consumers have the opportunity to feast on an incredible array of freshly grown regional Queensland produce - seafood, beef, vegetables and tropical and exotic fruit.

Queensland producers are passionate creators of food that reflects our tropical climate and lifestyle. Our horticulture industry, the fastest growing primary industries' sector produces over 120 different fruit and vegetable products for local and export markets. The Whitsunday region is one of our most prolific vegetable and fruit growing areas producing capsicum, tomatoes, chillies, eggplant, cu-

cumber, mangoes, lemons and macadamias, just to name a few and contributing over 219 million dollars to the sector. In winter/spring, the rest of Australia is dependant on the northern food bowl for their veggies.

Bowen alone produces 55 percent of Australia's fresh tomatoes and has the longest growing season for a horticultural product from April through to the end of October. Beef, wild-caught seafood and aquaculture are other key primary industries in the region.

In fact, the Mackay/Whitsunday area has one of the highest rates of aquaculture production in the State with 188 hectares of ponds contributing 8.7 million dollars to our economy last year. Increasingly today consumers want to know more about the provenance of food - interest spurred on by the global rise in 'buy local' campaigns; the growth of farmers' markets and the elevation of the chef and even the home cook to rock star status.

They don't just want to know how to cook with tomatoes - they also want to know

exactly where their tomato was grown, how it was grown, how much water was used to grow it and, if they can, they would also like to meet the farmer who grew that tomato. Recent Meat & Livestock Australia research during the national Farm Day pro-

ject - an event where city families spend a day on a farm - found that only 22 percent of city residents have a relative or friend who is a farmer.

In an increasingly urbanised world, it isn't surprising that consumers are hungry to learn more about farming and food production.

The 'Made in the Whitsundays' campaign will help to showcase not only the diversity and quality of produce grown in one of Queensland's most beautiful regions but hopefully the farmers who grow it.

We all know of the iconic Bowen mango but soon perhaps Australian consumers will be talking equally as reverently about the Bowen tomato and Whitsunday winter vegetables.

Ladies and gentleman will you please join me in congratulating the 'Made in the Whitsundays' steering committee on this initiative and I



would now like to declare the campaign officially launched.

Made in the Whitsundays, Going further afield

The first phase of promoting the Made in the Whitsundays (MITW) brand to the food industry was held at the Brisbane Produce Markets last week with Honorable Tim Mulherin, Minister for Primary Industries, Fisheries and Regional Queensland officiating.

Minister Mulherin and Denise Kreymborg, Director of Enterprise Whitsundays and Industry Development Officer with Bowen District Growers Association addressed over 100 onlookers including agents, wholesalers, grocers and industry body representative promoting the importance of the MITW brand and fresh produce from the region.

Passionate about the long term sustainability of the horticulture industry, Ms Kreymborg has been an integral part of facilitating the MITW branding to the horticulture industry in Bowen, with growers and the supply chain to educate consumers on seasonal produce and encouraging improved market value.

"The Made in the Whitsundays campaign will showcase not only the diversity and quality of produce grown in one of Queensland's most beautiful regions but also the farmers who grow

it." said Minister Mulherin. "Increasingly consumers want to know more about the provenance of food with interest being spurred on by the global rise in 'buy local' campaigns.

We all know of the iconic Bowen mango but soon perhaps consumers will be talking equally as reverently about the Bowen tomato and Whitsunday winter vegetables. The MITW branding



has huge potential for improving consumer awareness of local produce and seasonal quality throughout the supply chain down to consumers.

Executive Chef of Day Dream Island, Josh Job tantalized taste buds with a cooking demonstration using local fruit, vegetable, herbs and seafood. Chef Job uses local produce in his menus on Day Dream Island to create

the full the "Whitsundays experience".

Chef Job said "I will make it a personal goal to work hand in hand with the local growers, fisherman, and farmers to ensure that Australians are not only aware of this region but they can also enjoy a taste of the Whitsundays"

The Made in the Whitsundays logo, designed by local design company Zest, has been named as a finalist in the "Best Corporate Logo", at the Queensland Media Awards in Cairns.

The steering committee would like to thank the Brisbane Produce Markets along with Tony Joseph, Anthony Joseph and the team from Alfred E Chave for their support in helping to put the launch together and providing a spectacular display of local produce.

For those interested in applying for certification or would like further information please contact Jennifer O'Connor on communications@whitsundaydevelopment.com.au or (07) 4946 1000.

Growcom supports good employers

A couple of disturbing stories have appeared in the southern press in the past week or so regarding mistreatment of workers in the horticulture industry.

Stories like this are reported by the Fair Work Ombudsman's office - and from a wide range of situations. It is always disappointing to see these practices occurring.

Growcom does not support horticulture employers who rip off their employees. Whether workers are employed under the Award or a Workplace Agreement, these instruments provide the minimum standards regarding pay and conditions which employers must legally adhere to.

This includes appropriate payment for overtime worked, public holiday penalties, and payment of the statutory 9 per cent superannuation contribution. If employers are unsure of their obligations, they should contact the [Growcom IR team](#) on 07 3620 3844 or [Fair Work Australia](#) on 1300 799 675.

It is illegal for employers to knowingly/recklessly employ illegal immigrants or people who are not entitled to work in Aus-

tralia.

Employers should always check eligibility (even if staff turnover is high) and show a written pattern of having checked - heavy penalties (including imprisonment) will apply to those employers who ignore this requirement.

If employers are not sure of a person's eligibility to work in Australia, visit the federal Department of Immigration and Citizenship web site and check their potential employee's visa status.

Growcom's IR Advisor Donna Mogg said where labour hire companies are engaged, the labour hire company (LHC) is responsible for correctly paying wages.

"However employers should be wary of agreements with LHCs that look too good to be true...they probably are," said Ms Mogg.

Growers are also responsible for the safety and wellbeing of any person on their property. Occupational Health and Safety legislation sets out specific requirements in regards to workplace safety and hefty penalties apply to employers who endanger their workers.

Interestingly, the timing of these stories has coincided with Growcom's (on behalf of the horticulture industry) appeals to both the Australian Industrial Relations Commission (AIRC) and federal Minister for Workplace Relations Julia Gillard to review the draft award.

Growcom's contention is that the current draft of the Horticulture Industry Award does not take account of the needs of the industry; nor does it reflect the conditions that the majority of horticulture employees currently work under.

The new draft Award also has the potential to significantly increase costs to employers relative to current provisions, either resulting in fewer growers and/or, ultimately, in higher prices for consumers.

Growcom is in the process of drawing together a range of detailed industry information to support the submissions. The new Award is expected to be announced by the AIRC sometime in early December for implementation from 1 January (some provisions from 1 July) 2009. **For more information contact Growcom's IR team on 07 3620 3844 or irteam@growcom.com.au**

Writing "Great Grants" Workshop

A workshop designed to provide you with skills, tips and resources to help find and write great grant applications.

Presented by Matthew Magin

Tuesday 10th November 2009



6pm to 9pm

Cost: \$20

Venue: Barrier Reef TAFE College—Queens Rd Bowen

Please register by Friday 6th November email: coordinator@hpcinc.com.au or phone HPC on 47865941

New clearing laws

The moratorium on clearing high-value regrowth ended on 7 October 2009 and new laws regarding clearing took effect.

High-value regrowth vegetation is mature native vegetation that hasn't been cleared since 31 December 1989. Regrowth not shown on the [regrowth vegetation map](#) is exempt.

High-value regrowth vegetation and regrowth watercourses are now regulated. To view the areas on your property which come under this definition, please use the map.

Vegetation near creeks and wetlands, on steep slopes and up to 50 metres from regrowth watercourses will now be protected. Native vegetation within 50 metres of *any* watercourse in the Great Barrier Reef catchments – the Burdekin, Mackay Whitsunday and Wet Tropics – is protected.

The new *regrowth vegetation code* is self assessable, meaning land holders won't have to get a

permit to clear regrowth, but land holders will need to demonstrate that you have followed the code in deciding whether or not the law allows you to clear that area. You will need to notify DERM using the *regrowth vegetation code clearing notification form*.

There are some exemptions to the code. These include:

- clearing regrowth vegetation for routine and essential management such as fire management lines, fire breaks and fences
- construction of built infrastructure in areas under two hectares
- burning vegetation to reduce hazardous fuel loads.

If any farm business is made unviable by the new regrowth laws, special provisions may apply that allow for an assessment to permit clearing of protected regrowth vegetation. The state government will make these details available shortly.

As the satellite imaging is unable to distinguish between native trees and orchards, you may find when you receive the vegetation map of your property, that orchards have been identified as protected regrowth.

This process to follow in this case is:

1. Apply for a letter of exemption from your local DERM office (formerly NRW).
2. If a letter does not give you enough certainty, you can develop a property map of assessable vegetation (called a PMAV) for your farm which can be approved by the department.

The advice from the department is that a letter will provide exemption from this legislation, however, a PMAV provides you with the "best opportunity" for certainty in the future.

AgForward (part of AgForce) is funded by the Queensland government to assist all landholders with the development of PMAVs.

Horticulture for tomorrow launches new look

Horticultural growers can now digitally access the on-farm manual for environmental management, *Guidelines for Environmental Assurance (EA) in Australian Horticulture*, free of charge at the new look Horticulture for Tomorrow website, www.horticulturefortomorrow.com.au. The recently redesigned Horticulture for Tomorrow website provides access to the EA guidelines, as well as to a range of other useful resources. This includes the Horticulture Natural Resource Management Strategy, which enables horticultural industries to address environmental issues and communicate their successes. In a new section of the site, titled "For Growers", visitors may download copies of the EA guidelines and the Freshcare Environmental Code of Practice, which complements the EA guidelines by providing a practical mechanism through which compliance against environmental elements can be demonstrated. Visitors may also access grower case studies and follow links to catchment specific information from across Australia. An interactive map enables users to easily find

their local catchment information. The website provides vital information for the horticulture industry, as the industry manages a complex set of natural resource management and environmental issues including soil fertility, irrigation induced soil salinity, soil acidity, native vegetation conservation, weeds, greenhouse gas emissions, water use and water quality. HAL's Natural Resources and Climate Manager, Alison Turnbull, said she hoped growers would access the site and make use of the tools provided free of charge. "I hope the website will help growers start down the path towards greater understanding of the environmental assurance credentials on their farms," Ms Turnbull said. "The documents are practical, user friendly and have been designed so they are relevant whether you are new to environmental assurance or quite experienced." The Horticulture for Tomorrow website provides information for Government, growers, industry leaders, the general public and the environment community in regard to major environmental activities undertaken

through Horticulture for Tomorrow since it was established in 2004. Horticulture for Tomorrow is the foremost across-horticulture environmental management project. Managed by HAL on behalf of industry, Horticulture for Tomorrow was established with the aim to help growers link production targets to their care for the environment as an integral part of their daily business management. While there is currently no regulatory requirement for growers to implement an environmental assurance system on-farm, HAL saw the need for the development of a comprehensive but flexible, across commodity, voluntary approach to managing these environmental issues within horticulture. As a result the Guidelines for Environmental Assurance (EA) in Australian Horticulture were released in hard copy in 2006. Support for the development of these resources and the Horticulture for Tomorrow program have been provided by the Australian Government, through the Natural Heritage Trust and the National Landcare Program.

Growcom welcomes federal Opposition's proposed CPRS amendments/launches

Peak horticulture organisation Growcom today welcomed amendments to the Carbon Pollution Reduction Scheme (CPRS) proposed by the federal Opposition of relevance to horticulture, while launching its own comprehensive policy for horticulture on the scheme.

The Opposition has proposed the following amendments of relevance to the horticultural sector:

- Permanently excluding agricultural emissions from the CPRS
- Obtaining government agreement to introduce an agricultural offset scheme in line with similar offset schemes being introduced in comparable economies such as the United States and the European Union.

Explicit recognition of energy efficiency and voluntary action.

Ms Mackenzie said Growcom's policy on the CPRS urged the federal government to make an earlier decision about whether the sector would be included in the CPRS before its arbitrary decision deadline of 2013.

She said the federal government's scheme in its current form would artificially increase the cost of producing food at a time when authorities were predicting a rapidly increasing demand for food as populations increased in Australia and overseas in the next 40 years.

"As price-takers horticultural producers have extremely limited capacity to pass on in-

creased production costs through the value chain. Growcom cannot support a policy where the only real option for growers to reduce costs is to reduce production or switch to alternative land uses, reducing the amount of land available for food production," Ms Mackenzie said.

"For this reason we welcome the federal Opposition's proposal that agricultural emissions should be excluded from the CPRS and an agricultural offset scheme should be introduced to compensate food producers for increased input cost of electricity, fuel and fertiliser for example, which growers would find difficult to pass on down the supply chain."

Ms Mackenzie said that Growcom's policy was that horticulture should be excluded from the CPRS because of the low levels of emissions produced by the sector – about 1 per cent of agricultural emissions or about 0.2 per cent of total emissions. The cost to administer the scheme across thousands of small independent businesses would be crippling, as would the difficulty of measuring agricultural emissions on individual farms.

"However, we recognise that some policy mechanism is necessary to encourage reductions in emissions if Australia is to genuinely tackle climate change across the nation," she said.

"We believe there are better ways to achieve this on horticultural farms by encouraging land management changes to main-

tain and improve soil carbon content and to use fertilisers and irrigation efficiently. Techniques include establishing new irrigation systems such as trickle, re-designing and replanting tree orchards, or employing controlled traffic techniques that require a new farm layout, new machinery and technology. All of these alternatives are capital intensive and require business certainty which an early federal government decision would provide.

"We would also welcome an incentives-based scheme, like the federal government's successful Reef Rescue incentive program, that encourages the adoption of best management practices known to reduce emissions and at the same time helps growers adapt to climate change while allowing agricultural productivity to grow to meet predicted increased food demand in the years ahead."

Growcom's policy on the Carbon Pollution Reduction Scheme can be read at www.growcom.com.au

For further comment: contact Chief Advocate Rachel Mackenzie on 07 3620 3844.

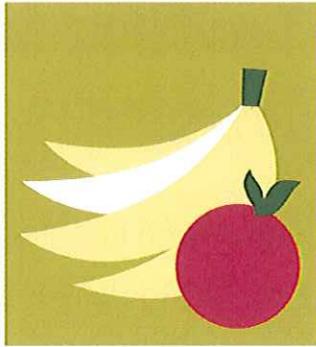


BDGA thanks the 2009 Sponsors

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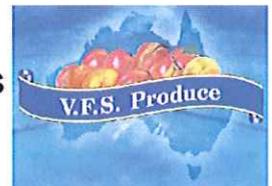


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Australian Government
Department of Agriculture,
Fisheries and Forestry



Are you a young farmer between the ages of 18 and 30 and thinking about succession planning and working in the family business? If so, then read on.....

The Bowen District Growers Association Inc has been successful in obtaining a grant from the Department of Agriculture, Fisheries and Forestry to deliver two **free** two day workshops that will provide an overview of the farm business management skills that farmers need to successfully manage a farming business.

The grant, from the *Next Gen Farmers* grants round is a part of the government 's *Australia 's Farming Future* initiative.

The free workshops are from 9.00am till 4.00pm each day and include morning tea, lunch and afternoon tea.

- Business Planning
- Business Management
- People Management
- Financial Management
- Climate Change
- Supply Chain Management
- Succession Planning
- Occupational Health & Safety

The second and last of these workshops will be held in Bowen at the DPI& F Bowen Research centre on Tuesday the 24th and Wednesday the 25th of Nov 2009.

If you are interested, please call Denise Kreyborg at Bowen District Growers Inc on: Ph: 07 4785 2860 or M: 0427 701 225

PLACES ARE LIMITED

APVMA Permits Updates

The following permits have been issued by APVMA:

PER11092 Methyl bromide / Fruit & Fruiting Vegetables / Fruit fly control

From 19-Oct-09 to 30-Oct-14. For use in, QLD ONLY.

