InnoVeg Local Partnership Program - Coordinating collaborative & innovative industry development products

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RMCG

Project Number: VG09149

VG09149

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InnoVeg

Final Report

VG09149 - InnoVeg Local Partnership Program
- Collaborative and Innovative Industry Development Products

30 June 2012

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HAL Project Number:

VG09149 InnoVeg Local Partnership Program - Coordinating Collaborative and Innovative Industry Development Products

VG10117 InnoVeg – Tier 2 development products for delivery to the Vegetable Industry

Summary: One of the key components of the Vegetable Industry Development Program was the InnoVeg subprogram (VG09149 Coordination and VG10117 Tier 2 Delivery). This subprogram focused on coordinating collaborative and innovative industry development products and working collaboratively with industry organisations and service providers to deliver these to growers.

Funding: The project was funded by Horticulture Australia Limited (HAL) using the vegetable levy and matched funds from the Australian Government

Date: 30th June 2012

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Table of Contents

1 Summary

The InnoVeg subprogram aimed to deliver:

- A more profitable, sustainable and internationally competitive vegetable industry due to higher adoption of innovative technologies and improved collaboration by growers.

The planning phase of InnoVeg included:

- Extensive consultation with more than 60 individuals from 40 key stakeholders groups
- Review of industry demographics to determine the key regional areas of vegetable production and industry structure
- Review of extension theory and analysis of industry development models utilised in other agricultural industries
- Development of 10 guiding principles for the implementation of the InnoVeg sub-program.

The implementation phase included:

1. Development of packages of information to support growers on issues including:
    a. Business (Talking Business)
    b. Consumers and markets

The *Talking Business* suite of products initiated a change in culture and approach towards business decision-making within the vegetable industry. InnoVeg contributed to providing foundational information on marketing and supply chains and enabled the development of two accredited training programs.

2. Communication through the InnoVeg providers network and other avenues

InnoVeg provided a conduit for knowledge by working with industry via service providers, state organisations and growers and developing key information products.

3. Information and capacity building for Language Other Than English (LOTE) growers

The LOTE activities in NT and NSW filled an industry need and therefore generated a significant amount of grower enthusiasm and involvement. Participants in the Community of Practice benefited from improved communication and collaboration on LOTE specific issues.

4. Leadership development via the vegetable Graduate Alumni Industry Network (GAIN).

GAIN provided industry leadership graduates with an opportunity to continue their leadership journey and identified the enthusiasm of participants to contribute to the industry.

Conclusions

The key outcomes from the project included the:

- Increased capacity of industry in relation to business management and understanding of consumers and markets
- Potential to harness the knowledge and skills of service providers and state associations to promote knowledge to growers

- Need to have functioning grower groups with trusted facilitators to disseminate information and the requirement to invest time and effort into relationships
- Importance of translation of R&D information into knowledge that is relevant and useable for the grower and responds to the needs of industry
- Opportunity to utilise a range of methods to distribute information to growers including electronic, written and face-to-face and to target activities for specific groups.

Next Phase

It is critical that the lessons from InnoVeg are utilised in the implementation of the new Strategic Investment Plan through:

- Continuation of the business management and consumers and markets packages and promotion of existing resources (e.g. 'Talking Business' materials)
- Continued use and development of information that is relevant to an individual grower and the industry more broadly (e.g. access to Fact Sheets via website)
- Maintaining and building on the relationships that have been established with researchers, service providers, industry support staff (e.g. support for CIOs) and growers and ensuring continued communication (e.g. InnoVeg e-newsletter)
- Focusing on the diverse grower audiences and targeting extension programs that meet their needs (e.g. support for existing grower groups)
- Facilitating continued collaboration between individuals with common interests (e.g. industry leaders (GAIN) and LOTE support staff).

2 Introduction

2.1 Background

The goal of the *Vegetable Industry Development Program* was "to provide knowledge, tools and insights to decision makers to improve the competitiveness of Australian vegetable growers in domestic and international markets".

This was achieved by addressing a number of program objectives, as follows:

- **Program Objective 1:** A new generation of leaders are active in the industry
- **Program Objective 2:** Decision making in the industry is increasingly market driven
- **Program Objective 3:** Industry is more informed and understands the benefits and the qualities of Australian vegetable products, so as to optimise their path to market
- **Program Objective 4:** More growers are actively seeking to evolve their business models to meet new challenges posed by the market
- **Program Objective 5:** Findings and outputs from research are increasingly being applied by industry stakeholders in decision-making
- **Program Objective 6:** Industry is effectively using findings and outputs from research to formulate policy and manage the image of the industry
- **Program Objective 7:** Levy payers are better able to provide feedback into the National R&D system

2.2 Program structure

To achieve the goal and objectives, a structure involving a number of subprograms, along with a National Coordination role was utilised. Participating subprograms are detailed in Table 2-1 below.

Table 2-1: Vegetable Industry Development Program Subprograms

Project number	Project title	Organisation	Subprogram leader
VG08040	Economic Research Services for the Vegetable Industry	Industry Data Economic Analysis	Ian James
VG09144	Vegetable Industry Development program – National Program Coordination	Rural Directions Pty Ltd	David Heinjus
VG 09145	Vegetable Industry Development Program People Development Subprogram	Dianne Fullelove and Associates Pty Ltd	Dianne Fullelove
VG09146	Vegetable Industry Development Program Consumers and Markets Subprogram	Freshlogic Pty Ltd	Martin Kneebone
VG09147	Vegetable Industry Development Program Knowledge Management Subprogram	Freshlogic Pty Ltd	Steve Spencer
VG09149	InnoVeg Local Partnership Program-Coordinating Collaborative and Innovative Industry Development Products	RMCG	Dr Anne-Maree Boland
VG10117	InnoVeg – Tier 2 development products for delivery to the Vegetable Industry	RMCG	Dr Anne-Maree Boland
VG09161	AUSVEG Support to Vegetable Industry development Knowledge Management Subprogram	AUSVEG Ltd	Richard Mulcahy
VG09191	National Vegetable IPM Coordinator	Schofield Robinson Horticultural Services	Lauren Thompson

In addition to the above subprograms, a project titled "*Collaborative Industry Organisations Support to VIDP*" was established. This was managed by Vegetables Program Manager Horticulture Australia Limited, Kathryn Lee and delivered by the organisations detailed in Table 2-2 below.