PER11350 – mancozeb / radish, swede, turnip / Alternaria, Cercospora leaf spot, White blister Valid 10/08/09 to 31/03/15. Valid for all states (except Vic)

PER10976 – Basagran (bentazone) / snow and sugar snap peas / broadleaf weeds

Valid 10/08/09 to 31/03/15. Valid for all states (except Vic)

PER10988 – Bladex (cyanazine) / snow and sugar snap peas / broadleaf weeds

Valid 10/08/09 to 31/03/15. Valid for all states (except Vic)

PER11510 – Mouseoff & Rattoff Zinc Phosphide Baits (zinc phosphide) / sweet potato / mice and rats Valid 12/08/09 to 31/07/11. Valid for NSW, Qld

PER5815 – Success (spinosad) / eggplant / Melon thrips

Valid 11/08/08 to 31/07/13. Valid for all states (except Vic) Amendment – Success2 added to product list.

PER10596 – Success (spinosad) / spring onions & shallots / Western flower thrips

Valid 23/04/08 to 31/10/11. Valid for all states (except Vic) Amendment – Success2 added to product list.

PER11748 – sodium metabisulphite (sulphur dioxide) / table grapes (packaged) / Phylloxera Valid 17/09/09 to 31/10/14. Valid for Qld only

PER11733 – Glyphosate / bananas / destruction of banana plants

Valid 1/10/09 to 30/09/14. Valid for all states

PER11731 – Paraquat + diquat (SpraySeed) / Chestnuts & pistachio / annual grass and broadleaf weeds Valid 1/10/09 to 31/03/15. Valid for all states (except Vic)

PER10824 – Copper Oxychloride, Cuprous Oxide or Cupric Hydroxide / Spring onions and Shallots / Downy Mildew Valid 27/09/09 to 30/09/14. Valid for all states (except Vic)

PER11546 – Acrobat + Mancozeb / Nursery Stock (non food only) / Downy Mildew, Alternaria, Anthracnose & Phytophthora Valid 27/09/09 to 31/10/14. Valid for all states (except Vic)

PER7603 – Rovral Aquaflo (iprodione) / beetroot / Alternaria leaf spot, Sclerotinia rot and Grey mould Valid 21/4/06 to 20/4/11. Valid for all states. Rates were incorrect – rates have been corrected in this permit.

PER8819 – Filan (boscalid) / brassicas, brassica leafy vegetables, lettuce, beans / Sclerotinia rot Valid 10/10/05 to 31/1/10. Valid for all states (except Vic)

There have been some minor modifications to the permit and users should therefore ensure that they have a copy

of this updated version. These minor changes included insertion of an Attachment listing the Brassica leafy vegetables and the maximum number of applications in lettuce is two per crop. The reason for this short period permit (was due to expire 31/10/09) is related to the APVMA's assessment of data.

PER11642 – Bulldock 25EC (beta-cyfluthrin) / Papaya / Fruit-spotting bug & Banana-spotting bug Valid 1/11/09 to 31/10/12. Valid for NSW, Qld, NT, and WA only. APVMA required residue data from a minimum of 3 trials to support any renewal of this permit.

PER11439 – Pirimicarb / sweet potato, brassica leafy vegetables, chicory & coriander / aphids Valid 16/10/09 to 30/9/11. Valid for all states (except Vic) Additional residue data required in chicory and coriander for the renewal of this permit.

Full details of all permits are available on the APVMA website, <http://www.apvma.gov.au/permits/permits.shtml>





**BOWEN DISTRICT
GROWERS ASSOC.**

**Denise Kreymborg
BDGA
Industry
Development
Officer**

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bdgainc@bigpond.com

*A strong and cohesive
organisation providing a voice
for our members*

Your support at meetings
is needed—1hr only

IN MEMORY OF Mark Wright

This last week saw the passing of Mark Wright a loving husband to Susan. Mark was a member of Bowen District Growers Association until retiring from farming in recent years. Mark & Susan were proactive in the horticulture industry supporting projects facilitated by Bowen District Growers Association. Bowen District Growers Association would like to pass on their sympathies and condolences to Susan at this time.

FISH WITH MANGO AND TOMATO SALSA



Ingredients

- 2 large mangoes
- 3 ripe tomatoes, quartered, deseeded
- 2 1/2 tbs olive oil
- 1cm piece ginger, peeled, grated
- 2 tbs sweet chilli sauce
- 2 tbs finely chopped chives
- 4 white fish fillets, skin removed
- garlic bread to serve

Method

1. Use a large metal spoon to scoop out the flesh from each mango cheek in one piece. Remove skin from the rest of the mango. Slice off flesh. Cut mango flesh into 2cm cubes. Place into a bowl.
2. Cut tomato flesh into 2cm cubes. Add to mango. Combine 2 tbs of oil, ginger, sweet chilli sauce, and salt and pepper in a screw-top jar. Shake well to combine. Pour over mango mixture. Stir gently to combine. Cover. Stand at room temperature for 10 mins.
3. Brush fish fillets with remaining 2 tsps of oil. Season with salt and pepper. Preheat a barbecue plate on medium-high heat. Cook fish for 2 mins on each side or until cooked through.
4. Stir chives through salsa. Place fish onto serving plates. Spoon over salsa. Serve with garlic bread.

Developed by Janelle Bloom for Nov 2004 edition of Super Food Ideas and used in an advertorial.



The Industry Development Officer project is facilitated by HAL in partnership with Bowen District Growers Association. It was funded by voluntary contributions from industry. The Australian Government provides matched funding for all HAL's R&D activities."

Know-how for Horticulture™

December 09



BOWEN DISTRICT GROWERS ASSOC

Fruit & Vegetable Insider Christmas Edition

National food security forum needed to tackle need for increased food production

Peak horticulture organisation Growcom today welcomed the addition of food security to Shadow Agriculture Minister John Cobb's portfolio and reiterated its calls for a national food security forum to be attended by representatives of both sides of government in order to put together a plan for increased food security.

Chief Advocate Rachel Mackenzie said the organisation welcomed a statement by the Australian Food and Grocery Council supporting increased farm production among other measures to achieve food security.

Ms Mackenzie said a national policy approach was needed because of the urgent need to adequately secure land, water, energy, infrastructure and labour needs to produce the food the nation and the world would require in the next 40 years, in the face of population growth, rapid urbanisation and climate change challenges.

"The United Nations' Food and Agricultural Organization has forecast

food production will have to increase by 70 per cent in the next 40 years to feed the world's growing population," said Ms Mackenzie.

"The world's population is forecast to increase from the current 6.7 billion to 9.1 billion by mid-century.

"This is expected to result in almost a doubling of demand for food, feed and fibre.

"The FAO is calling on governments, including Australia's governments, to ensure that agriculture became more productive in terms of yield growth and improved cropping intensity - and that requires significant investment and long term planning."

Ms Mackenzie said recent predictions forecast Australia's population would grow by 65 per cent to reach more than 35 million people in 2049, up from around 21.5 million people now.

"A larger projected population poses a whole raft of policy challenges - including, presumably, the

fact that an increased population will need to be fed.

"Clearly, we have the brainpower, the land and the experience in this country to meet the challenges we face to provide the food and fibre we will need for an increased population here and overseas.

"We now just need the political willpower from all tiers of government to plan and invest in how we will meet these challenges in the years ahead."

For further comment: contact Chief Advocate Rachel Mackenzie on 07 3844 3620 or 0408 796 199.

GROWCOM media release



Inside this issue:

Vegetable Industry Conference 2010	2
Dimethoate Update	2
Economic Brief	3
Brisbane Markets Fresh Centre	4
Career Opportunities Project	6
BDGA Membership	7
NFF and Copenhagen 09	8

Special points of interest:

- Check out the BDGA sponsors
- IDO on the job
- IR Update from Growcom
- What's cooking in the kitchen?

Australian vegetable industry set to meet on the Gold Coast next year

AUSVEG CEO, Richard Mulcahy, has announced the staging of the 2010 AUSVEG National Convention and Trade Show, and National Awards for Excellence, set to take place on the Gold Coast in Queensland from 27 to 30 May next year.

The Convention will be held at Conrad Jupiters, with the industry event combining the usual R&D focus with key topics such as marketing, the environment, and packaging innovations.

AUSVEG's formation of several strategic partnerships, including with DuPont and Elders Ltd, has enabled the peak industry body to go beyond the usual levy-funded R&D focused conferences to offer an exciting new national event.

The event will include a trade show featuring up to 70 companies and providing attendees

with a broad view of the Australian vegetable growing industry.

The Convention will also be family friendly, with activities for children and special events for young growers, and will feature an exciting social program with breakfasts and information sessions featuring prominent speakers. These events are aimed at grouping like-minded attendees together so they can obtain information most relevant to them in a warm and relaxed setting.

The National Awards for Excellence will be held on the evening of Saturday the 29th of May, and the Convention will close on Sunday 30 May with a golf competition to be held at one of the Gold Coast's stunning courses.

Details of the program will be announced short-

ly, along with registration details.

AUSVEG CEO, Richard Mulcahy, is encouraging growers, researchers and suppliers to begin planning early to avoid missing out on this important event.



DIMETHOATE UPDATE MEETING – QUICK SUMMARY

On Monday 30 November 09 I attended an update meeting on the APVMA review of Dimethoate and Fenthion and the strategic direction for the Qld horticulture industry in Brisbane.

At this stage:

The date for an announcement on the review outcomes has been set for around October/November 2010. The announcement could be one of three outcomes: 1. There is a health issue but not major – this may mean a phase out period depending on when the announcement is made. 2. A major health risk - It could be taken off the

market altogether instantly – no phase out. 3. There may be no health risk – highly unlikely at this stage.

Biosecurity is looking at protocols and systems approaches for all individual commodities involved. Projects currently being undertaken to collect data will need to present data to interstate markets for acceptance (this can take a long time and needs to start happen now).

The Good News: The Bowen and Gumlu fruit fly project is the only project that supports tomatoes and capsicums in Qld. This project is specific to the Bowen

& Gumlu growing season and region only which means that Bowen & Gumlu should have a systems approach before other tomato and capsicum growing regions in Qld.

However – There is a need for a lot of lobbying on behalf of the Bowen and Gumlu systems approach (the data collected needs to be accepted and Biosecurity needs to push domestic markets to accept the systems approach for Bowen & Gumlu).

For further information on this meeting please do not hesitate to contact me on 07 4785 2860.

Economic Brief—Ian James - Economic Sub Program, National Vegetable Industry Development Program

Competition between the banks at last?

The anticipated rise in interest rates was delivered by the Reserve Bank, which raised the official rate by 0.25%. The big surprise however was the varied response by the banks. Usually the banks move the interest that they charge on mortgages in close unison. The varied response this time reflects the new reality facing financial institution in the post global financial crisis environment. The banks have argued that they face higher funding costs, which is true. Australia has always had to rely on banks borrowing money from overseas to fund investment. As the money the banks borrowed before the financial meltdown matures they are having to pay more for new borrowings from overseas as credit has become harder and more costly to procure on world markets in the wake of the global financial crisis. There are four courses of action open to the banks in response to the higher funding costs:

1. Cut profits
2. Increase market share in order to lower costs through increased scale
3. Pass the costs on to customers in the form of higher interest rates
4. Decrease the reliance on overseas borrowings by increasing the interest rates on deposits

A sound argument can be made for the first course of action. In the wake of the upheaval in world financial markets do the Australian banks still expect to maintain the

level of profits that they enjoyed previous to the financial crisis?

Funding costs of the banks vary with the Commonwealth Bank holding an advantage over the other banks due to its large base of mums and dads with money deposited in low earning deposit accounts. NAB has decided to go for 2, Westpac for 3 and 4, ANZ 2 and 3 and CBA a combination of all 3. It will be interesting to see how long these strategies last.

Building industry continues to struggle.

There was not much excitement in the building approval figures released for October. Approvals were granted to build 12,814 dwellings in the month. Approvals for building flats and apartments which are notoriously volatile from month to month fell 19% in October and are down 29% over the year. Developers and investors do not consider dwellings a good investment. Building approvals for houses rose 5% to be up 26% over the year reflecting the influence of government incentives to first home buyers and strong population growth. However with record birth rates, high levels of legal migration, visa stays and overstays there are simply not enough houses being built. This explains why prices of established houses are increasing by over 10% per annum in the major capital cities and why that 20 or even 30 something child of yours is still living at home.

Retail trade up but Santa may not deliver what retailers are

expecting.

Despite retailers predicting a boom Christmas trade period it is likely that consumers will spend cautiously. Retail trade was up a modest 0.3% in October. The rise in interest rates over the last three months is unlikely to have had an impact on expenditure because most mortgage holders maintained their repayment rates when interest rates were falling. The more critical factor is that workers no longer fear the loss of employment that they did earlier in the year. Still one expects that talk of further interest rate rises and the sudden turn of events late last year will still be fresh in consumers' minds.

Leafy vegetables think tank.

I gave a presentation at the Leafy Vegetables think tank conducted in Adelaide last week. Participants showed a keen interest in some of the economic issues impacting on the industry. It was also good to see growers discussing the future direction of research and development in the industry and telling researchers what they considered to be the important issues going forward. Congratulations to Alison Anderson in taking the initiative to set up the think tank.



Fresh Centre to create new business hub

Brisbane Markets Limited (BML) has released the conceptual plans for the creation of a new commercial hub within the Brisbane Markets.

To be known as the "fresh centre", the proposed new precinct will be based on the total refurbishment of Building F so as to create three storeys of commercial offices together with a café, conference room and food demonstration area with a commercial kitchen.

The building has already been emptied of existing tenants and fully gutted, while a display office to highlight the standard of finish and layout of the building is due to be opened next week.

BML Chairman, Tony Joseph, says the refurbishment project provides an exciting opportunity to create a new and centrally located focal point within the Brisbane Markets. The name and logo of the building highlights its connection to the fresh produce industry, its location within the site and its role as a business hub and meeting place.

The refurbishment project is due to be progressed in the first half of 2010 with an esti-

mated cost of approximately \$8 million. Images showing how the refurbished building will look and its connectivity with the existing Sherwood Road Commercial Centre, are attached.

For further information, please contact:

Andrew Young
on 07 3915
4200



PERSPECTIVE VIEW 1

Brisbane Markets Limited CEO

EnviroVeg programme taken to Bowen, FNQ

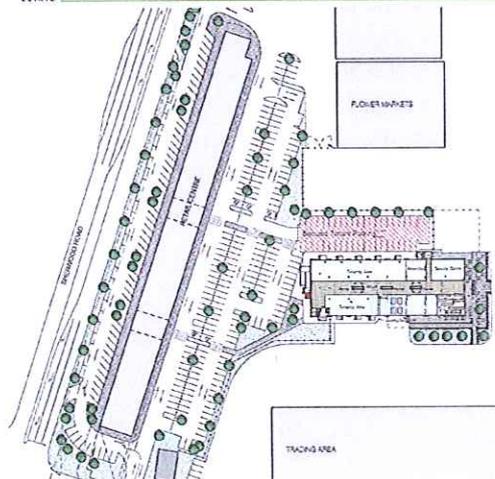
AUSVEG's reinvigorated EnviroVeg programme was taken to Bowen last week where growers, under the leadership of the Bowen Growers' Association, packed in to the Elders headquarters to participate in a soil workshop delivered by Chris Monsour of Prospect Agriculture pty Ltd. At the standing room only seminar, growers heard presentations from Bowen District Growers' Association President Carl Walker, AUSVEG CEO Richard Mulcahy, Chris Monsour and Stephen Ziebarth, a Sales Agronomist from Yara.

The presentation coincided with

the official opening of the Elders Bowen headquarters by Elders Chief Operating Officer (COO), Mike Guerin.

Also on hand was Australian cricketing legend, Glenn McGrath. That evening, Elders hosted more than 180 growers at an end of year dinner at which Carl Walker, Richard Mulcahy and Glenn McGrath spoke.

AUSVEG wants to publicly thank Denise Kreymbourg from the Bowen District Growers' Association and Elders staff for making these presentations such a



3. PROPOSED PRECINCT PLAN

BDGA Collaborative projects starting 2010

The following is a list of projects that BDGA will be a collaborator on through the Queensland Primary Industries and Fisheries starting in 2010.

MT09068 - Comparison of biodegradable mulch products to polyethylene in irrigated vegetable, tomato and melon crops - started Sept 2009, finishes June 2011

VG09038 - Vegetable soil health systems for overcoming limitations causing soilborne diseases (QPIF).

Starts Jan 2010 and runs for three years

VG09041 - Environmental effects of vegetable production on 'sensitive' waterways.

(QPIF). - is in the process of being resubmitted to HAL in an expanded format that includes a BFVG and a Victorian component (QPIF to lead the project) - to start mid 2010 and run for four years

Project—Controlled traffic farming for production efficiencies and soil health in tropical vegetables - to run for four years



CPRS KNOCKED OUT IN SENATE

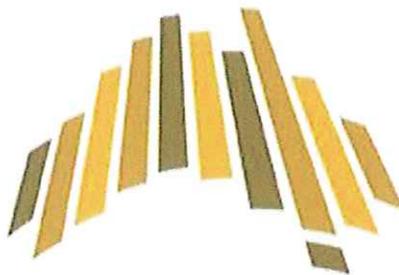
THIS week saw an enormous amount of discussion in Canberra surrounding the amended Carbon Pollution Reduction Scheme (CPRS).

Members will be aware that, following a leadership spill in the Liberal Party, under Tony Abbott's leadership the Opposition subsequently voted down the Bill in the Senate. With the double dissolution trigger in doubt, the Government has committed to reintroducing the CPRS legislation in March 2010, maintaining all amendments relating to agriculture.

This means that the agriculture amendments supported by NFF will have the support of any fu-

ture emissions trading scheme introduced by the Rudd Government. While the NFF retains concerns about the ability for the farm sector to cope with the indirect costs incurred from the

Meanwhile, the Coalition has stated that it will not go to the next election with an emissions trading scheme or a carbon tax in its policy platform. However, it remains committed to the targets already agreed.



National Farmers'
F E D E R A T I O N

CPRS, this commitment by the Government, at least, provides some level of comfort.

The NFF will look to engage with the new Opposition leader to seek clarity on what this alternative policy might look like for Australian farmers.

For the immediate future, our focus now turns to Copenhagen and the flawed international accounting rules.
NFF Contact: Charlie McElhone.

Showcasing career opportunities in the vegetable supply chain

The IDO has been working with Vanessa Clark on the Bundaberg Fruit & Vegetable Growers and HAL funded project Showcasing career opportunities in the Vegetable supply chain. The following is information about the program that will support the horticulture industry in Queensland.

THE PROJECT:

The project will develop industry-specific career promotional material highlighting the career opportunities in the vegetable supply chain based on case studies from around Australia. We will identify, interview and film people involved in the vegetable supply chain who exemplify passion, innovation and career progression examples critical for the future of the industry. The theme of the interviews will be focused on opportunities associated with leadership and skills development needed for succeeding in the evolving future of the vegetable industry in Australia. Focus will be ensuring a positive diverse range of experiences are portrayed within the vegetable industry supply chain, encouraging others in the industry to aspire to greater heights, and those not in the vegetable industry to consider it as an exciting permanent career opportunity.

TARGET AUDIENCE:

The career case studies will be of interest to school students, teachers, universities, career advisors and agencies, and mature workers looking for a career change. They will also be of value to industry associations and people already in the horticulture industry looking for options to progress their careers.

PROCESS:

1. Stage one will involve phone interviews with industry organi-

sations to explore key issues for the future which will affect the job roles, skills, and traits people will need to be successful in the vegetable industry in years to come. 2. We will then be asking for nominations of people currently working in the vegetable supply chain as potential case studies to be filmed. They will be people working in the vegetable supply chain who exemplify success in their job or business, in light of the changing environment of the industry. 3. The third stage will be to contact those nominated for a preliminary interview to discuss their experiences and career development, and willingness to participate in the project. 4. We will then make a shortlist of participants, determine timing and scheduling practicalities, and select final case studies to film during early 2010.

FILMING:

The Multi-Media Faculty of Central Queensland University will film, edit and compile fifteen case studies of approximately 2 minutes each. A team of three will travel to the various locations conducting the interviews, spending half a day to a day with the individual interviewing them about their career, and filming a range of daily activities to highlight their job role. Participants will be given an outline of topics we are specifically interested in hearing about, and will have plenty of time to prepare their commentary before filming.

PROJECT OUTPUTS:

The production will have a national perspective featuring three cases per region from five prominent vegetable growing regions around Australia. A range of supply change occupations and variety of different crops will feature.

The resulting film and interviews will be produced into media clips and distributed in DVD format to target career development practitioners, industry associations, grower associations and the like (1000 copies). The case studies will be available online with accompanying career profile information, and linked to relevant websites and social media websites. Brochures promoting the DVD and online resources will be produced and distributed for release in June 2010.

HOW YOU CAN HELP - INDUSTRY INPUT:

We need input from those involved in vegetable industry associations – both ideas on the future of people and jobs in the industry, and nominations for case studies of outstanding individuals who are already ahead of the game. They must reflect a positive, enthusiastic and progressive attitude to the vegetable industry, and be willing and able to communicate their passion for what they do. The Project Officer will contact you to discuss (at a suitable time) your vision of the industry as part of stage one of the project. You can suggest nominations with a brief profile of the person for potential case studies, now or after the discussion, until 20 NOVEMBER.

PROJECT OFFICER:

Vanessa Clark, Bundaberg Fruit & Vegetable Growers. Ph (07) 4153 3007. Email

vanessa.clark@bfgv.com.au

FUNDED BY: Horticulture Australia and Ausveg through the Vegetable Industry Levy. VG09067



Bowen District Growers Association Inc Membership

Vision : A strong and cohesive organisation that provides a voice for our members.

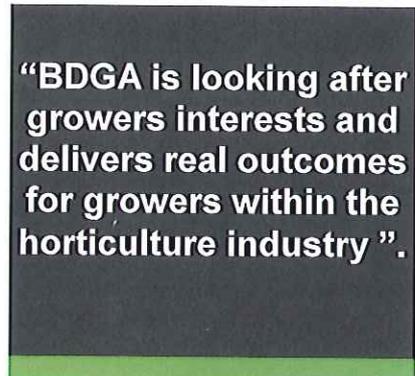
Mission : BDGA efficiently and effectively represents and promotes the members interests by providing beneficial services that will help support their business.

How does BDGA membership support growers?

This year BDGA has provided support, up to date information and acted as a voice for growers in the following areas:

- Water for Bowen
- Biodegradable Mulch Film
- Loss of Dimethoate Use effecting tomatoes, capsicums, melons and their markets
- Water Allocations for Bowen
- Horticulture Code of Conduct
- Industrial Relations Issues
- Workplace Health & Safety
- Water Use Efficiency Grants
- Reef Rescue Incentives/Grants
- Plant Health
- Labour Shortages
- Market Access
- Legislation
- Transport

To become a member of BDGA
fill out and return this form to BDGA



Membership payment amount is a voluntary amount at your discretion

	Amount
<input type="checkbox"/> 1c per carton capped at \$2500 GST inclusive a year	\$ _____
<input type="checkbox"/> \$1 per tonne capped at \$2500 GST inclusive a year	\$ _____
Subtotal:	\$ _____
Total:	\$ _____

Membership Contact Details

Name: _____

Postal Address: _____

Phone: _____ Fax: _____

Method of Payment

- Cheque
- Money Order
- Cash

Bowen District Growers Association
P O Box 489
Bowen Qld 4805

Ph: 07 4785 2860
Fax: 07 4785 2211

Email: bdgainc@bigpond.com

NFF AND COPENHAGEN '09

by **AUSTRALIA'S agriculture delegation at the climate change talks in Copenhagen, led by NFF President David Crombie, reports on developments...**

Day One: Australian negotiators spoke for the Umbrella Group (including Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine and the United States), supporting a limit of 2 degrees Celsius on global temperature rise and a 50% reduction in global emissions by 2050. All Umbrella Group members are prepared to propose individual reduction targets to substantially reduce emissions by 2020, with actions being subject to robust monitoring, reporting and verification. Australia also supports quick, substantial and high-impact financing to assist the most vulnerable developing countries, particularly Least Developed Countries and Small Island Developing States. There is also an emerging consensus that the Copenhagen accord should mobilise US\$10 billion-a-year by 2012 to support adaptation and mitigation in developing countries.

Australia asserted the aim in Copenhagen was a political vision to guide global actions and lead to a new single legally-binding treaty – the Copenhagen accord – as soon as possible – that is, instead of the Convention track (developing and developed countries) and Kyoto Protocol track.

Day Two: Prior to Copenhagen, New Zealand instigated a Global Alliance on agricultural research and development (R&D) to ensure that global climate change mitigation and adaptation research is coordinated. This Global Alliance has been strongly supported by 20 countries, including Australia, who are looking to commit to a statement of intent. Funding commitments are not required at this stage. This is expected to change as the Global Alliance gains momentum. The Global Alliance will be officially launched by the US Under-Secretary for Agriculture Thomas Vilsack on 16 December in Copenhagen.

Of note, Australia's CPRS Bill provides for an additional \$50 million in R&D, explicitly listing the Global Alliance as a benefactor. The recent rejection of the CPRS Bill in the Sen-

ate means Australia is not in a position to commit finances to the Global Alliance (at this time).

The International Federation of Agricultural Producers (IFAP) of which the NFF is major member, made a minute statement and, at IFAP's request, NFF delegates assisted in preparing the statement. The key points were:

□ A program of work to take account of the specific complexities faced by the sector in relation to GHG mitigation.

□ The statement expressed the need for greater R&D, a revised measurement, reporting and verification methodology for the sector, productivity growth in the face of global food security and reward for carbon sequestration.

□ The need for global technology transfer between farmers to contribute to carbon mitigation and adaptation.

Australian Delegation Briefing: Almost 100 people crowded into the small briefing room to hear an update on negotiations. In addition to these daily briefings, Australian delegates are attending daily IFAP briefings and informal discussions with the Australian negotiators, the Danish Agriculture and Food Council and discussions with the US Farm Bureau.

IFAP Briefing: Various farm delegations provided insights into the negotiations. Of interest, the US farm delegation said that the Kerry Boxer ETS legislation will go through significant amendments before a vote in the US Senate and that the reworked Bill will have additional concessions for the farm sector. They stated concerns that natural gas (instead of nuclear) is being touted as the optimal low carbon energy solution. This will increase the price of farm inputs such as fertilisers. US farmers interest in Copenhagen appears to be defensive – keeping across key international policy issues. They have demonstrated very little engagement in the issues surrounding the international carbon accounting rules and see it as an insignificant part of the negotiations for the US.

Day Three: Developing countries are resolute that developed nations should be held accountable for climate change. They will not support changes to the rules that allow developed nations to benefit from this agreement.

This is detrimental to Australia's position on 'natural disturbances'. Developing nations are disinclined to allow anthropogenic and non-anthropogenic GHG to be treated separately under Article 3.4. Without being able to exclude changes due to natural disturbance (such as bushfire) it would be very difficult for Australia to voluntarily include soil carbon in national accounts. We are currently in discussions to understand the position Australian negotiators are taking on forest management.

This relates to accounting carbon sequestered in managing forest, particularly commercial forests. There is potential for this activity to have impacts on Australian grazed woodlands. We need to ensure that producers can be credited with carbon sequestered in regrowth and other trees on-farm.

It is rumoured that there is a non-paper (a paper that has not been accepted as draft text) regarding agriculture.

The early version of the non-paper said that efforts to enhance mitigation in the agricultural sector should improve efficiency and productivity in a sustainable manner and take into account the link between agricultural productivity and food security. It also supports promoting R&D including transfer of technologies and knowledge.

It supports a cooperative sector approach for agriculture that does not distort or create barriers to trade. However, we are concerned about the 4th provision of the earlier version of the non-paper that enhanced mitigation for agriculture shall not lead to carbon offsets that adversely impact forest land.

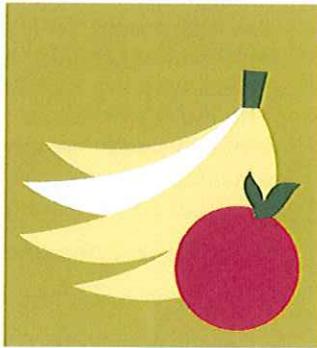
On a lighter note, it has been announced that the next COP, COP 16, will be held in Mexico and then followed by COP 17 in South Africa. COP 18 is to be held in Asia. *NFF Contact: Charlie McElhone.*

BDGA thanks the 2009 Sponsors

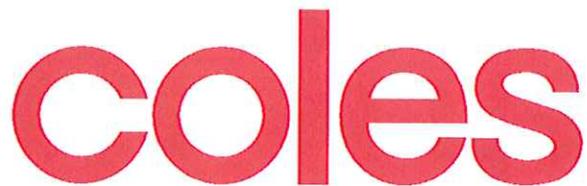
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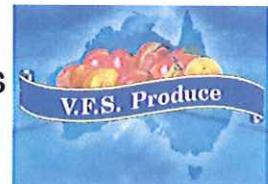


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SUNFRESH



Chris Monsour
Prospect Agriculture

Industrial Relations Update—Growcom

New Horticulture Industry Award – still waiting

The new Horticulture Industry Award has yet to be released by the Australian Industrial Relations Commission (AIRC). Growcom would like to thank our many members and growers around the country who were engaged with the issues to support our work – and this was vital to our arguments. The depth and breadth of information and evidence provided for the submissions to the Full Bench of the Australian Industrial Relations Commission (AIRC FB), has given the industry its best chance to achieve change.

Horticulture 'shared' compliance program

At the same time that federal Workplace Relations Minister Julia Gillard announced the review of awards, she also announced that there would be a "Horticulture Industry Shared Compliance Program" to be run in early 2010, involving the Workplace Ombudsman's Office, Horticulture Australia Council, National Farmers' Federation, Australian Industry Group, Department of Immigration and the Australian Workers' Union. Despite the fact that the full award does not come into effect until July, the Fair Work Ombudsman has set audits for the horticulture industry for May. Prior to this, it is expected that the industry partners will have delivered information seminars, advice and resources to their members/constituents around the country by the end of April. Clearly the Ombudsman cannot audit growers against the new award, so it remains to be seen exactly what form these audits will take.

Impractical and unrealistic timeframes have been a feature of the industrial relations environment of late and it

seems they are to continue. However, Growcom takes seriously its obligation to inform and educate members about their new obligations. The organisation will be delivering a new round of IR information seminars by March next year. More details will be circulated to members as these are finalised.

New Growcom initiatives in 2010

More than 260 growers (employing more than 10 000 employees) attended our Industrial Relations Information Seminars this year and were provided with a comprehensive overview and set of resources about the new Fair Work Australia regime and its obligations on employers, new Unfair Dismissal provisions, and the proposed new award.

Arising from consultations with growers at these seminars and throughout the year, a number of new initiatives will be investigated in 2010, including providing comprehensive induction processes, a simple set of Human Relations policies and procedures for horticulture industries, Supervisor/Manager training, and a new suite of Occupational Health and Safety resources and services.

State employers move to federal system

12 month transitional period from 1 January 2010

State employers (i.e. sole traders and partnerships) will enter the federal Industrial Relations system next year, after the Queensland government handed over its IR powers to the Commonwealth last month. In a meeting with the Attorney-General and Minister for IR, Cameron Dick, on 3 December, the Minister advised that there will be a 12 month transitional period for state employers to move across to the new sys-

tem.

During that 12 month period, the existing Fruit and Vegetable Growing Industry Award will continue to apply, and agreements will continue to be written against that agreement, although the new Fair Work Australia processes for agreement-making will apply. Employers who are interested in pursuing a workplace agreement next year are advised to contact Growcom early in the near year to kick things off.

Workplace agreements

Certainty in uncertain times...

Growcom has written around 250 workplace agreements for employers this year. While the significant majority of these have been for Queensland growers, we have also worked with growers in South Australia, Victoria and Tasmania to assist them to develop their agreements. Given that the rules and the government department for agreement-making have changed three times in three years, Growcom has had considerable success with having agreements approved.

The latest incarnation of the approving body, Fair Work Australia, has clearly been inundated, and to date we are still awaiting the outcomes of agreements developed since 1 July this year. Fair Work Australia, like its predecessors, has demanded a number of variations to agreements that were not previously required. Growcom has had to address a large number of issues throughout the various regime-changes.

Unfair dismissal

Follow due process or face the consequences...