Table 2-2: Organisations delivering the Collaborative Industry Organisations Support to VIDP

Project number	Project title	Organisation	Subprogram leader
VG10096	Collaborative Industry Organisations	Horticulture Australia Limited	Kathryn Lee
VG10097	Collaborative Industry Organisations – Queensland - Support to VIDP	Growcom	Margie Milgate
VG 10098	Collaborative Industry Organisations – New South Wales - Support to VIDP	NSW Farmers Association	Dr Alison Anderson Alicia Harrison
VG10099	Collaborative Industry Organisations – Victoria - Support to VIDP	Vegetable Growers Association of Victoria	Tony Imeson
VG10100	Collaborative Industry Organisations – Tasmania -Support to VIDP	Tasmanian Farmers and Graziers Association.	Nick Steel
VG10101	Collaborative Industry Organisations – South Australia - Support to VIDP	Virginia Horticulture Centre Inc	Mike Redmond
VG10102	Collaborative Industry Organisations – Western Australia -Support to VIDP	Vegetable Growers Association of WA Inc	John Shannon

The role of the Collaborative Industry Organisations Support project was to provide a conduit for outputs from each of the VIDP subprograms. Working with the InnoVeg subprogram the Collaborative Industry Organisations (CIOs) provided a delivery mechanism to industry for VIDP.

The remainder of this final report focuses specifically on the project VG09149 and VG10117, delivered by RM Consulting Group and a range of service providers.

2.3 History

The Vegetable Industry Development Program focused on "Industry Development" being:

"The process of informing and empowering those in horticulture to make better business decisions. It is characterised by services that:

- *Empower those involved in horticulture to make better business decisions*
- *Benefit growers from informed business decisions across the supply chain, including retail, wholesale service, supplier and logistics businesses*
- *Develop industry capacity through people and institutions".*

The vegetable industry had previously assessed its competitive position and the strategies required to achieve an improvement highlighting the critical need for investment in:

- Understanding consumers and competitors in target markets

- Global cost competitiveness and innovation and continuous improvement
- Developing a culture of collaboration on issues and opportunities.

A number of industry reviews described the priorities for the industry to remain competitive (Table 2-3).

Table 2-3: Summary of priority issues from industry surveys and reviews (Stirling 2010)

1. Understanding the target audience	Surveys of both vegetable producers and supply chain members identified that there needs to be a better understanding of the target audience to determine the best way to provide relevant, clear, and user-friendly information to the diverse audiences within the vegetable supply chain.
2. Encouraging producers to adopt a more business orientated approach	Service providers within the supply chain (suppliers, packers, retailers, nurseries) viewed competitiveness as not just improving the efficiency with which a grower produces a crop, but increasingly a business model which covers the producer's broader role and effectiveness across the value chain. A business orientated approach would involve consideration of all aspects such as financial controls and analysis, defining markets and expertise, packaging, branding and marketing – with whom and how they sell as well as possibly seeking to influence consumers.
3. Improved industry collaboration and creation of new partnerships across the whole of the supply chain	There is a general lack of collaboration both within and between all sectors of the vegetable industry supply chain which has led to a lack of information sharing and a 'silo' effect. There also appears to be a disconnect between the top and bottom of the supply chain. Improved collaboration (through networking and communication) within the supply chain will facilitate vertical integration and the ability of the producer to manage more sectors of the process.
4. Marketing of produce	Service providers believe that in order for producers to become more competitive, they need to market produce not just sell it. This includes promotion of vegetables so they are visible to consumers, using regions and evocative brand names as well as being educational on aspects such as the nutritional benefits, how to choose/buy, storage, and cooking. Producers felt that their management of environmental values should be communicated back to consumer and could be used to assist in the marketing of produce. To improve their environmental management and to facilitate sustainable practices, the producers surveyed indicated that additional information in this area would be helpful.
5. Overcoming the 'price taker' paradigm	Service providers described a section of producers as operating under an old paradigm of growing a crop and taking it to market for the prices available on the day. These 'price takers' are generally medium to small growers who do not 'pre-sell' their crops and therefore have little control over the prices they receive. Becoming more competitive will require these growers to adopt a whole new system of production, a more structured business model and new partnerships – something that larger producers have been able to achieve.
6. Innovations driving competitiveness	Review of the industry indicated that all producers are seeking insights and ideas to stimulate innovations relevant and beneficial to their business. Service providers believe that innovations which are noticeable by the consumer will drive the competitiveness of the industry. These could include: ▪ New varieties, packaging, merchandising or promotions (market based) ▪ Biological control and reduced use of chemicals (farm based) ▪ New mechanisation and/or greenhouse production
7. Provision of market/consumer information	Packers, processors, wholesalers and consultants all expressed a desire to receive more consumer based information, and information on commodity volumes by regions, to assist them in providing a better service.
8. Improving production efficiency (including reduction of input	In the current economic climate producers believe that there is still the opportunity to improve competitiveness through improving production efficiency and hence reducing input costs. Areas where assistance on-farm

costs)	was requested included: ▪ Reducing fertiliser use ▪ Managing reduced water availability ▪ Information on nutrient cycles and hydroponic systems
9. Increasing IT awareness	The industry survey indicated that producers are generally poor users of the internet, with one in three producers surveyed having never used the internet to obtain information for their business.

2.4 Objectives

The objectives of the InnoVeg subprogram included:

- National co-ordination and leadership to ensure the successful and innovative execution and delivery of the activities described in Tier 2 of the InnoVeg Sub Program
- Identify new individuals, networks and organisations that the VIDP can efficiently and effectively "wholesale" industry development products to. These service providers should be considered trustworthy and independent by industry
- Create and build partnerships with these new service providers to facilitate the "retailing" of industry development packages in their networks
- Develop a mechanism for industry and service provider feedback and input into levy funded R&D priorities for the vegetable industry
- Participate in IAC Working and Advisory Group meetings
- Inform the state organisations of individuals, networks and organisations not currently receiving industry communications and information in particular regions and/or socio-economic groups
- Use the outputs and products available from other HAL funded R&D (including VIDP) to provide capacity building opportunities within chosen service providers
- Manage the process for developing industry development packages for delivery by service providers.

The intended project outcomes were:

- A more profitable, sustainable and internationally competitive vegetable industry due to higher adoption of innovative technologies and improved collaboration by growers
- Stronger partnerships with the broader vegetable industry and its value chain
- Improved relevance and usefulness of information packages for growers
- Improved capacity to identify new networks to deliver targeted industry development to the diverse vegetable industry
- Improved capacity of new service providers that deliver packages to growers that meet their specific needs
- A research and development program responsive to industry and market needs.