One of the key changes to IR laws this year has been the Unfair Dismissal provisions. The new laws came into effect on 1

July and require employers to observe due process when terminating employees. Employees of small businesses (i.e. fewer than 15 employees) will have a 12 month qualifying period before they can access the provisions. Employees of larger businesses (15 or more employees) will have a six month qualifying period.

Fair Work Information Statement for all new em-

ployees from 1 January

One obligation for employers under the new National Employment Standards - which commence on 1 January 2010 - is to provide all new employees with the Fair Work Information Statement. Employers must give a copy of the Statement to any new employee before either before they begin or as soon as practicable afterwards.

The Fair Work Ombudsman has stated that there will be heavy penalties for any employer who fails to meet this obligation. The Fair Work Information Statement can be downloaded at <http://www.fairwork.gov.au/Pay-leave-and-conditions/Conditions-of-employment/Documents/Fair-Work-Information-Statement.pdf>

Update on IDO activities

The following is a list of some of the activities, meetings, workshops and seminars attended and/or organised by the IDO on behalf of growers this past month and a half.

Meetings

QPI&F Bowen meetings—Pest Management, Soil Health, History of Mangoes research, Sunwater Water for Bowen, Biomulch, Climate Change, ACIAR and collaborative projects

Enterprise Whitsunday meetings—Board of Directors met, Climate Change funding, Investment Attraction, Agricultural Women's network, Sunwater strategy going forward, Business Management support for growers, Industry opportunities for the horticultural sector, Made in the Whitsundays strategy meetings, tour of horticulture industries in Airlie and Proserpine

QPI&F meetings in Brisbane— Skills Management in Horticulture, Apprenticeships for horticulture in Bowen, Export opportunities for growers in Bowen, research station in Bowen and more extension officers and funding to support the long term sustainability of the region

Brisbane meetings—APVMA & Biosecurity re Dimethoate

loss workshop and strategic direction meeting

Attended

Education Training Advisory Group meeting, TAFE meeting re Horticulture Traineeship program, met with High School re horticulture program for 2010, Elders Launch of new facility, AUSVEG soil health workshop, Elders end of year function, meetings with AUSVEG.

Organised

HACCP training in Bowen, Second succession planning workshop in Bowen

Articles

Brismark Fresh Source articles, Vegetable Australia articles, Marketplace News

Completed

Application for Industry Advisory Committee, IDO milestone report, Report on funding activities for Brisbane Markets

Liaised with Brisbane Markets re the continuation of Memorandum of Understanding and funding agreement for 2010.

Reef Rescue Funding

As a result of the IDO supporting growers in the Bowen & Gumlu region this round of funding saw growers in the Bowen & Gumlu region receive **\$318, 324.00** out of the

\$470,000.00 available to the horticulture industry from Ingham to Bowen. This funding is part of the Reef Rescue funding initiative.

BDGA Website—the BDGA website is now up and running with the IDO still working closely with the Web Developer in Townsville to make changes as per the suggested changes needed and passed on by growers, industry and others.

End of Season Family Fun Night

The IDO organised the BDGA family fun night held on Saturday 28 November 2009. It was a fun filled night of Bare Foot Bowls, food and networking for growers and industry. The night was such a success we may see another night like this early next year.

Newsletter

Completed Christmas edition newsletter and sent it out to all growers in the Bowen and Gumlu region.

For further information on any of the meetings, seminars, workshops etc please do not hesitate to contact the IDO on 47852860 or via email at bdgainc@bigpond.com



Denise Kreymborg
BDGA
Industry
Development

Phone 4785 2860
Mobile 0427701225
Email
bdgainc@bigpond.com

*A strong and cohesive
organisation providing a voice
for our members*

Your support at meetings
is needed—1hr only

IMPORTANT WASTE NOTE

BDGA and the Don River Trust would like to encourage all growers to dispose of any waste such as drums etc through the drummuster program. The following information is regarding the next drummuster in the Bowen & Gumlu region. **Bowen Refuse Site**—Collinsville Rd, 9km West of Bruce Hwy - Scheduled collections between 7am and 1pm on a monthly basis between June and December. Bookings are essential and can be made by contacting the council on 4761 3633. Compound can be opened any other time for collections by arrangement. **Gumlu - Mobile Site**—Twice a year, contact the council on 07 4761 3633.

Mango, Chive & Prawn cases

Ingredients

- 16 slices sandwich-size bread
 - 80g butter, melted
- 375g cream cheese, softened
 - 1/4 cup thickened cream
 - 1 large mango, flesh diced
- 2 tablespoons finely chopped chives
 - 1 tablespoon mango chutney
- 16 medium cooked prawns, peeled (tails intact), deveined

Method

1. Preheat oven to 160°C. Remove and discard crusts from bread. Roll each slice of bread flat with a rolling pin. Using an 11cm (diameter) round cutter, cut 1 circle from each piece of bread. Brush both sides of 12 circles with melted butter. Press into holes of a 12 x 1/3-cup capacity muffin pan. Bake for 25 to 30 minutes or until crisp and golden. Transfer to a wire rack to cool. Repeat with remaining bread and butter.
 2. Using an electric mixer, beat cream cheese and cream until smooth. Add mango, chives, chutney, and salt and pepper to cream cheese mixture. Mix well.
- Spoon cream cheese mixture into prepared cases. Top with prawns. Serve.



The Industry Development Officer project is facilitated by HAL in partnership with Bowen District Growers Association. It was funded by voluntary contributions from industry. The Australian Government provides matched funding for all HAL's R&D activities."

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#01-09

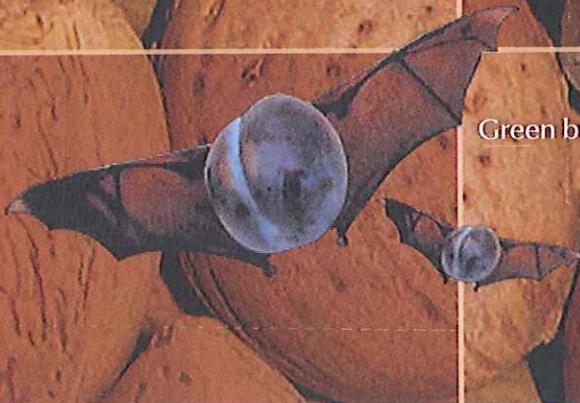
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Magazine of Brisbane Markets Limited



Citrus Australia's
strategies set
p19

Ever Changing
fertiliser
Prices
p15



Green but
Batty
p14

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Industry



Bowen's bountiful year ahead

BY DENISE KREYMBORG, INDUSTRY DEVELOPMENT OFFICER, BOWEN DISTRICT GROWERS ASSOCIATION

The Bowen region's horticulture production is valued at over \$300 million.

This season looks like it will have a good healthy start with decent rainfall in January caused by a monsoonal low off the coast of Bowen. Many growers have full dams as a result that will also support them during the season.

The Don River also flowed bringing the aquifer level up. Hopefully this will mean a continuation of 100% allocations for growers in the region.

Like most years, Bowen will produce corn, beans, tomatoes, capsicums, melons, pumpkins, mangoes, chili, eggplant, zucchini, cucumbers, squash and other small crops.

If all goes well, Bowen growers will be producing some of the best fruit and vegetables in Australia through the winter season.

Bowen District Growers Association (BDGA) is the industry group that looks after growers needs in the area.

BDGA is a proactive association working with industry groups such as Brisbane Produce Markets, a platinum sponsor, and others to support growers on a number of different initiatives each year.

My role continues in 2009 as a full-time Industry Development Officer (funded by BDGA and Horticulture Australia Limited) providing growers with access to information flow on industry issues, research and development projects, biodegradable alternatives, industry strategies, government initiatives and grants.

A new BDGA website will be launched later this month.

Infamous 'Australia' tractor ride



BOWEN'S CARL AND TRUDY WALKER JUST BEFORE THEIR TRACTOR DRIVE TO THE PREMIERE OF 'AUSTRALIA'.

Bowen may be known for its horticulture but it's also famous as the township chosen for much of the filming of Baz Luhrmann's epic film "Australia".

Bowen District Growers Association President Carl Walker combined the two thoughts and came up with an infamous idea recently when he ferried the Mayor of Bowen on a John Deere tractor to the premiere of "Australia".

Mr Walker said he just taken delivery of the new tractor, which looked quite spick and span for the event. The event was broadcast by media outlets right across the nation, even upstaging the red carpet premiere of the film in Sydney which was held at the same time.



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#05-09

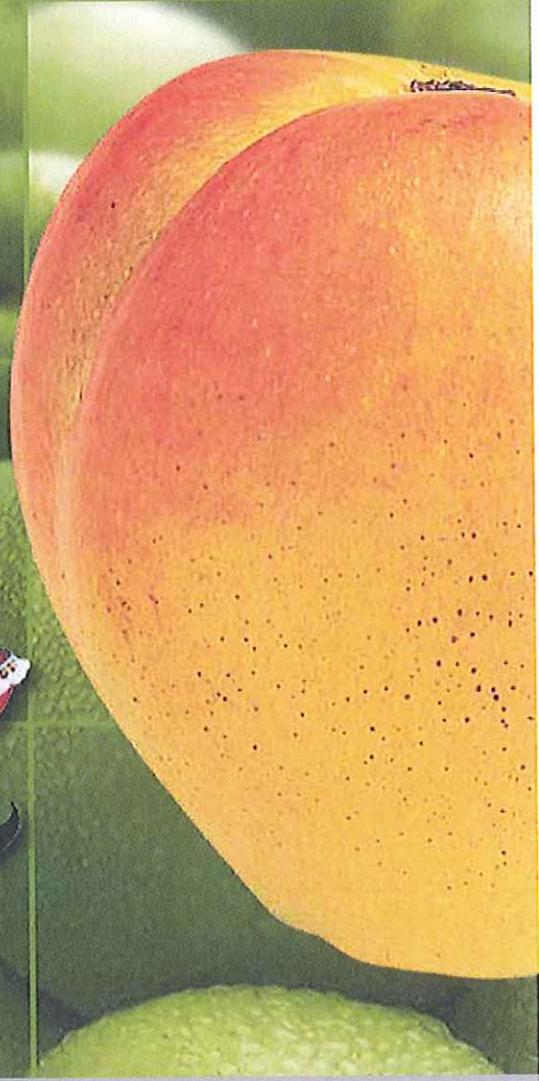
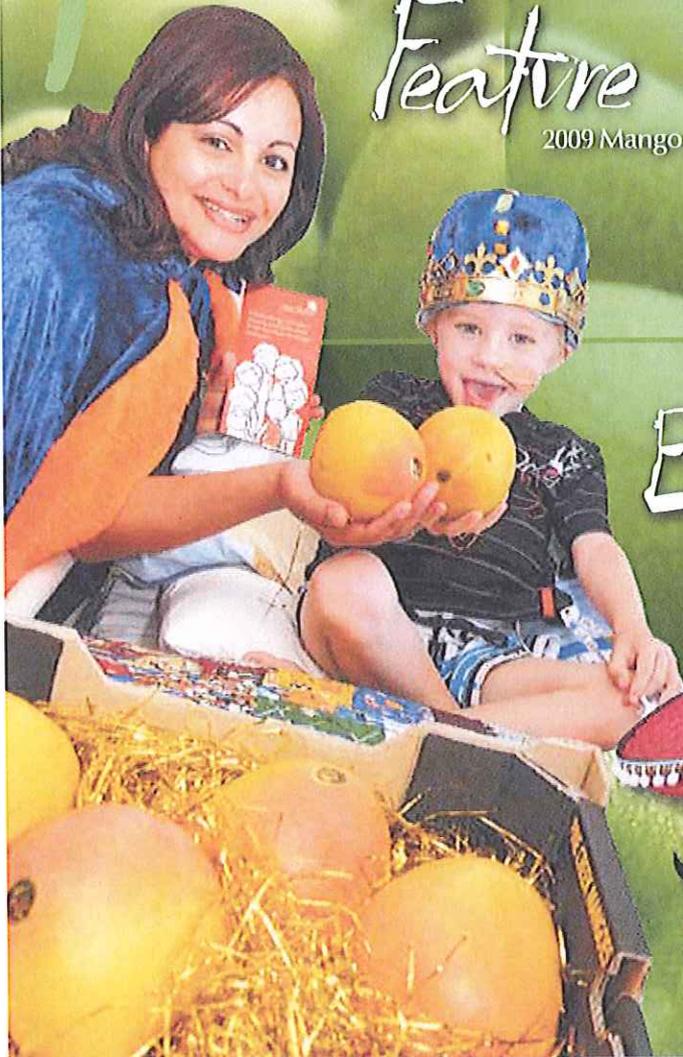
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Magazine of Brisbane Markets Limited

Feature

2009 Mango Auction p22

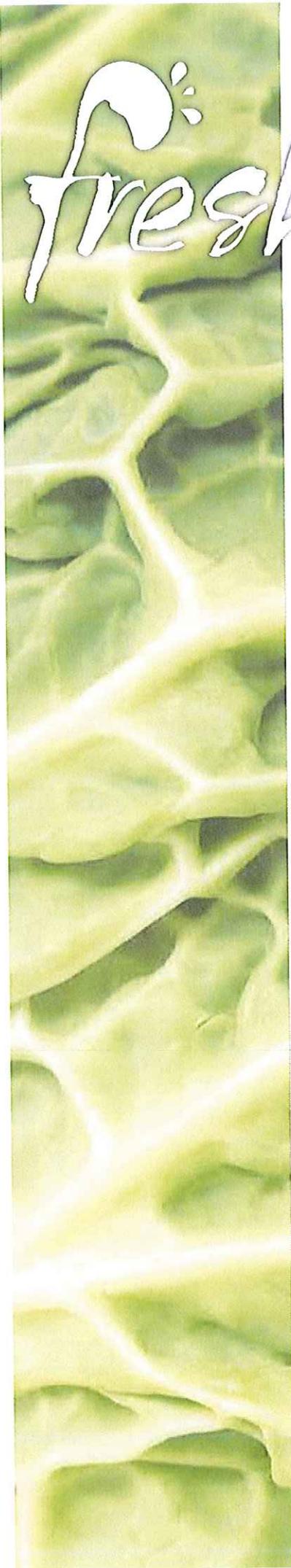
El Niño
weather ahead p4



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Industry



Low prices plague Bowen's bumper season

BY DENISE KREYMBORG, INDUSTRY DEVELOPMENT OFFICER,
BOWEN DISTRICT GROWERS ASSOCIATION

The season is coming to an end soon with growers in the Bowen region suffering from low prices.

The situation was brought on by a warmer than usual winter, more competition from other regions, where there is now production 12 months of the year, as well as a lack of consumer demand.

Bowen has always been a winter growing region with growers continuing to grow only in their season.

Made in the Whitsunday's launch

The new branding for the horticulture industry in Bowen was launched in October.

Bowen is now part of the Whitsunday Regional Council which means it is now part of the Whitsunday region. The new branding is "Made in the Whitsundays".

The brand was officially launched at Brisbane Produce Markets. Queensland Minister for Primary Industries and Fisheries Tim Mulherin spoke with many of the key stakeholders and supply chain on hand to celebrate.

The event included plenty of fresh Bowen produce cooked up by Daydream Island head chef Josh Job, showcasing just what to do with the fresh bounty.

The "Made in the Whitsundays" branding is all about inspiring pride and a strong sense of local community ownership and promotion of regional produce locally, domestically and potentially internationally.

It builds a link between tourism and agriculture, attracts skilled workers and recognises that produce "Made in the Whitsundays" is high quality during the seasonal winter window.

A marketing strategy is in place with a functional website (www.madeinthewhitsundays.com.au) for those in the supply chain wanting to get on board and use the "Made in the Whitsundays" brand to market their produce to consumers and buyers during the growing season.

We have the best place to live in the world in the Whitsundays and maybe we have the best produce in the world.

If you require further information about the "Made in the Whitsunday" branding and the launch please contact me on 07 4785 2860.