The InnoVeg subprogram focused on:

a) Regional delivery - providing a new and reinforcing 'face' for VIDP by developing and facilitating new regional partnerships to ensure that:
    - Nationally available information is properly converted into relevant regional or industry specific packages utilising appropriate delivery formats
    - The wide diversity of grower communities, geographic regions and vegetable crops is tailored for, and the actual or perceived competition or synergies between regions, is understood and considered in the delivery approach.

b) Collaboration between sub-programs – focusing on the collaboration and working relationships between the VIDP sub-programs including:
    - Informing the proposed Collaborative Industry Organisations sub program of the type of information desired by growers and the best format for delivery of that information
    - Utilising existing communication channels and networks of the proposed Collaborative Industry Organisations sub-program
    - Informing the Knowledge Management sub program of the type of information desired by growers and the best format for delivery of that information
    - Promoting Knowledge Management products within the industry as a valuable source of information for growers and providing training in use of the Knowledge Management system
    - Assisting the People Development sub program by identifying individuals in the industry with leadership capacity and facilitating the development of capacity building activities within the chosen service provider organisations and their client networks
    - Assisting the People Development sub program with the implementation of Business Clubs in regional areas
    - Informing HAL, IAC and Advisory Groups on regional development needs and assist in the prioritisation of future R&D investment using information gathered from industry partner organisations.

3 Method

3.1 Consultation with industry

InnoVeg consulted with key stakeholders (state associations, state R&D organisations, IAC members and service providers) across Australia in May and June 2010 in order to:

- Validate regional needs and priorities
- Assess the capacity of state associations/R&D organisations to participate in the InnoVeg sub-program
- Identify other service providers in the region who could participate in the InnoVeg sub-program.

The consultation involved more than 60 individuals from 40 organisations including state and regional grower organisations, agronomists, individual growers, state departments and other industry participants.

The consultation enabled InnoVeg to identify service providers to 'retail' industry development packages to growers in their network. The discussions also involved raising awareness of the VIDP including:

- Outputs and outcomes from the VIDP program and how their organisation can use them
- How their organisation can be involved in the InnoVeg program
- The demographics of vegetable production within their state/region
- The main issues/priorities for future industry development in their state/region
- Current industry development programs conducted
- Key tools/information resources that are currently being utilised
- Other vegetable industry service providers in their region they think should be involved in the InnoVeg program.

A number of key issues were identified in each state, which are described in Table 3-1.

Table 3-1: Key issues identified during consultation with state representatives

Issue	WA	NSW	VIC	NT	QLD	TAS	SA
Pest and Disease Management	✔	✔	✔	✔	✔		
Reducing input costs	✔	✔	✔	✔	✔	✔	
Communicating with LOTE growers	✔	✔		✔			✔
Cost associated with market access (QA/environmental and recent ethical standard reporting)			✔		✔		
Access to registered chemicals					✔		✔
Ensuring compliance with sustainable farming practices (Freshcare and Chemcert)		✔		✔			
Post-harvest management (quality of product and consistency of supply)	✔	✔		✔		✔	✔
Attraction and training of young people (apprenticeship)			✔		✔	✔	
Availability and security of water	✔	✔	✔	✔	✔		✔
Labour (IR Laws) and OH&S	✔		✔		✔	✔	
Marketing (developing new markets, preventing loss of market share, methods for marketing product, market and consumer trends)	✔	✔	✔		✔	✔	
Supply / value chain management (understanding the supply chain and options available/transport)	✔		✔		✔	✔	
Land planning (urban encroachment)	✔	✔	✔				

3.2 Industry demographics

Vegetables are grown in all of the major horticulture regions of Australia (Figure 3-1). The annual value of the vegetable industry was estimated at $3.1 billion in 2006/7 and is divided into production of crops either undercover or outdoors.

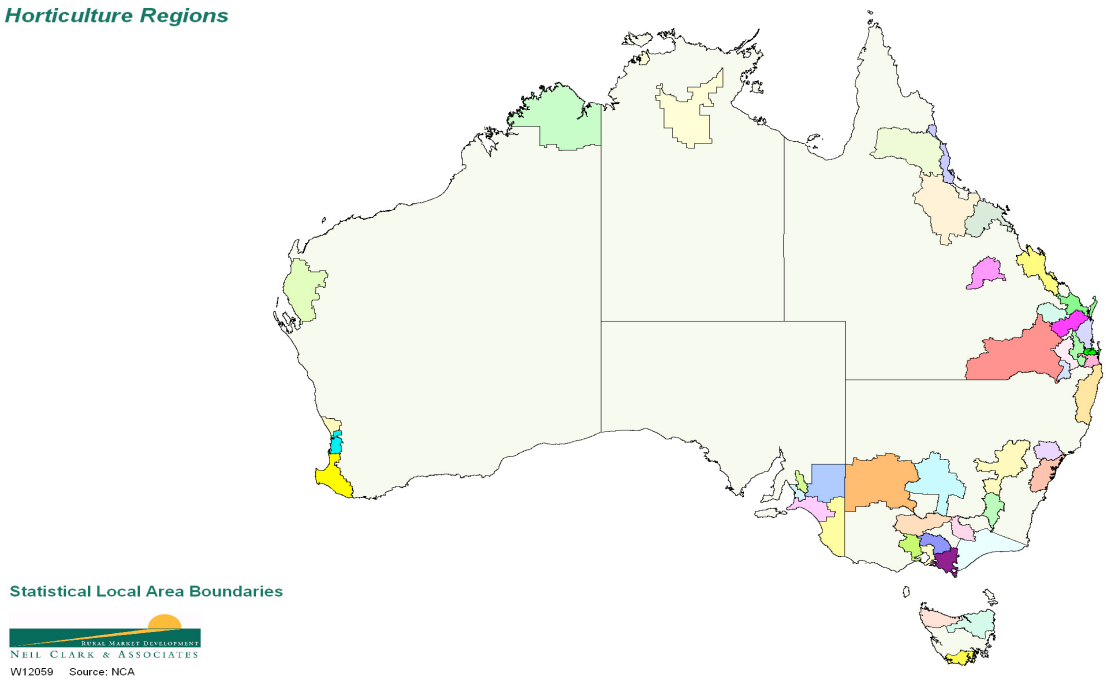


Figure 3-1: Horticulture Regions of Australia

The structure of the industry leans towards relatively small farms, with 72% of all vegetable farms on less than 100 ha. Despite this, there have been signs of consolidation among larger vegetable producers with the number of properties greater than 1,000 hectares in size increasing in recent years.

Available statistics from the Australian Bureau of Statistics and the Australian Bureau of Agriculture and Resource Economics were reviewed to identify:

- Highest value vegetable production areas in Australia
- Most valuable vegetable crops grown in Australia
- Profitability of vegetable growers within each state.

Based on preliminary analysis, vegetable crops identified as having potential for further development are lettuce, capsicums and Asian vegetables, due to their high unit value and relatively low current volumes of production. In particular, if greater mechanisation of harvesting could be achieved in lettuce crops it is likely that the gross value and farm gate value could be vastly improved.

Queensland and Victoria currently contain the largest acreages and highest value areas of vegetable production. However Western Australian producers were the most profitable in Australia, while growers in New South Wales, were amongst the least profitable in 2007/08.

3.3 Review of Extension

3.3.1 Extension theory

Traditionally, it has been assumed that 'innovators' in an industry will automatically adopt a new technology or practice and lead 'followers', while 'laggards' show a reluctance to adopt. A more recent model for adoption advocates that the motivation to adopt R&D and innovation will depend on the differing needs and circumstances (i.e. social/cultural context) of growers. Differences in circumstance mean that growers will adopt the same innovation for different reasons. In some cases, growers will not adopt an innovation because they perceive that the particular innovation will not meet their needs better than their current practices or pose a business risk. This suggests that there are different reasons for why all growers in an industry do not adopt an innovation or react to the same delivery methods.

It is therefore critical that we understand the farming context and the potential incentives for individuals within certain contexts to adopt a management practice and/or technology. Provided, there is an understanding of the key drivers and barriers for a particular issue, it will be possible to tailor capacity building programs and tools to the needs of the individual business.

There has been extensive social research into understanding why farmers adopt certain practices and technologies and the reasons for adoption or non-adoption (e.g. Black, 2000, Cary et. al. 2002). Extension theory was reviewed to assist in the development of the InnoVeg program.

Adoption, has been defined as '*the result of making full use of an innovation as the best course of action available'* (Rogers 1983). In agriculture, the term adoption has been used to define the uptake of agricultural practices and innovations and is targeted at the farmer or grower. One of the main theories of adoption is the innovation decision process developed by (Rogers 1983). Rogers uses a complex process model of change, through which an individual passes from first knowledge of an innovation to a decision of either adoption or rejection. Rogers (1983) describes the important characteristics of the innovation to include:

- Relative advantage
- Compatibility
- Complexity
- Trialability
- Observability.

The adoption of particular management practices and technologies depends largely on the:

- **Industry context** (e.g. industry profitability and limiting resources)
- **Farming context** (e.g. business fundamentals – equity, structure, succession, farming systems, irrigation infrastructure)
- **Personal attributes** (e.g. attitude to risk, propensity for change, motivations, values, skills, expertise).

The recognition that there is significant social diversity among farmers, that there are multiple methods to facilitate change and that there are good reasons for non-adoption are some of the key messages from a major review of agricultural extension by Vanclay (2004).

Extension programs therefore must consider the needs and circumstances of individuals and their different learning styles. The farming community is not homogeneous and extension programs need to be tailored to the varying priorities, understandings, values, ways of working and problems (Vanclay, 2004).

Making decisions in relation to changes in farming practices can be an extremely daunting and complex task. As the rate of change increases the ability to sift through information and adapt to the business situation becomes a valuable skill. Decisions are never made based on isolated pieces of information – rather they consider the whole farming system incorporating personal, financial and environmental aspects. It is critical to recognise that many farm decisions are complex where there are many difficult answers rather than simple (one right answer) or complicated (one difficult answer).

Dealing with this complexity requires a higher level of people skills (human capacity) in comparison to production issues that are often solved using technological developments. Farmers require the skills to assess the many options available in order to determine the most appropriate action to for their situation.

3.3.2 Industry models

In recent years other major agricultural industries have reviewed their stakeholders' needs and evaluated the success of previous industry development models. Review of industry stakeholders has identified similar needs and preferences to those identified by the vegetable industry. These include:

- Producers preferring to receive information through their personal networks and local service providers
- That new technology/practices need to be tailored to suit different regions and individuals
- Producers are becoming increasingly aware of the need to adopt a more business orientated approach to farming.

To assist in meeting these needs, a range of industries have focussed their research and development models on:

- Utilising trusted providers of information already existing within the industry to supply producers with information on research outcomes e.g. service provider networks
- Increasing awareness and motivation amongst producers to adopt new technology and/or management practices
- Providing support to build skills and capacity within producers and their communities to adopt better management practices and make better business decisions
- Understanding more deeply the motivations for adoption and non-adoption and designing programs tailored to specific needs and circumstances.

3.4 Proposed Model

The objectives, principles and potential work program for InnoVeg was drawn from the analysis previously described. The principles for the InnoVeg sub-program are provided in Table 3-2.

Table 3-2: Principles for delivery of the InnoVeg sub-program.

Principle	Description
1. Understand and respect the target audience	Extension programs must be targeted to the appropriate audience and address their specific motivations (*fit for purpose*). Understanding the audience includes an analysis of their different needs and circumstances, the decisions they find difficult, the assistance they require and how they use information. Assessment of the audience incorporates: ▪ Industry context ▪ Farming context ▪ Personal attributes. Extension programs should focus on groups of growers (market segments) where a specific need has been identified rather than using a 'blanket' approach for the whole grower group (*one size does not fit all*).
2. Segment the target audience and identify expected outcomes	It is likely that the biggest impact in improving the overall competitiveness of the vegetable industry will be achieved by working with the larger growers (i.e. top 20% of industry) who are also likely to be responsible for the majority of production. The needs of these growers, and the type of delivery program required to address these needs, is likely to be substantially different to that required by the other 80% of industry. It will be important to determine exactly what the issues are for these growers, and tailor a development program to address this, as well as assisting smaller growers to become more competitive.
3. Understand motivations for adoption of innovation	It is critical that extension programs are developed from a stand point of the farmer respecting their individual situation, views and motivations. An in depth understanding of the many technical and social factors which lead to a decision and the farmers background, needs and aspirations will ensure that growers perspective can be appreciated. It should be recognised that growers have good reasons for not adopting a specific innovation (practice and/or technology) and this is not necessarily limited by lack of knowledge. Adoption of an innovation may occur for a range of reasons relating to the individuals motivations – including social benefits such as labour saving, prestige, comfort and opportunities for recreation (not just finance). InnoVeg will need to understand where the current discontent/relative advantage is for growers and address this within development packages.
4. Ensure clarity of objectives/activities of InnoVeg and alignment with partners/target audience	Success of an extension program will be facilitated by clearly identifying the end goal or objective. Project activities should be planned that build the capacity of participants and enable them to work towards the overarching goal. Extension programs need to ensure that their messages are consistent with the motivations of the target audience. The program goal must align with the goals of growers otherwise they will not be interested in participating. Benefits for growers in participating need to be promoted with targeted messages for specific groups (messages that are relevant to their motivations and farming context). There is a need for a coordinated approach in extension programs to ensure that activities undertaken by partners are working towards similar goals. InnoVeg will need to ensure that it's objective of assisting the industry to become more competitive and profitable is aligned with the objectives of individual vegetable growers.