LAUNCHING THE MADE IN THE WHITSUNDAYS BRAND AT BRISBANE MARKETS WERE (FROM LEFT) DAYDREAM ISLAND RESORT AND SPA'S EXECUTIVE CHEF JOSH JOBS, BOWEN DISTRICT GROWERS ASSOCIATION (BDGA) INDUSTRY DEVELOPMENT OFFICER DENISE KREYMBORG, BDGA BOARD MEMBER AND GROWER JAMIE JURGENS, FROM VEE JAYS, AND QUEENSLAND MINISTER FOR PRIMARY INDUSTRIES AND FISHERIES TIM MULHERIN.



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ISSUE: THIRTY-ONE FEBRUARY/2010

#01-10

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Magazine of Brisbane Markets Limited

Big Year of
Development

ahead for BML p8

Growing Regions
throughout
Queensland
p10

MRL and microbial testing

so accessible
p12

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Industry



Wet start for Bowen and Gumlu year

BY BOWEN AND GUMLU DISTRICT GROWERS ASSOCIATION INDUSTRY DEVELOPMENT OFFICER DENISE KREYMBORG



The New Year brings another great wet season this year for Bowen and Gumlu growers who are hoping that good rain will bring an improved season for the largest winter growing region in Australia.

Gumlu joins association

After much negotiation, this year sees the Bowen and Gumlu growers associations join into one association.

This is a key outcome from the Industry Development program in the Bowen and Gumlu regions to strengthen cohesion and unify the industry at a regional level that has been running over the past four years.

Let's hope this will encourage other areas close to Bowen and Gumlu to work more closely with a view to a more cohesive industry Statewide.

Brisbane Produce Market MOU

2010 also sees another year of Platinum sponsorship from the Brisbane Produce Market for Bowen District Growers Association (BDGA) and a new Memorandum of Understanding (MOU) in place.

Brisbane Produce Market has had an MOU in place over the past two years and has been working closely with BDGA on a number of successful programs and initiatives to support a more unified and cohesive industry. BDGA looks forward to another great year in partnership with Brisbane Produce Market.

Funding for Reef Rescue

The Reef Rescue program's second round of funding in the North Queensland Dry Tropics region saw Bowen and Gumlu

growers receive in excess of \$370,000 of the \$440,000 funding available for the whole North Queensland Dry Tropics region in funding to improve Water Quality of runoff on farm to the reef.

This was also a key initiative of the Industry Development Program supporting growers in the Bowen and Gumlu region.

Trainee program

This year Bowen and Gumlu will once again have a horticulture traineeship program that will hopefully turn into an apprenticeship program for high school age students and long term on-farm workers.

Bowen and Gumlu haven't had a traineeship program for many years, and it's hoped to encourage more students to take up horticulture positions on-farm or take up horticulture at university level.

Gala dinner

The Annual Bowen District Growers Association Dinner will be held on the 15 May with preparations for a great evening well under way.

This year should see something a little extra with a sponsors breakfast and tour of the horticulture industry in Bowen.

Bowen District Growers Association is currently in negotiations with Brisbane Markets to hold a Board meeting in Bowen the weekend of the annual event.

It is really shaping up to be a great weekend for all. If you would like to be a part of this very popular event, please contact me on 07 4785 2860.

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#03-10

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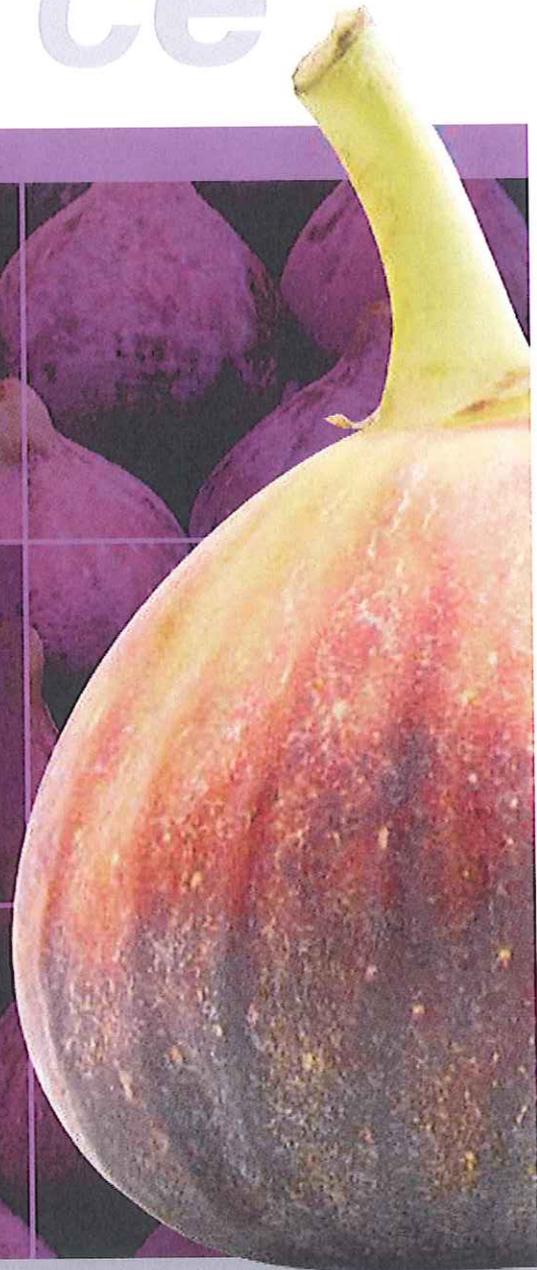
Talks with Code

Mediation
advisor p7



p14
Who's making your
Morning
juice?

p13
Counting the
cost
of sabotage



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Nursery sabotage takes its financial toll on Bowen

BY BOWEN AND GUNLU DISTRICT GROWERS ASSOCIATION INDUSTRY DEVELOPMENT OFFICER DENISE KREYMBORG

July saw the sabotage of over seven million seedlings in a Bowen nursery with a potential impact on the horticulture industry around \$23.5 million in losses with a flow on to the local community upwards of \$50 million.

This incident has the potential to devastate many growers in the Bowen region.

The seedlings were to go to 30 local growers producing tomatoes, capsicums, melons, zucchini, eggplant and pumpkin.

A vital statistic out of this region is that Bowen is the largest winter growing vegetable region in Australia. Over the months of September and October on average 90% of tomatoes and capsicums come from Bowen.

There has been a frenzy of questions for the industry in Bowen surrounding the detail of the incident in the hope that a perpetrator will be caught.

Bowen District Growers Association (BDGA) and I have been working closely with industry, police and media to support the investigation. Media reports on the sabotage have been broadcast around Australia and as far afield as London, USA and Sweden.

Many consumers have been pledging their support for growers in the Bowen region, which we are extremely grateful for.

BDGA, in recent media releases, has stated that the future of the district was the difference between a person buying one extra zucchini or tomato next time they shopped.

People need to talk to their local greengrocer or retailer and ask if they stock Bowen/Whitsunday produce and buy an extra tomato, capsicum, zucchini or eggplant.

It is one way consumers can support Bowen growers after such a severe blow to an already fragile industry that just can't afford an incident such as this.

Most growers already have their back against a wall with many BDGA members unable to break even last year, let alone this year now that their September crops have been destroyed.

The BDGA is also grateful for the enormous amount of support received from wholesalers, grocers, Brisbane Produce Market, AUSVEG and State based industry organisations, the continued support of State Minister for Primary Industries Tim Mulherin and the Federal Agricultural Minister Tony Burke, all the media involved and many others within the industry over the past month.

We can only hope that anyone with any information contacts crime stoppers in order to help apprehend the perpetrator so that this type of incident doesn't occur again.

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ISSUE: THIRTY-FOUR DECEMBER/2010

#04-10

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Magazine of Brisbane Markets Limited



Contamination

tests from coal gasification sites

p23

The year in

Review

p8

Nematode threat for

Queensland

strawberries p20

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MARKETS



Highs and lows for Bowen growers

BY BOWEN AND GUMLU DISTRICT GROWERS ASSOCIATION INDUSTRY DEVELOPMENT OFFICER DENISE KREYMBORG

Bowen/Whitsunday growers have experienced some big highs and lows this year.

The beginning of this year started off well with growers predicting a great season but little did they know what was about to happen.

Bowen and Gumlu felt the aftershock of a devastating sabotage and loss of seven million seedlings due to be fully grown and ready for picking in the peak of the season.

The peak of the season for the Bowen/Whitsunday region is when up to 95% of Australia's tomatoes and capsicums are supplied from this area.

The loss to the industry was estimated to be around \$24 million with a flow on to the local community of around \$50 million. The full impact has yet to be calculated.

Growers in the Bowen/Whitsunday region really can't complain about not having enough water.

There was unseasonal rain throughout the winter and in some cases rain and storms that flattened corn fields worth an estimated \$6 million.

The rain also meant growers were unable to pick produce towards the end of the season.

On a positive note, BDGA and the horticulture industry have been working closely with Enterprise Whitsundays (EW) to develop a regional brand ('Made in the Whitsundays', 'Grown in the Whitsundays') that was launched in the Brisbane Produce Markets last year.

In a key strategy to support the region's horticulture industry after the sabotage, I encouraged consumers to look for Whitsunday-grown fresh produce to help growers financially survive the sabotage.

Local growers set up an initial meeting for EW and I to pitch the 'Grown in the Whitsundays' brand to Coles to encourage the use of the brand on fresh

fruit and vegetables.

Within a week, Coles organised another meeting and we had secured a deal for growers in Bowen which will see their 'Grown in the Whitsundays' produce on Coles Supermarkets shelves throughout Queensland next season, with the potential to go national the following season.

BDGA was proactive in developing a 'Systems Approach' to support the region's horticulture industry in preparation for the removal of dimethoate and fenthion.

After three-and-half years of data collection and research, it looks like we are not far away from having a 'Systems Approach' to manage Queensland Fruit Fly in the future.

This is a significant outcome for the industry in this region.

The positives for this year are a testament to the industry and its never-give-up attitude.

Throughout this year and years past, there has been a strong commitment from growers to build a sustainable future for the industry long term.

This is made possible through the support of industry including Brisbane Produce Markets which has been a part of this process.

BDGA would like to thank Brisbane Produce Markets and all those who share the same vision of a sustainable future for the horticulture industry.

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ISSUE: THIRTY-FIVE APRIL/2011

#01-11

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How the floods

unfolded

p8

Expert volunteers

volunteers answered the call p29

Managing

a massive Markets recovery p17

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MARKETS





Bowen misses floods but cops cyclones

BY BOWEN AND GUMLU DISTRICT GROWERS ASSOCIATION INDUSTRY DEVELOPMENT OFFICER DENISE KREYMBORG

The past few months has seen some really devastating weather in the North of Queensland.

Bowen was lucky early in the year with rain but not enough to flood the region as it did in Rockhampton, Bundaberg and further south in Brisbane.

While we were sympathising with the other flooded regions, a couple of cyclones started to form in the Coral Sea sending many residents and farms into cyclone preparedness mode.

Many growers, local businesses and home owners boarded up windows and cleared their properties as best they could and waited.

Cyclone Anthony, a category two cyclone, crossed the coast on 30 January 2011 at around 9.15pm with wind gusts up to 155km/h.

After inspection of damage the next day, it seemed that many growers and the local community had survived with minor damage such as tin off sheds, trees down and debris over roads.

The town barely had time to recover when Cyclone Yasi, one of the largest cyclones ever seen in the world, headed straight for North Queensland.

In the hours leading up to Yasi, locals tried to stock up on food, water and other equipment such as generators and portable burners in the case of long term loss of power. No one knew where the cyclone would cross because it was so unpredictable.

Many residents left town and headed to Rockhampton as Yasi approached. My family waited it out and watched the weather sites online to see where it would hit.

The wind in Bowen, as Yasi crossed, was the same as if we had a Category 3 cyclone cross over us. The house I stayed in severely vibrated with each gust of strong wind and in some cases, felt like the house would lift off.

The power did go out for a few days for many residents and there was quite a bit more damage to properties with large trees uprooted around Bowen.

What we went through was harrowing but spare a thought for those further North in Cardwell, Tully and Mission Beach where there was a direct hit. I can't image what they went through that night.

We can thank the man upstairs that with a cyclone of that magnitude there weren't more lives lost.

Growers in Bowen fortunately hadn't started planting and the two cyclones will not impact on this season's production. However, after talking to Premier Anna Bligh at the recent Community Cabinet in the Whitsundays, there is no guarantee that we won't have more rain before April this year.



THE FORCE OF CYCLONE YASI LEFT UPROOTED TREES AND DEBRIS AS FAR SOUTH AS BOWEN.



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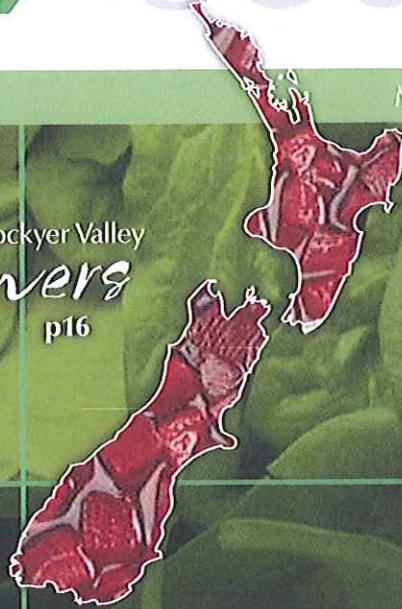
ISSUE: THIRTY-SEVEN OCTOBER/2011

#03-11

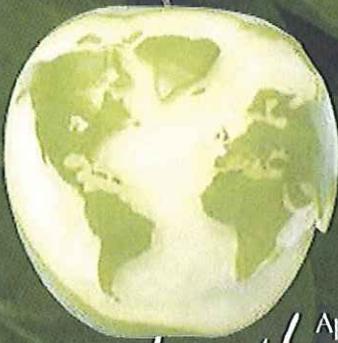
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Magazine of Brisbane Markets Limited

beetroot growers
\$20,000 for Lockyer Valley
p16



Review time
for Brisbane Markets Master Plan p8



Apple Industry
under threat p5

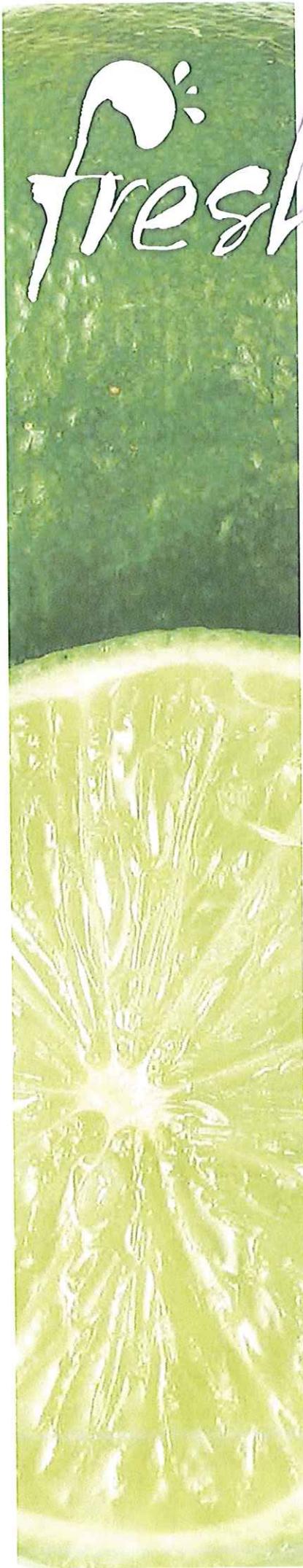
Reasons to eat more *fruit & veg* p5



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Industry



Fresh Connections conference highly recommended

BY DENISE KREYMBORG, INDUSTRY DEVELOPMENT OFFICER,
BOWEN DISTRICT GROWERS ASSOCIATION

The Bowen Strategic Horticulture Workforce and Skills Development working group has re-convened with a clear aim to attract more people into the horticulture industry at all levels, from farm managers and middle managers in leadership roles to seasonal skilled workers.

The working group is an initiative of Bowen and Gumlu District Growers Association (BGDGA) in collaboration with the Department of Employment, Economic Development and Innovation (DEEDI).

As part of the working group's collaboration with Bowen State High School, there will be a series of initiatives aimed at attracting students into horticulture through traineeships and industry partnership programs.

The working group is also developing strategies around career pathways, recruitment and retention of workforce programs as well as the development of workforce skills at all levels within the horticulture industry. The project will need a coordinator to drive actions out of the recommendations for the group.

Collaborating with Bundaberg growers

There has been much discussion with Bundaberg Fruit and Vegetable Growers and BGDGA around cross region collaboration on topics such as career pathways and other key industry priorities.

There is the potential for pilot programs and initiatives facilitated through the working group.

This strategic approach to managing key issues and priority areas within the horticulture industry fits with DEEDI's new Hort2020 program, where workforce and skills development is a high priority within horticulture.

Agritourism marketing

BGDGA is also working on the development of an Agritourism Strategic Marketing Plan to build linkages between both tourism and horticulture for a more sustainability future.

There is potential of an interactive website to be developed to link food production and food consumption addressing the health benefits of fresh produce, availability locally, and community awareness of health promotion programs and initiatives.

Systems approach

BGDGA is also working collaboratively with researchers based at the Bowen DEEDI research station to develop a 'systems approach'.

This is an option for market access domestically, if the Australian Pesticides and Veterinary Medicines Authority's review of Dimethoate and Fenthion delivers an outcome where the chemicals are no longer acceptable for use.

Overall, it is great to see an enormous amount of collaboration, not only within the horticulture industry in dealing with issues and challenges for the future sustainability of the industry but across industries. It is an exciting future ahead for the horticulture industry.

Denise tackles horticulture head on

It seems hard to believe when considering the impact she has made in the horticulture sector that Denise Kreymborg began her role four years ago with no industry experience.

"The Bowen District Growers Association wanted an industry development officer and I didn't know much about the industry," Denise said this week.

She is true to her word when she says she has become very passionate about the industry since then and the commitment shown to her cause is testament to this.

The Bowen district horticulture sector is worth \$350 million annually but this had been overlooked by the government and even within the broader horticulture industry.

Denise used the networks established during her previous role as the area's business development officer with the Queensland Regional Business Advisory Service to lay a foundation of improving recognition and services to Bowen district growers.

"For such a large industry, horticulture is so fragmented and I feel I can do something about that on a small level," Denise said.

"When I achieve an outcome for growers, it is very rewarding."

It's fair to say that Denise's achievements for her growers have been anything but "small".

In the past four years, she has:

- Helped develop the Made in the Whitsunday Branding initiative for the horticulture sector through Enterprise Whitsunday.
- Facilitated the development of an apprenticeship program in horticulture

Horticulture is so fragmented and I feel I can do something about that on a small level.

in collaboration with growers and the Barrier Reef TAFE.

- Facilitated the Federal Reef Rescue Initiative in the Bowen and Gumlu region.
- Directly involved in delivering a commitment from growers to support the Water for Bowen project and its implementation in Bowen.
- Facilitated the negotiation of water allocations for growers in the Bowen region.
- Helped unify Bowen district growers to take a strategic approach towards tackling issues that threaten the industry.
- Delivered more productive and efficient farm management systems to growers.
- Provided solutions to labour shortage issues.

Not content with raising the profile of the area's horticulture sector through an active involvement at local and State business development meetings and distributing a regular newsletter, Denise has worked with the local growers to



Denise Kreymborg

prepare them for the future by helping them become involved in research trials.

These have included:

- Biodegradable mulch film trials for growers to move from black plastic to a more environmentally friendly alternative. The uptake of this alternative by growers has been impressive.
- Tomato and capsicum growers working together to find a solution to the replacement of Dimethoate. Denise has been directly involved in the management of the project and delivery of the outcomes, saying the loss of Dimethoate would mean the loss of

interstate and export markets for 99 per cent of the region's growers.

- Identifying plant virus issues and implementing different strategic plans to solve the problem.

The Bowen District Growers Association is supported by the Brisbane Produce Market through a Memorandum of Understanding.

Its industry liaison officer, Vanessa Kennedy, said Denise has played a huge role in putting Bowen on the map through publicising its winter produce.

"She's part of the Enterprise Whitsunday group that is launching a Made in the Whitsundays brand, is pro-

moting the importance of eating fresh fruit and vegetables to local children in her district and has just finished a leadership course that has groomed her to be a horticulture leader of tomorrow," Ms Kennedy said.

Denise says that her role has also helped her own personal development, and this in turn has led to greater returns for Bowen growers.

"I took part in this year's Vegetable Industry Strategic Leadership course which proved a real challenge for me as it involved public speaking, developing networks, conflict resolution and many other facets of leadership development.



Teamwork in action

There's no better example of teamwork in action than the Brisbane Produce Market. Growers, wholesalers and retailers build partnerships to ensure consumers receive the freshest fruit and vegetables. For a Grower's Kit to help you work better with your wholesaler business partners, contact us by emailing admin@brisbanemarkets.com.au, visit our website www.brisbanemarkets.com.au or phone the free Grower Hotline on 1800 631 002.



BML219/A - HERRICK





Fresh Net first for Bowen SS

STUDENTS from Bowen State School received a better eating message in the classroom when they were the first school in North Queensland to have an "Apples ain't Apples" presentation.

The healthy eating presentation is part of the highly-successful Brisbane Produce Market Queensland Kids Fresh Net program.

Bowen District Growers Association president Carl Walker and industry development officer Denise Kreymborg, as well as QKFN Fruit and Vegie Gang member Tamara Tomato, were also on hand to be part of the apple chomping, fruit and veg drawing, Go for 2&5 learning experience that showed the Grade 3 and 4 students the importance of eating fresh fruit and vegetables.

The QKFN program was created to help improve approaches to the education and promotion of health and nutrition in primary school aged children.

Brisbane Produce Market industry liaison officer and presenter Vanessa Kennedy said Brisbane Markets Limited launched it in 2003 with the support of the wholesaler representative organisation

Brismark in response to research which demonstrated that diet related health problems such as obesity, cancers, high cholesterol and diabetes were increasing in children.

"QKFN believes if children eat more fresh fruit and vegetables, their chances of avoiding these problems will be greatly increased," she said.

"The QKFN program encourages school children to make healthy eating choices and live active lifestyles. It targets children, their parents, teachers and tuck-shop conveners."

Brisbane Produce Market industry liaison officer Vanessa Kennedy during the presentation.

The Bowen presentation was designed to trial the program in North Queensland and look at what pathways could be opened to provide more regular contact time with regional children.

With the Bowen region being one of the largest and fastest growing areas where healthy, nutritious fruit and vegetables are grown for the rest of Australia, many of the students come from families involved in the industry.

But there was plenty for the chil-

dren to learn, including some fun facts that tomatoes are a fruit, not a vegetable, and that long ago they were reputed to kill rich people.

Ms Kennedy said it was actually the lead plates the rich people ate them off which caused the problem.

For those students without a working knowledge of farm life, Mr Walker was on hand to help describe the journey taken by locally grown fruit and vegetables, from farm to market to the grocery store to the dinner plate.





Getting into the apple chomping fun, back from left, Nikita Harding, Wynston Youse, Connor Knight, front, Steven Beasley, Dana Matton and Lily-Mac Jeffery. And left, Vegie Gang member Tamara Tomato gets a high five from Jordon Kelly.



Strong turn-out at Bowen soil health workshop

Bowen growers came out in good numbers for an EnviroVeg soil health workshop and the opening of the new Elders premises.

The first of two EnviroVeg 'Managing soil for optimal health and productivity' seminars was held on 11 November last year at the impressive new Elders premises in Bowen. This seminar built on the success of previous EnviroVeg seminars in Wanneroo in Western Australia, Cowra in New South Wales and Stanthorpe in Queensland, and attracted approximately 30 growers from the Bowen district.

It was a fitting location, as the district's vegetable industry produces \$300 million annually and employs approximately 2,300 people. Seminar attendees were treated to informative and professional presentations designed to help them manage soils that are productive and sustainable under the intended land use.

Speakers included AUSVEG CEO Richard Mulcahy; Craig Paterson, Regional Sales Manager for Elders North Queensland; Carl Walker, President of the Bowen District Growers Association (BDGA); Chris Monsour of Prospect Agriculture; and Stephen Ziebarth of fertiliser supplier Yara. Following the presentations, participants discussed the seminar at the Elder's premises.

Elders opening

The next day, AUSVEG CEO Richard Mulcahy attended the official opening of the Elders Bowen Branch, a state-of-the-art facility in one of Australia's pre-eminent vegetable growing regions.

Following an address from Elders Chief Operating Officer, Mike Guerin, the ribbon was cut by legendary Australian cricketer and Elders Ambassador, Glenn McGrath.

Festivities continued that evening with a dinner held to celebrate the opening. The assembly—consisting of more than 180 local growers and industry stakeholders, Elders

staff and Mr Guerin—was treated to addresses from Richard Mulcahy, who offered insights into the future directions of the industry, and Mr McGrath, who regaled attendees with tales from his international cricketing career.

Mr Mulcahy was impressed by

“The Bowen district vegetable industry produces \$300 million annually and employs approximately 2,300 people.”

grower involvement in the two events.

“I thank the staff of Elders Bowen for their enormous support in accommodating us for the seminar. In particular, I thank the local growers for attending the seminar and the

dinner in such large numbers. Finally, Carl Walker and Denise Kreymborg of the BDGA were of enormous assistance on the ground and they made me aware of many of the issues facing growers in the district,” he said.

the opportunity to speak with the CEO of the peak industry body and find out what AUSVEG can provide for them and other growers nationally. It also enabled them to make AUSVEG aware of the various issues they face,” he said.

Denise Kreymborg, Industry Development Officer (IDO) for the BDGA, said that the AUSVEG visit to Bowen was a step towards building stronger relationships and linkages between industry, growers, and peak horticultural bodies.

“The visit was well received, with BDGA recognising the need for industry bodies such as AUSVEG, government and growers to work more closely and collaboratively for a sustainable future for the horticulture industry,” she said.

Direct communication

For Craig Paterson from Elders, the opening provided an opportunity for Mr Mulcahy to converse directly with growers. “The visit of Richard Mulcahy to the Bowen area gave a large number of the district's growers



[From left] AUSVEG CEO Richard Mulcahy and Elders Chief Operating Officer Mike Guerin with Australian cricketer legend and Elders Ambassador Glenn McGrath at the opening of the new Elders premises in Bowen.



New branding to help Whitsundays

By MARTIN RASINI

SUPERMARKET giant Coles is poised to market North Queensland produce under the Grown in the Whitsundays brand next season.

The move follows a meeting between Coles representatives and Denise Kreymborg, Bowen District Growers Association industry development officer and an Enterprise Whitsundays director, to encourage use of the Whitsundays brand on fresh produce supplied by Bowen district growers.

Ms Kreymborg said yesterday the arrangement was part of a

strategy to help Bowen district growers survive a major sabotage incident earlier this year in which up to seven million seedlings were destroyed, sucking an estimated \$50 million out of the district's economy.

Enterprise Whitsundays launched the Grown in the Whitsundays brand some time ago as a marketing tool for Whitsundays region businesses.

Ms Kreymborg said the meeting had been organised by the Bowen horticulture industry, the Bowen District Growers Association and district business Koorelah Farms to enable her to pitch the

idea to Coles representatives.

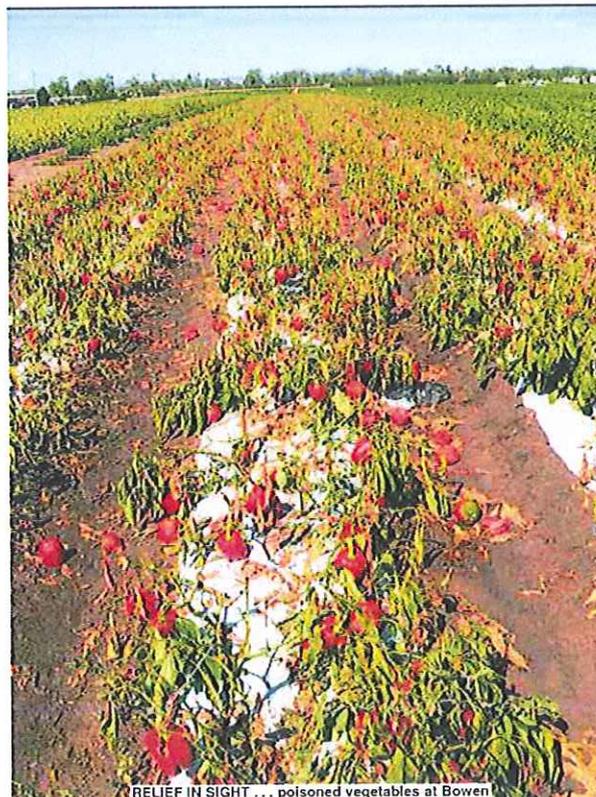
"The talks have secured a deal for Bowen growers which will see their Grown in the Whitsundays produce on Coles supermarkets' shelves throughout Queensland next season, with the potential for the brand to go national the following season," she said.

"The Coles supermarket partnership is a fantastic outcome and testament to the resilience of the Bowen horticulture industry and its ability to work through issues such as the devastating sabotage we saw in recent months."

Ms Kreymborg said that, as well as the sabotage event, the Bowen district fruit and vegetable industry was suffering from rising production costs, and pest and disease issues, and non-seasonal rain and storms which had damaged some crops.

Ms Kreymborg said the BDGA and Enterprise Whitsundays would be encouraging consumers to look for and buy the Whitsundays-grown fresh produce.

The Grown in the Whitsundays brand was first launched late last year.



RELIEF IN SIGHT ... poisoned vegetables at Bowen



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Page 1 of 1

Food plan focus

BOWEN Gumlu District Growers Association Industry Development Manager Denise Kreymborg was in Townsville this week attending the Federal Government National Food Plan advisory session.

The session was held to go over the issues paper and key priorities for the further development of a national food plan.

Currently the draft National Food Plan focusses on food security, nutritious and safe food supply meeting consumers needs, a competitive, productive and efficient food industry, a sustainable food industry, and maximising the benefits of trade.

"The key messages put forward from a horticultural and agricultural perspective were that there are plenty of opportunities to strengthen and grow industry but there is a huge need for support to do this," Ms Kreymborg said.

"It is about a collaborative approach to managing key issues incorporating both government and industry," she said.

"Some of the risks that could affect the potential sustainability of the industry if not managed are a lack of market access and market development, foreign investment, potential loss of R and D funding, regulation, lack of consumer education around pricing and farming practices and farming opportunities, lack of infrastructure in the areas of transport, water and urban encroachment, the potential impact on skilled workforce losses to mining and construction, career pathways, skills development, access to migration programs and skilled workforce."

Ms Kreymborg said the government was seeking feedback from stockholders through written submissions.

"It intends drawing upon ideas and suggestions to develop policy options for a national food plan," she said.

The closing date for submissions is 5pm Friday, August 5.

For further information please contact Denise Kreymborg by email bdgainc@bigpond.com or via 4785 2860.



Bowen Gumlu District Growers Association Industry Development Manager Denise Kreymborg, left, was in Bundaberg last week where she met with acting CEO Bundaberg Fruit and Vegetable Growers Peter Hockings, centre, Horticulture Australia Limited representative David Moore, absent from photo, regarding industry development and the current review of research and development funding arrangements and the newly appointed flood recovery officer Tina Mcpherson, right, to support skills development in the Bundaberg and Bowen regions. Denise believes the key priority for the industry at this time is a more collaborative approach to managing industry issues.



Burdekin flood – of produce

WARMER weather in the Burdekin is causing a flood of fruit and vegetables to be released on to the market.

The area is producing an oversupply of tomatoes and eggplants and farmers are dealing with the corresponding drop in prices as the weather prompts widespread ripening.

Burdekin District Growers Association industry development manager Denise Kreymborg said tomato growers were not even breaking even, collecting about \$5 less than the base \$14 to \$16 a box.

Eggplant farmer Loretta Soden has just finished putting in 120,000 plants and is enjoying a firm market, but predicts business will decline.

"This year has been silly; we've been rained out, but a lot of farmers are coming on board so we'll probably see the market slip down now."

She would hope to collect between \$10 and \$12 for six and 8kg boxes.

Fellow farmer Allan Brackley is already feeling the pinch, resorting to slashing because picking isn't worth it.

He is slashing crops to start again because prices have dipped below the level that makes it viable to harvest.