5. Utilise a range of extension methods/models	Extension programs need to incorporate a mix of extension methods (i.e. linear 'top down' transfer of technology and participatory 'bottom up' approaches). Utilisation of a range of extension methods/models will cater to the needs of different groups. *'Reach – in' extension*, where the focus is on the farmer and their experiences, rather than the information provided to the farmer will be preferred where the issues are identified as complex. This will assist in engaging growers in future research and development.
6. Consider range of different learning styles	Extension programs need to be developed incorporating a suite of activities suited to different learning styles. Storytelling and story listening, case studies and group discussions are effective means to learn.
7. Appreciate complexity of decision making	An appreciation of the complexity of farm decision-making will facilitate the development of successful extension programs. The focus of programs should be on striving for better decisions rather than best practice – given many decisions are complex and best practice implies there is only one way to achieve a desired outcome. Extension is important in facilitating the process for complex decision-making. The advisor or extension worker is often one of many people in the decision making process. One tool for assisting complex decision-making is story telling and case studies.
8. Focus on capacity building	As decisions become more complex there is a need for increased people skills and human capacity. Extension programs can support better decision-making by: ▪ Helping improve producers awareness and skills in the decision making process ▪ Developing intuition to improve decision making i.e. facilitating farmers ability by increasing their experience, discussion of and thinking about a particular area. There is a core need to build capacity of individuals to seek the relevant information and make the correct decisions for their individual situation.
9. Utilise trusted service providers with appropriate skills	Extension practitioners need to incorporate the adult learning principles into the activities of the programs to increase participation rates and establish a supportive learning environment. InnoVeg will utilise service providers that support, respect and really listen to the target audience. RMCG will provide, where required, training to assist service providers in active listening and effective questioning.
10. Adopt a flexible and responsive approach	InnoVeg will employ an iterative process to determine grower issues and needs and address these within development packages. Sufficient flexibility within the model will allow InnoVeg to respond to emerging issues as required. This will be facilitated by: ▪ Delivery partners regularly meeting with growers to determine needs and priorities ▪ Contractual arrangements with delivery partners will be arranged so that extension activities are paid on a performance basis i.e. per workshop or meeting. ▪ Regular and on-going communication between researchers, service providers and growers Evaluation is critical for the on-going adaptation and continued success of any extension program. InnoVeg will regularly survey vegetable growers to determine if program objectives are being achieved and adapt the program in response to these findings.

3.5 Proposed Work Plan

Based on the consultation and analysis, a work plan was developed to deliver on the objectives of InnoVeg and the VIDP more broadly. The InnoVeg work plan was proposed to consist of five key projects, which are described below.

3.5.1 Project 1: Development of InnoVeg Information Packages

Three priority focus areas for InnoVeg information packages were identified for development. The three priority focus areas were markets, business management and crop and resource management (Table 3-3). The development of information packages involved the conversion of current R&D material into a more useable format for delivery to growers.

Table 3-3: Priority Focus Areas for InnoVeg Information Packages

Priority Focus Area	Component
Markets	Supply chain management
	Market and consumer awareness
	Networking and strategic alliances
Business Management	Financial and operational management incorporating progression planning
	People management
	Research and technology adoption
Crop and Resource Management	Pest and disease management
	Agronomy
	Water management
	Soil management
	Climate change and carbon management
	Protected cropping

Development of these packages of information was undertaken by project team members and additional service providers funded through the InnoVeg Tier 2 budget.

3.5.2 Project 2: InnoVeg Providers Network

This project aimed to provide a support and networking function to industry service providers. Support provided to service providers included:

- Training on the outputs from VIDP (i.e. the Knowledge Management website, IPM and Veginsights/Quarterly Report)
- Access to latest R&D information and other relevant information via an e-newsletter
- Opportunities for networking with other service providers
- Provision of a national focus/coordination which will assist in sign-posting service providers to other information sources and support as required
- Mechanism for service providers to provide feedback to InnoVeg on the effectiveness of delivered packages and on future regional R&D needs.

The project was initiated to ensure that service providers regularly interacting with vegetable growers:

- Had access to the latest R&D information which they could then disseminate to growers in their network
- Had an opportunity to network thus promoting a more cohesive and collaborative industry
- Could provide feedback to the VIDP on the effectiveness of packages and on regional R&D needs.

Many participants of this program were identified through the state consultation.

3.5.3 Project 3: Supporting Advancing Growers (SAG)

This project aimed to support those growers looking to advance their business. It was envisaged that development packages be delivered to these growers through small grower groups, and where possible through groups that are already established. The content of packages delivered to this segment of the audience would be informed by the groups themselves, however it is envisaged that packages that assist growers with complex decision making relating to their business would be the prime focus such as:

- Understanding markets, consumers and the supply chain
- The establishment of strategic alliances to increase value-adding opportunities and management of the supply chain
- Progression/succession planning and management of change and risk
- Improving financial/business management through training and benchmarking activities.

These growers were included in development and road-testing of material of *Talking Business* and *Consumers and Markets* activities.

3.5.4 Project 4: Addressing Product Quality and Safety

Industry consultation across Australia highlighted a number of issues relating to product safety and quality occurring within the community of *Language Other Than English* (LOTE) growers. These include poor understanding of:

- Best practice chemical usage
- Post-harvest management of product
- Environmental stewardship.

A number of reasons for this were identified including:

- Poor communication between LOTE growers and the rest of the industry
- Lack of regulatory drivers (most of the growers supply direct to the market without needing to comply to a quality assurance program)
- Disconnect within the supply chain between production and retail
- Short-term view of industry.

These issues have the potential to affect the viability and reputation of the whole industry.

InnoVeg sought to engage service providers with bi-lingual skills and existing relationships with LOTE growers. On a national level, material was developed that could be regionally delivered through service providers currently working with this community. Where existing LOTE projects were being conducted, there would be benefits in connecting these into a national program through the InnoVeg Providers Network.

3.5.5 Project 5: Club Veg/Best Veg

This project was designed to meet the needs of growers within the top 20% of industry. These industry leaders identified that they were:

- Seeking information on the latest R&D to meet the needs of their business
- Comfortable and regular users of the internet and electronic means of communication but would welcome assistance in using relevant websites
- Often conduct their own on-farm R&D
- Regularly use private consultants.

It was planned to identify and invite these growers to form a national 'club' or network of approximately 50 to 100 members. While membership would be invited, no grower who wished to participate would be excluded.

This project as initially envisaged did not proceed. The program was adapted to focus on industry leaders.

4 Activities and Evaluation

Following consideration by the Industry Advisory Committee and HAL it was decided to focus on the following areas:

1. Development of packages of information to support growers on issues including:
    a. Business (Talking Business)
    b. Consumers and Markets.
2. Communication through the InnoVeg providers network and other avenues
3. Information and capacity building for Language Other Than English (LOTE) growers
4. Leadership development via Vegetable Industry Alumni (GAIN).

These programs were funded through Tier 2 of InnoVeg and are described in more detail in Figure 4-1.

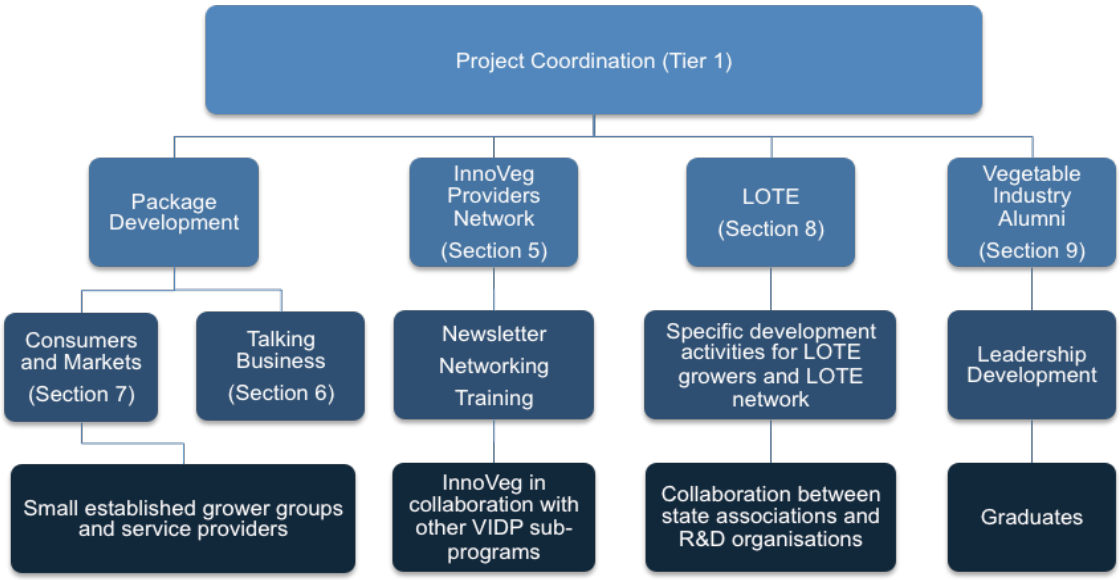


Figure 4-1: Description of implementation and activities and connection to project report

Chapters 5 to 9 of this report provide details of the activities undertaken and an evaluation of these activities in each of these broad areas of work.

Chapter 5 – Information Provision and Facilitation of InnoVeg Providers Network

This section summarises the knowledge management aspects of the project, which included:

- Development of information products (fact sheets, brochures)
- Communication with the service provider and grower sectors via e-newsletter
- Engagement with industry through state associations and convention activities
- Signposting industry to important information and knowledge sources.

Chapter 6 – Talking Business

This section describes the activities to improve understanding of business aspects through:

- Consultation with growers on key business decisions
- Development of materials describing the important decision-making process
- Mentoring of service providers to discuss business management
- Workshops with service providers and growers.

Chapter 7 – Consumers and Markets

This section focuses on the collaboration between InnoVeg and Consumers and Markets subprograms, specifically, the:

- Preparation of training materials for growers and service providers.

Chapter 8 – LOTE

This section highlights the activities undertaken through:

- Pilot programs in New South Wales and Northern Territory
- Establishment of a LOTE Community of Practice.

Chapter 9 – Industry Leadership

This section describes the activities undertaken to build on existing leadership programs with the:

- Establishment of an industry alumni (GAIN)
- Development of materials to assist in the leadership journey.

5 Information Provision and Facilitation of InnoVeg Providers Network

5.1 Overview

The VIDP was devised to help growers build their businesses and remain competitive in an increasingly market driven and globalised industry. The VIDP aims to collate key findings from research projects and other sources and deliver this information to business decision makers in a format they can use.

One of the aims of the InnoVeg sub-program was to develop and maintain relationships with a variety of researchers, industry support staff and service providers across Australia to ensure vegetable producers have multiple ways to access, obtain and apply relevant R&D information.

The InnoVeg sub-program has undertaken a range of activities to connect and engage across the industry for the duration of the VIDP. These activities included:

- Communication with growers, industry support staff, researchers and service providers through the monthly VIDP e-newsletter (InnoVeg e-newsletter)
- Development of information products (Fact Sheets)
- Signposting industry to important information and knowledge sources (Handy Hints)
- Engagement with the vegetable industry through state associations and convention activities (Industry Engagement).

5.2 Activities

5.2.1 InnoVeg e-newsletter

The InnoVeg e-newsletter was designed to provide a support and networking function to industry service providers. The e-newsletter aimed to ensure that service providers regularly interacting with vegetable growers had access to the latest R&D information that they could then disseminate to growers in their network.

The e-newsletter provided the latest information on:

- Recent activities and outputs from the VIDP which will benefit the vegetable industry
- Outcomes from current and recently completed Research, Development and Extension (RD&E) projects
- RD&E activities for the vegetable industry across Australia.

Content for the InnoVeg e-newsletter was drawn from the VIDP sub-programs, collaborative industry organisations (CIOs), and vegetable industry research and development professionals.

5.2.2 Fact Sheets

A range of fact sheets have been prepared by the InnoVeg sub-program to:

- Respond to gaps in knowledge identified by industry
- Communicate complex research findings to industry in a format that can be used to inform decision making.

Many of these fact sheets were prepared in conjunction with other VIDP sub-programs which offered appropriate skills and expertise including the:

- Economics sub-program for the development of fact sheets on state vegetable industry statistics
- IPM Coordinator in resourcing the development of the 'Mega Pest' fact sheet series
- People Development sub-program for the development of a succession planning fact sheet.