"Growers are doing it tough," Ms Kreymborg said.

"We've seen three growers this



Burdekin watermelons are ripe for the picking.

last season that are no longer farming."

The problem of surplus healthy crops comes after cyclones, big rain, and last year's crop poisoning devastated plantations.

The fertile food bowl produces tomatoes, capsicum, beans, corn, zucchinis, cucumbers, melons, pumpkins, squash and eggplants all around the same season from April to November.

Ms Kreymborg said growing less would mean more money, but pointed out growers had to keep up to compete in the same markets.

More than half of the region's 50 growers are part of the Bowen District Growers Association.

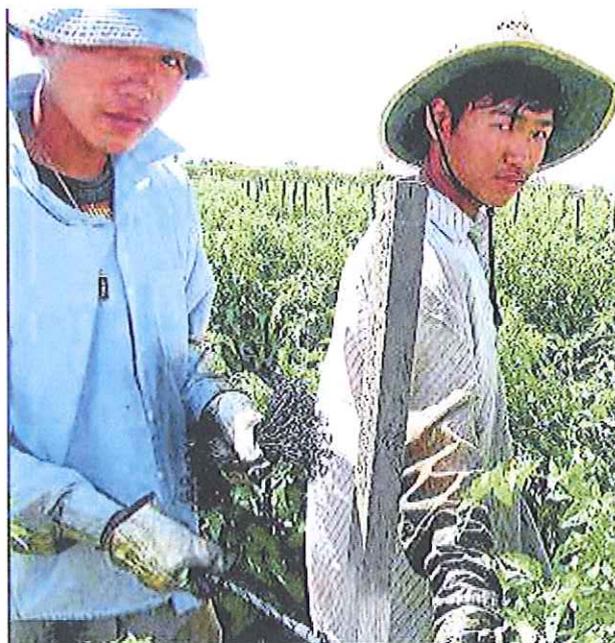
While the horticultural industry faces challenges, Ms Kreymborg said growers were well-placed to keep moving forward.

Many growers use resourceful environmentally friendly practices like trickle irrigation to cut water wastage and runoff, boosted by government funding. Ms Kreymborg said the region was mindful of water use, having experienced several years of drought in the mid-2000s.

"Bowen growers are known as the most water efficient growers; of their 100 percent allocation of water, many only use 60pc." – *Story and pictures: ELIZA ROGERS.*



International workers like this capsicum picker are in abundance around the Burdekin area, with farms displaying 'no workers needed' signs.



Brothers Duc and Tung Le prop up maturing tomato plants in the field as the fruit ripens up. Tomato planting is staggered throughout the season, and there is currently a glut in the market.



Some eggplant growers are slashing down their crops to pull up the plastic and mulch the land, as low prices are making picking unviable.



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Reef Rescue initiative travels well

A RECENT Reef Rescue Initiative review in Townsville show despite a few glitches in the beginning, the program is travelling well now.

BOWEN District Growers Association industry development officer Denise Kreymborg attended and provided feedback to the consultants on the issues around funding requirements changing from round to round, which she said seemed to be an issue across the board.

“NQ Dry Tropics is going to move forward the current requirements in order to streamline processes,” she said.

“Round 4 is now open with funding now available for horticultural growers for practice changes that will improve water quality through the reduction of nutrients, sediments and pesticides leaving farms.”

WHAT do growers need to do?

1. Submit an Expression of Interest form to NQ Dry Tropics ASAP.

2. When your expression of interest form has been received, a Farm Management System consultation around Water Quality on farm will take place.

3. Once you have completed an FMS stage, you will be eligible to submit an application to undertake activities that contribute to improving the quality of water leaving your property. Applications must be received before October 8, 2011.

For further information, contact Denise Kreymborg, Industry Development Officer on 4785 2860 or preferably via email bdgainc@bigpond.com



Horticulture careers day

CAREERS in horticulture were highlighted at a Careers Day at the Bowen State High School.

Bowen District Growers Association industry development officer Denise Kreymborg said she spent a day with students from the region promoting careers in the horticulture industry.

"Schools from Bowen, Proserpine and Collinsville came along to see what careers are on offer," she said.

"I promoted all the career pathways within the horti-

culture industry, stating to students that horticulture is not only about farming but business management and administration, marketing, information technology, international business, science and chemistry to name a few.

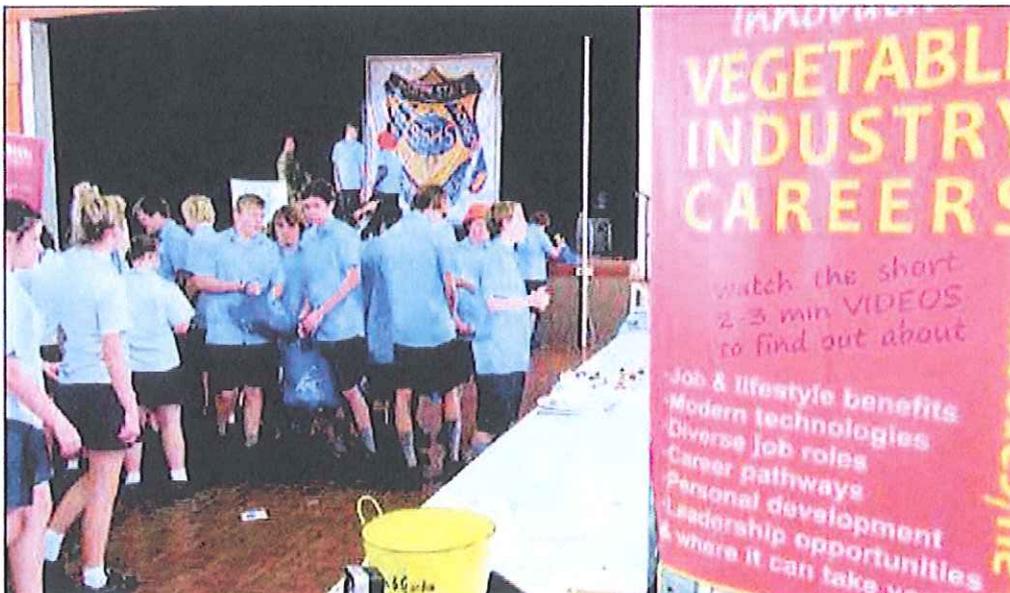
"Students seemed to be very interested in the fact that they could go to college or university and study business and still find a career in the horticulture industry in Bowen.

"I am incorporating these types of career pathways in the workforce develop-

ment strategy for the horticulture industry in this region."

Meanwhile, Ms Kreymborg has also held a meeting with Bowen High principal Terri Byrne, incorporating DEEDI staff and service providers in the region to discuss career pathways and the Agribusiness Gateway Schools program.

"The Bowen High School is keen to work on setting up a career pathways in horticulture evening to inform parents and students of the opportunities in horticulture," she said.



Careers in the horticulture industry promoted at the recent Careers Day at the Bowen State High School.



Building a more sustainable future

By DENISE KREYMBORG

THE horticulture industry in Bowen is the largest winter growing vegetable region in Australia, which is a fact that many within the community and further afield don't know.

The other fact that is important to recognise is that the horticulture industry is the largest economic driver in the Whitsunday region.

Bowen Gumlu Growers Association is the peak industry body representing the horticulture industry in this region and has been working on numerous projects over the past six years to support growers and continue to build a more sustainable future for the horticulture industry.

Many of these projects are in collaboration with industry at a local, state and national level, with state and federal government and any other industry related organisations and businesses that can contribute.

Some of the key projects are:

- * to develop a systems approach to replace current crop protectants used for market access to enable fresh vegetables to be supplied out of Queensland to domestic markets nationally and to enable continued export of fresh vegetables to countries such as New Zealand without the need for certain crop protectants;

- * to develop a strategy to encourage more people to be involved in the horticulture industry with the looming loss of skilled workers to mining and construction industries and provide career pathways in areas of Business Management, Information Technology, Agronomy and Crop Monitoring, Marketing, Food Technology, Food Production and International Business within the horticulture industry;

- * to develop school based programs to encourage students to take up opportunities in horticulture in Bowen;

- * Building value adding, diversification and innovation opportunities to spread the risk in farming as

well as become more sustainable;

- * providing opportunities for growers to take up new technology and automated and mechanised systems;

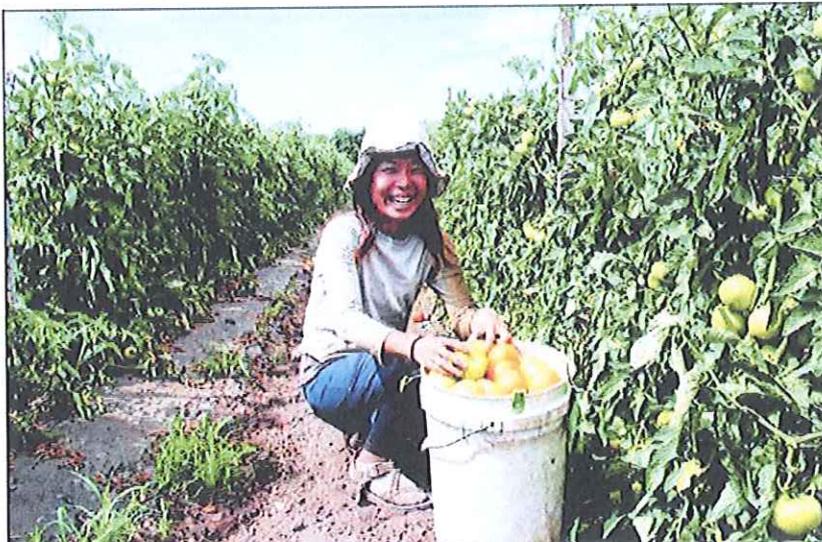
- * improve supply chain locally, state-wide and nationally;

- * to provide research into environmentally friendly farming practices, technology, techniques and products in order to provide growers in this region with the opportunity to take up and implement cutting edge technologies;

- * to encourage growers to become Reef Guardians; to develop integrated pest management systems incorporated parasitoids (bugs for bugs) for a clean and green approach to farming;

- * and provide training in the areas of Business Management, Nutrient and Soil Management, Irrigation Management, Pest and Disease Management and Leadership and Skilling.

Turn to Page 10.



Backpacker Mikka Ogasawara, from Osaka, Japan, is just one of the many backpackers working each year on the Bowen tomato crops.



Working for sustainable future for the horticulture industry

From Page 9.

BGGA has also developed good relationship with local, state and federal government as well as industry and growers to provide a voice for growers on key issues.

BGGA provides advice to government on priorities for the industry in an effort to gain support in the form of funding for the region.

BGGA negotiated for support from government to allow Bowen to be included in the flood recovery area for growers and the local community which we have since received.

Other key areas that BGGA has received support from government for growers and the industry on are:

- * the continuation of the Bowen DEEDI Research Station that supports not only growers but grazing, cane and agriculture in general as well as extra staff to make the station more viable;

- * to be included in the Reef Rescue program and be a part of an advisory role and assessment of applications;

- * to be included in the Reef Guardian Program;

- * for funding to create economic development opportunities in value adding, diversification and improved supply of local produce locally;

- * and to be a part of key advisory, strategic planning and program funding for priorities at a state and national level.

BGGA also supports growers on a one on one basis in the areas of Business Development and Management, Funding opportunities, filling in the



Bowen growers industry officer Denise Kreymborg met with Agriculture Minister Tim Mulherin earlier this year.

application and support for applications throughout the process.

This has resulted in growers in the region receiving well in advance of \$1 million over the last six years as well as advice on key issues affecting the industry and the development of programs to support an outcome on these key issues.

BGGA management and staff work tirelessly to ensure growers have a sustainable future and can continue to underpin a strong local economy.

As you can see, BGGA plays an enormous role in supporting growers and a future for farming generations to come.

BGGA needs all the support from growers and industry they can get to achieve even greater outcomes for the future of the industry.

BGGA is regarded by all levels of government and industry as one of the most proactive industry bodies in Australia.

They support not only the local industry but the industry nationally.

If you would like to know more about any of the programs mentioned above, contact Denise Kreymborg, industry development manager, via bdgainc@bigpond.com or 4785 2860.



BOWEN GUMLU
GROWERS ASSOCIATION INC.



BOWEN GUMLU
GROWERS ASSOCIATION INC.
Collectively we grow



BOWEN GUMLU | *Facilitating sustainable horticulture*
GROWERS ASSOCIATION INC.

Denise Kreymborg

From: "Richard Mulcahy" <richard.mulcahy@ausveg.com.au>
Date: Tuesday, 22 November 2011 11:38 AM
To: <Denise.kreymborg@bigpond.com>; "BDGA" <bdgainc@bigpond.com>
Subject: letter of support

TO WHOM IT MAY CONCERN

On behalf of AUSVEG Limited, the Peak Industry Body for Australia's 9.000 vegetable and potato growers, I am pleased to confirm that the Bowen District Growers' Association has worked closely with AUSVEG over the past several years on a range of industry matters.

That liaison has included, but not been limited to, discussions in relation to the media and the tomato poisoning incident last year, assisting with the staging of seminars for our Enviroveg programme and liaising with AUSVEG in relation to the consultation that has taken place in the Bowen region for the Strategic Investment Plan for the vegetable R & D.

The Association has also been represented at our National Convention, the largest event in horticulture and has worked to promote other industry matters to their constituents.

I would be pleased to amplify on this commentary if required.

Richard J Mulcahy
Chief Executive Officer



T: 03 9822 0388 | F: 03 9822 0688 | M: 0418 566 647 | E: richard.mulcahy@ausveg.com.au

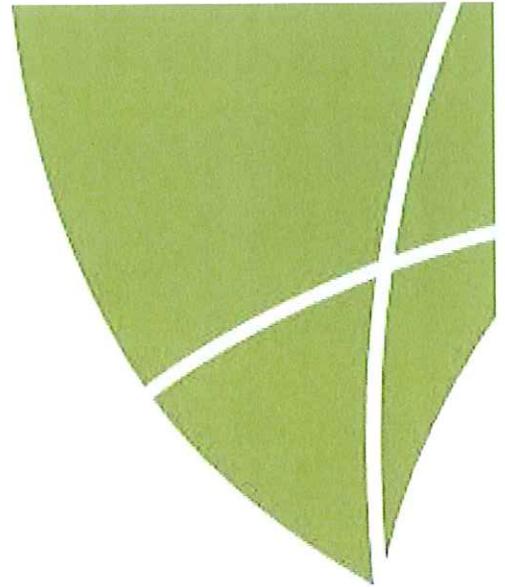
Suite 1, 431 Burke Road, Glen Iris, Vic, 3146 | PO Box 2042, Camberwell West, Vic, 3124

Industry communication is facilitated by HAL in partnership with AUSVEG and is funded by the National Vegetable and Potato Levies. The Australian Government provides matched funds for all HAL's R&D activities.

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www.ausveg.com.au





30 November 2011

Ms Denise Kreymborg
Industry Development Officer
Bowen Gumlu Growers Assoc

Dear Denise

Re: Facilitating the horticultural development of the Bowen & Gumlu region

I am writing to formally express our strong support for this project and the long established relationships within the region and beyond which I am aware have flourished as a result of the success of the network created and built upon over the last several years by the Bowen District Growers Association organisation together with the project officer.

The project has produced a number of tangible results across a variety of topics of critical importance to the sector which have directly been of benefit to the local growing industry and, indirectly, the wider community.

Whilst our longstanding collaboration with the IDO project has been effective to achieve mutual industry goals, the most recent joint activity may prove to be one of the most valuable long-term investments in relation to the work the project officer has performed to organise and promote industry-specific regional skills training in conjunction with Growcom's State-sponsored Jobs & Skills Development Officer (JSDO), Ms. Tina McPherson (*as part of the 2011 Queensland Natural Disasters Jobs & Skills Package of recovery measures*).

Growcom is the peak representative body for the horticulture industry in Queensland, providing a range of advocacy, research and industry development services to the sector. Queensland supports around 2,800 fruit and vegetable growing enterprises that are the principal driver of many local communities and economies.

Our organisation believes that the successful delivery of projects such as these is of strategic significance to the ongoing development and growth of our industry, both at a regional level and also contributing to the sector as a whole.