5.2.3 Handy Hints

Handy Hints for Vegetable Growers – A Resources Guide was developed to signpost important information and knowledge sources to the vegetable industry.

The Handy Hints brochure summarises useful resources for vegetable growers in five focus areas - pest and disease management, production management, people management, resource management and business management. The resources include fact sheets, booklets, user guides and online programs.

The content of the Handy Hints brochure was drawn from:

- VIDP products and resources
- Government departments (e.g. QLD Department of Employment, Economic Development and Innovation, NSW Department of Primary Industries)
- HAL research projects
- Industry and state associations
- Peak bodies (e.g. AUSVEG).

5.2.4 Industry Engagement

AUSVEG Convention

InnoVeg has coordinated a VIDP booth at the AUSVEG Convention Trade Show in 2011 and 2012.

The Trade Show has been used as an opportunity to engage with industry and promote the outputs of the VIDP, specifically:

- InnoVeg Fact Sheets
- InnoVeg e-newsletter
- InnoVeg *Talking Business* - Business Cases and Case Studies

- R&D Knowledge Management System
- Veginsights publications
- Vegetable spotlights publications.

The Trade Show has also provided a useful opportunity to gather feedback on VIDP products and projects from growers, industry support staff, researchers and service providers.

CIOs

InnoVeg collaborated with the CIO sub-program on behalf of the VIDP. InnoVeg engaged with CIOs on a regular basis through formal teleconferences and meetings and through the implementation of InnoVeg projects.

5.3 Outputs

5.3.1 InnoVeg e-newsletter

The InnoVeg e-newsletter was developed and delivered to the vegetable industry on a monthly basis from December 2010 to June 2012. A total of 17 monthly newsletters have been delivered to an average of 230 recipients (Table 5-1).

Table 5-1: Recipients of the InnoVeg e-newsletter

VIDP Newsletter No.	VIDP Newsletter Month	No. of Recipients
1	December 2010	75
2	January/February 2011	79
3	March 2011	189
4	April 2011	198
5	May 2011	248
6	June 2011	239
7	July 2011	264
8	August 2011	270
9	September 2011	269
10	October 2011	267
11	November/December 2011	263
12	January 2012	260
13	February 2012	257
14	March 2012	256
15	April 2012	257
16	May 2012	257
17	June 2012	257

The distribution list for the e-newsletter was initially comprised of vegetable growers, state associations, researchers and industry support staff. In March 2011, approximately 100 vegetable industry services providers were added to the distribution list. The e-newsletter was also promoted at the 2011 AUSVEG convention, where a further 50 recipients were added to the distribution list.

A link to the InnoVeg e-newsletter has also been included in the AUSVEG weekly update since January 2012.

An analysis of the VIDP e-newsletter distribution has revealed the following trends:

- Peak interest in the VIDP e-newsletter was at the beginning of the e-newsletter's distribution (57% of recipients opened the e-newsletter)
- General ongoing interest appears to have levelled to approximately 30% of recipients opening the e-newsletter
- Recipients have shown particular interest in a number VIDP outputs which have been promoted through the VIDP e-newsletter. This interest is demonstrated by the number of recipients who have clicked on a link contained within the newsletter. VIDP outputs of particular interest have included:
    - Soil Health Fact Sheet – InnoVeg Fact Sheet
    - Gross Margins Using VegTool – InnoVeg Fact Sheet
    - Guide to Weed Control in Brassicas – InnoVeg Fact Sheet
    - Handy Hints for Vegetable Growers – InnoVeg Fact Sheet
    - Business Cases and Case Studies from the InnoVeg Talking Business project.
- Of the people who opened the email, the vast majority were from Australia, with the highest concentration of users in Victoria and southern NSW. However, there are also a good number of users consistently accessing the newsletter from the central and northeast coast up to Queensland, with a lower proportion accessing from other states in Australia
- Each month, several users from outside Australia show interest in the Australian vegetable market; people from all over Europe and the UK, South-East Asia, Japan and particularly America are regularly accessing the VIDP e-newsletter.

All InnoVeg e-newsletters have been published on the AUSVEG website.

http://ausveg.com.au/rnd/newsletters.htm

Appendix 2: Example of InnoVeg e-newsletter

5.3.2 Fact Sheets

InnoVeg has developed a total of 31 fact sheets during the Vegetable Industry Development Program, which can be divided into eight main categories:

- Vegetable industry Development Program Overview
- Business Management
- Consumers and Markets

- Economics
- People Management
- Pest and Disease Management
- Production Management
- Resource Management.

The title and a brief description of each fact sheet is provided below in Table 5-2.

Table 5-2: InnoVeg fact sheets

No.	Title	Summary
Vegetable Industry Development Program Overview		
1	Accessing Useful Resources On-line	This fact sheet is designed to assist growers to access useful information on-line. In particular it describes how to access and use the Research and Development (R&D) database.
2	Overview of the Vegetable Industry Development Program	This fact sheet provides a broad overview of the Vegetable Industry Development Program and the eight sub-programs that comprise it.
3	Vegetable Production in New South Wales	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in New South Wales.
4	Vegetable Production in Queensland	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in Queensland.
5	Vegetable Production in South Australia	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in South Australia.
6	Vegetable Production in Tasmania	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in Tasmania.
7	Vegetable Production in the Northern Territory	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in the Northern Territory.
8	Vegetable Production in Victoria	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in Victoria.
9	Vegetable Production in Western Australia	This fact sheet provides information on the types of vegetables grown and the value of and area used for vegetable production in Western Australia.
10	Current Vegetable Research, Development and Extension Projects	This fact sheets lists current research, development and extension projects that have been funded using the National Vegetable Levy and matching Australian Government funds. Projects have been grouped according to a broad focus area and a more detailed research topic.
Business Management		
11	Business Decision Making	This fact sheet describes the key factors that need to be considered when making business decisions.