Yours sincerely,

Alex Livingstone
CEO
EDMS 66975

Offices in: Brisbane | Bundaberg | Toowoomba | Townsville | Tully

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Queensland Fruit & Vegetable Growers Ltd trading as Growcom Australia ABN 51 090 616 827



Denise Kreyborg
Industry Development Officer
Bowen Gumlu Growers Association
PO Box 489
BOWEN QLD 4805

18th November 2011

Dear Denise,

RE: BFGV SUPPORT OF BOWEN INDUSTRY DEVELOPMENT OFFICER (IDO) PROJECT.

Bundaberg Fruit and Vegetable Growers Cooperative Limited (BFGV) represents the horticulture industry in the greater Bundaberg region with additional membership located in the Gympie, Gayndah/Mundubbera and Agnes Waters regions. Our membership base consists predominantly of horticulture growers, however we also have a strong membership and alliance with many of the industry-affiliated businesses that service the horticulture industry.

The industry within the Bundaberg region alone is estimated to employ over 5,000 people, grows more than 30 major horticulture commodities and many minor commodity lines, has a farm gate value of over \$490 million and injects over \$1 billion into the Queensland economy. Our vision is to represent the interests of the horticulture industry in our region on issues that are critical to its sustainability. We also pride ourselves on the information and training services we provide, and the quality outcomes from the many projects and opportunities we have delivered over the years.

As the peak industry body in the Bundaberg region we strongly encourage the development of relationships, partnerships and collaboration across industry and across regions. We believe a whole-of-industry approach to managing issues is key to a sustainable future for the industry.

Over the past 6 years we have established a good relationship with the Bowen Gumlu Growers Association (formerly Bowen & District Growers Association), primarily by working with you in your role as IDO. BFGV has worked closely with you to foster a more collaborative approach to across industry issues, in order to deliver outcomes contributing to a sustainable future.

Some of the current priority issues we are collaboratively working on are the potential loss of many of the skilled workforce in the horticulture industry; developing programs and initiatives with regions and high schools encouraging students to be involved in horticulture; developing a systems approach for market access for regional areas with a state-wide and national approach; regulation and legislation affecting the industry; and developing an induction/'passport' program.

You have become well-respected within the industry. Your contribution to a number of local, state and national advisory boards and committees has been invaluable, while your commitment to a collaborative whole-of-industry approach shows leadership and strategic strength.

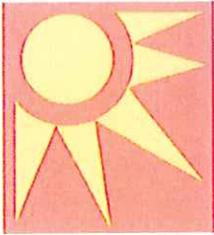
BFGV is therefore pleased to support this project in the Bowen region and commend you for your achievements and dedication to the horticulture industry. BFGV encourages the continuation of this position in Bowen. We value greatly the contribution this position has made to the industry over many years - the expansion of this project into other key growing regions would be warmly welcomed by BFGV and benefit the whole industry greatly.

I trust this Letter of Support is viewed favourably, and the work undertaken by you as IDO is valued for its merit and benefits to the industry's sustainability and continued growth.

Yours sincerely,

Peter Hockings
Executive Officer

BRISBANE



MARKETS

28 November 2011

To whom it may concern

RE: Memorandum of Understanding between Bowen Gumlu Growers Association (BGGA) and Brisbane Markets, facilitated by Industry Development Officer Denise Kreymborg.

This letter is to recognise the long standing relationship that Brisbane Markets has with BGGA through a Memorandum of Understanding, which is signed annually with both parties. In particular it is to comment on the work of BGGA Industry Development Officer Denise Kreymborg who facilitates that process from the Bowen-Gumlu region.

Denise has played a crucial role in bridging the gap between the growers, Brisbane Markets and the rest of the horticulture industry. Bowen and Gumlu comprise the main winter vegetable growing region in Australia, making its communication with our wholesalers of vital importance to the industry.

Over the past six years, our work with Denise has developed into a partnership, rather than an association, as she becomes an important voice representing her region and keeping myself and Brisbane Markets CEO Andrew Young abreast of industry issues from the grower's perspective.

She is recognized as one of the leaders in Queensland horticulture and certainly growing to be one of the most influential women in the industry with her passion for furthering BGGA's involvement in industry. She has a collaborative approach in developing initiatives and programs to support a more sustainable future for the industry nationally.

On a Brisbane Markets level, Denise facilitates our Memorandum of Understanding on a number of fronts, including:

- Meeting with Brisbane Markets at least three times a year to discuss regional and wider grower issues.
- Hosting Brisbane Markets' visit annually involving organising grower visits, meetings and including our representatives in grower events such as the Bowen Show and its annual gala dinner.
- Looking after our sponsorship arrangements including use of our logos and distribution of our merchandise.

Brisbane Markets Limited

ABN 39 064 983 017

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www.brisbanemarkets.com.au

- Writing a column for our quarterly industry magazine *Fresh Source* magazine.
- Overseeing our \$10,000 annual BGGGA sponsorship so we gain value from our introductions and contacts made through the association.
- Assisting in the promotion of our Queensland Kids Fresh Net program, which targets the Go for 2 and 5 healthy eating message to primary school aged children.
- Including our stories and literature in her newsletter to local growers.

It is noted that Denise is recognised for her leadership and key advice on how Queensland can approach the loss of two key chemicals that controlled fruit fly on fresh produce – namely Dimethoate and Fenthion. BGGGA is the only grower group that has invested up to six years of research into an alternative for the chemicals.

In 2010, she became the key point of contact for media across Australia and the world, and assisted Brisbane Markets draw close to its Bowen growers in their time of need, after the sabotage of a seedling nursery almost wiped out the region's winter crop.

When in the region working with industry, I have seen Denise work late into the night, which she does many nights of the week, to achieve her goals, with limited funding and resources to support her while trying to balance her family responsibilities.

Through Denise, BGGGA has proven itself innovative and in touch with the needs of growers. She has found a way of dealing with the Brisbane Markets on an industry level that has brought both her growers and our wholesalers a stronger working relationships and a united voice in times of challenge.

Regards



Vanessa Kennedy
Communications Executive



Dear Sir/madam

Letter of Support for the Bowen Industry Development Officer project

As the peak industry body for vegetable growers in Western Australia, we have a number of key projects, programs and initiatives that support the sustainability of growers and the industry over the long term. Over the past 5 years vegetablesWA representatives have had the pleasure of working with the Industry Development Officer (IDO), Denise Kreymborg, based in Bowen North Queensland on a number of key issues to support a national approach to delivering outcomes for industry.

The IDO encourages a collaborative approach to managing industry issues working with government and industry at all levels to support a sustainable future. An example of this would be her involvement in a high priority issue for the industry at a local, state and national level and her involvement in providing forward thinking and advice on developing programs, initiatives and protocols in the event of the suspension of dimethoate which will heavily affect market access for growers around Australia.

Western Australian growers benefitted significantly from the former national IDO system, and following its demise have invested their own funds to maintain this vital position on the West Coast. Similarly, we believe the IDO position based in Bowen has made a valuable contribution to the industry over many years and we would like to see this position continue to support industry in the future.

Regards

A handwritten signature in black ink that reads "John Shannon". The signature is written in a cursive, flowing style.

John Shannon
Policy and Program Manager

15 November 2011



Friday 21 October 2011

Claire Dulieu
Project Manager
Enterprise Whitsundays
PO Box 479 Cannonvale
Queensland 4802
Phone: (07) 4946 0111

Denise Kreymborg
Industry Development Officer
Bowen District Growers Association
Phone: (07) 4785 2860

Re: Letter of Support for Horticulture Industry Development Officer

To whom it may concern

Enterprise Whitsundays is the economic development agency for the Whitsunday region. Over the past 2 years, Enterprise Whitsundays has been working closely with the horticulture sector to deliver a number of industry development projects. During this time, the support offered by Bowen District Growers Association has been outstanding.

In particular, Industry Development Officer Denise Kreymborg has made a substantial contribution to the project achievements through her advice, knowledge and active participation. The role of Industry Development Officer for the horticulture industry is vital to the continued economic sustainability of the Whitsunday Region and I have no hesitation in extending my support for Denise in this role.

Yours Sincerely

Claire Dulieu
Project manager
Enterprise Whitsundays

Enterprise Whitsundays

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Bowen Gumlu Growers Association Inc

Industry Strategic Plan



Vision

A strong and cohesive organisation that provides a voice for our members.

Mission

BDGA efficiently and effectively represents and promotes the members interests by providing beneficial services that will help support their business.

S.W.O.T Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">- A strong core group of members- A structure (incorporated)- A historical relationship with DPI & Growcom- Employ an IDO to provide information flow, project development, management and delivery as well as services- Members attending meetings-structured meetings- Strong financial base- Active within the industry on Issues- Attendance at social events good (Growers Dinner, family fun nights), brings growers, suppliers and customers	<ul style="list-style-type: none">- Small grower base- Only other staff one day a week secretary- Don't provide enough beneficial services due to lack of staff- No set regular meeting times

<p>together</p> <ul style="list-style-type: none"> -Funds industry projects -Recognised and respected throughout the industry -Amalgamated with Gumlu for a larger member base -Successful sponsorship program -Good networks and relationship within the industry and throughout government -Delivery of outcomes on projects to support the industry and community strong -Largest winter growing vegetable region in Australia -Production worth over \$400M 	
<p>Opportunities</p>	<p>Threats</p>
<ul style="list-style-type: none"> - Continue to work on larger member base - Provide more services - Gain more funding for more staff and project work - Expand the BDGA office - Continue to raise profile of farming within the Bowen community & also on a state and national level -Build more relationships with government departments to have more influence on decision making/policy that affects/impacts on our businesses/industry -develop supply chain projects to support branding initiatives and enhance productivity -Develop pest & disease projects to support growers and industry - participate in local events - work with other organisations to promote a more unified approach to issues and industry sustainability 	<ul style="list-style-type: none"> - A decrease in member base - Lack of funding - Government policies and new regulation - A decrease in the amount of local growers - Lack of support from government -Lack of support from members -Lack of resources to deliver services to growers

Goals

1. Continue to provide information flow and industry development through employment of IDO
2. Develop projects specific to the needs of the industry in this region and align with industry priorities
3. Stabilise membership and continue to work towards a more unified industry locally and further afield
4. Be the first point of contact for all growers, government, industry and other stakeholders
5. To be a strong and cohesive organisation representing growers and the industry
6. Being a voice for all growers on major issues that effect this industry

Strategies

Goal 1 Continue to provide information flow and industry development through employment of IDO

Collecting and collating Information from within the industry and government to deliver information flow on

- New Technology & Innovation
- R&D project outcomes
- Vegetable Industry Development Program
- Regulation, Legislation, Policies, & Priorities
- Industry body activities (local, state, national)
- Workshops/Seminars/Forums/Training/Leadership
- Business Management & Farm Management Systems (Water, Soil, Nutrient, Irrigation, Pesticide)
- Sources of funding

- Environmental Initiatives

Building relationships and networks with industry bodies, government (local, state and federal)

Support BDGA in developing, managing and delivery of projects to support local growers and industry

Goal 2 Develop projects specific to the needs of the industry in this region and align with industry priorities

- Pest & Disease
- Supply Chain Locally
- Supply Chain Improvement
- Export Market Development
- Strategic Marketing Plan for local branding initiative
- Improve produce quality out of region
- Improve on farm management systems
- Up skill on farm workers
- Traineeships and Apprenticeships in Horticulture Production Development
- Develop what best practice is on farm

Goal 3 Stabilise membership and continue to work towards a more unified industry locally and further afield

- Provide more services and expand the association
- Promote BDGA services to all growers and associations in the region
- Have a more professional approach as an association
- Providing more opportunities for BDGA to be involved in social activities

Goal 4 Be the first point of contact for all growers, government, industry and other stakeholders

- Build relationships and networks with key stakeholders, industry bodies and government
- Promote BDGA to industry through delivery of outcomes in projects and networking
- Provide quality information flow throughout the industry at all levels

Goal 5 To be a strong and cohesive organisation representing growers and the industry

- Delivering to members and industry in key output areas

Goal 6 Being a voice for all growers on major issues that effect this industry

- Build relationships and networks with growers, industry, key stakeholders and government
- Communicate and work with growers, networks, keys stakeholder and government to build respect
- Achieve outcomes and all of the above goals
- Support all growers

ACTION PLAN

Goals	Strategies	Action	By Whom	Time Measure
1.Continue to provide information flow and industry	Collecting and collating Information from within the industry and government to deliver information flow on <ul style="list-style-type: none"> - New Technology & Innovation - R&D project outcomes - Vegetable Industry Development Program 	- Regular Communication with Industry, Government and growers at all levels via phone, internet, newsletters, media releases, studies, meetings,	IDO	Ongoing

<p>development through employment of IDO</p>	<ul style="list-style-type: none"> - Regulation, Legislation, Policies, & Priorities - Industry body activities (local, state, national) - Workshops/Seminars/Forums/Training/Leadership - Business Management & Farm Management Systems (Water, Soil, Nutrient, Irrigation, Pesticide) - Sources of funding - Environmental Initiatives <p>Building relationships and networks with industry bodies, government (local, state and federal)</p> <p>Support BDGA in developing, managing and delivery of projects to support local growers and industry</p>	<p>forums, workshops, conferences, and seminars</p> <ul style="list-style-type: none"> -Build on and develop new networks -Collate information gathered from all sources and deliver to growers, government, industry as appropriate -Develop and collaborative manage projects specific to the needs of the industry 		
<p>2.Develop projects specific to the needs of the industry in this region and align with industry priorities</p>	<ul style="list-style-type: none"> - Pest & Disease - Supply Chain Locally - Supply Chain Improvement - Export Market Development - Strategic Marketing Plan for local branding initiative - Improve produce quality out of region - Improve on farm management systems - Up skill on farm workers - Traineeships and Apprenticeships in Horticulture Production Development - Develop what best practice is on farm 	<ul style="list-style-type: none"> -Work through industry priority areas -Align local projects needed with industry priority areas -Develop project proposals for funding support to deliver project outcomes in the areas needed -Work with industry to make sure there is no other cross over projects -Provide industry with the opportunity to be a part of these projects are a State or National 	<p>IDO</p>	<p>Ongoing</p>

		level		
3. Stabilise membership and continue to work towards a more unified industry locally and further afield	<ul style="list-style-type: none"> - Provide more services and expand the association - Promote BDGA services to all growers and associations in the region - Have a more professional approach as an association - Providing more opportunities for BDGA to be involved in social activities 	<ul style="list-style-type: none"> - Employ another project officer to deliver more services and projects - Build stronger networks 	IDO & BDGA Management Committee	The next 12 months / Ongoing
4. Be the first point of contact for all growers, government, industry and other stakeholders	<ul style="list-style-type: none"> - Build relationships and networks with key stakeholders, industry bodies and government - Promote BDGA to industry through delivery of outcomes in projects and networking - Provide quality information flow throughout the industry at all levels 	<ul style="list-style-type: none"> - Regularly maintain networks through communication mediums to deliver good information flow throughout the industry - Maintain communication channels such as subscriptions to newsletters, mailouts, and media releases to obtain as much information as possible 	IDO	Ongoing
5. To be a strong and cohesive	Delivering to members and industry in key output areas	<ul style="list-style-type: none"> - Continued regular communication with industry - Regular structured 	BDGA & IDO	Ongoing

<p>organisation representing growers and the industry</p>		<p>meetings with growers</p> <ul style="list-style-type: none"> - Members attending regular meetings - Providing good delivery of services to support growers needs - Promoting the benefits of membership - Gaining new members - Working with growers and industry to deliver solutions to issues - Providing good information flow and technology transfer 		
<p>6.Being a voice for all growers on major issues that effect this industry</p>	<ul style="list-style-type: none"> - Build relationships and networks with growers, industry, key stakeholders and government - Communicate and work with growers, networks, keys stakeholder and government to build respect - Achieve outcomes and all of the above goals - Support all growers 	<ul style="list-style-type: none"> -Working with growers, developing good relationships, promoting stability within the BDGA -Encourage growers to work together on major issues -Gain recognition within the industry as an association -deliver or facilitate workshops on major issues with industry bodies giving growers the opportunity to put their point of view forward 	<p>BDGA & IDO</p>	