12	Business Management Thinking Through the Numbers	This fact sheet provides some simple tools and methods to encourage better decision-making.
13	Gross Margins Using VegTool	This fact sheet has been designed to explain gross margins and the benefits of gross margin analysis, and how to use the 'VegTool' as a method to complete a gross margin analysis for your particular vegetable growing enterprise.
Consumers and Markets		
14	Consumers and Markets Overview	This fact sheet provides an introduction to the Consumers and Markets sub-program products and the Australian vegetable market. It includes statistics on the volume and value of vegetables sold in the Australian market, the channels used to distribute vegetable products to consumers and vegetable product categories.
15	Collation of Vegetable Category Profiles	Vegetable Category Profiles provide a concise summary of the key supply and market facts for the featured vegetable.
16	The 'Everyday' Health Benefits of Vegetables	This fact sheet provides an overview of the guidelines for the communication of education information about the everyday health benefits of specific vegetables/groups of vegetables.
Economics		
17	Collation of Vegetable Spotlights	Vegetable Spotlights provide in-depth analysis of selected Australian vegetable crops through analysis and interpretation of data collected by the Australian Bureau of Statistics.
People Management		
18	A Smooth Transition - navigating your way through the family business	This fact sheet describes the processes and structures required to facilitate successful succession in the family business.
Pest and Disease Management		
19	A Guide to Effective Weed Control in Australian Brassicas	This fact sheet provides a guide to integrated weed management in Australian Brassicas. It provides an overview of weed management methods in these crops based on research conducted for Horticulture Australia Limited.
20	Managing Pesticide Resistance	This fact sheet describes the basic principles for managing pesticide resistance.
21	Mega Pests The Basics of Protecting Your Crops	This fact sheet provides an overview of Integrated Crop Protection (ICP).
22	Mega Pests Managing Foliar Diseases	This fact sheet summarises the information needed to start on the sustainable management of some difficult foliar threats to crops.
23	Mega Pests Managing Major Chewing and Biting Insects	This fact sheet focuses on Integrated Crop Protection for chewing and biting insects.
24	Mega Pests Managing Soilborne Diseases	This fact sheet is designed to help inform growers of the dangers of soilborne diseases as well as protection methods against them.
25	Mega Pests Managing Sucking Pests	This fact sheet summarises the information necessary to sustainably manage sucking pests in crops.
26	Plant Biosecurity	This fact sheet outlines a number of simple activities that vegetable growers can do to reduce the threat of new pests entering and

		establishing on farm.
27	Spray Application Basics	This fact sheet outlines the basics of spray application to maximise the amount reaching the target and minimise the amount reaching off-target areas.
28	Why Cleaning Spray Tanks is Important	This information sheet provides the fundamentals of why and how to clean spray tanks.
Production Management		
29	Post Harvest Management for Vegetables	This fact sheet provides information on post harvest management – maintaining quality from production in the paddock to the vegetables being placed on a plate for consumption.
30	Soil Health	This fact sheet explains the importance of soil health and provides some simple methods for identifying and assessing components of soil health.
Resource Management		
31	Climate Change Managing Variability and Carbon	This fact sheet outlines the greenhouse effect and provides resources on reducing vulnerability to climate change and calculating carbon emissions.

The Mega Pest Fact Sheet series was reviewed and updated in April 2012 to incorporate the latest R&D findings. This review involved industry experts.

All InnoVeg fact sheets have been published on the AUSVEG website and promoted through the InnoVeg e-newsletter. Hard copies have also been distributed to the vegetable industry through CIOs and at the 2011 and 2012 AUSVEG Conventions.

http://ausveg.businesscatalyst.com/rnd/fact_sheets.htm

Appendix 3: Example of InnoVeg Fact Sheets

5.3.3 Handy Hints

Handy Hints for Vegetable Growers: a resources guide was published on the AUSVEG website in December 2011 and publicised in the November/December InnoVeg e-newsletter. Hard copies were also distributed to the vegetable industry with the Vegetables Australia magazine (5,800 copies). 700 hard copies have also been distributed to CIOs and at the 2012 AUSVEG Convention.

http://ausveg.businesscatalyst.com/rnd/handyhints.htm

Appendix 4: Handy Hints for Vegetable Growers: a resources guide

5.3.4 Industry Engagement

AUSVEG Convention

InnoVeg attended the AUSVEG Convention in 2010 and coordinated a VIDP booth at the AUSVEG Convention Trade Show in 2011 and 2012.

The AUSVEG Conventions have attracted close to 3,000 delegates over the three years.

CIOs

InnoVeg projects that have been conducted in partnership with the CIO sub-program include:

- Implementation of Addressing Product Quality and Safety for LOTE Growers of the Vegetable Industry – NSW and NT
- LOTE Community of Practice – QLD, NSW, VIC, SA, WA, NT
- Implementation of Talking Business – QLD, WA, NSW, TAS
- Consumers and Markets Vegetable Marketing and Supply Chains short course pilot - VIC
- Distribution of resources (Fact Sheets, Handy Hints, Lettuce IPM, Category Profiles, Vegetable Spotlights, Business Cases, Case Studies) – QLD, NSW, VIC, TAS, SA, WA, NT.

5.4 Outcomes

The project resulted in:

- R&D information delivered to growers in a format that they can use to inform decision-making
- Relevant and important R&D information and knowledge sources easily accessible to growers, industry support staff, researchers and service providers
- Stronger communication and relationships with ~250 researchers, industry support staff and service providers across Australia.

5.5 Highlights

InnoVeg provided a conduit for development of knowledge and its adoption through working with industry via service providers and state organisations and growers.

The materials produced were positively received by industry and provide an enduring legacy.

A recent survey conducted at the 2012 AUSVEG Convention found that 92% of respondents who had accessed InnoVeg fact sheets regarded them as useful or very useful (survey conducted as part of VG09144).

6 Talking Business

6.1 Overview

The results of an extensive review conducted in 2008 of vegetable producers and other key industry stakeholders identified '*encouraging producers to adopt a more business oriented approach*' and '*overcoming the 'price taker' paradigm*' as priorities for increasing the competitiveness of vegetable producers in the Australian vegetable industry. Data collected by ABARE in 2008-2009 also indicated that there was a need for vegetable growers to consider the future viability of their business with:

- Individual business profits down
- Larger scale farming operations having greater capacity to absorb increased operating costs.

Encouraging producers to adopt a more business oriented approach

Service providers within the supply chain (suppliers, packers, retailers, nurseries) viewed competitiveness as not just improving the efficiency with which a grower produces a crop, but adopting a business model which covers the producer's broader role and effectiveness across the value chain. They indicated that producers need to take a more business-oriented approach to their farms and no longer simply focus on the production issues. A business-oriented approach would involve consideration of all aspects such as financial control and analysis, defining markets and expertise, packaging, branding and marketing (including identification of customers, how they sell as well as possibly seeking to influence consumers).

The survey indicated a disconnect between what producers are saying they want in terms of information and what they require to become more professional. While they acknowledge that there is little more efficiency to be achieved, or cost savings to be made, from further improvement in production practices, the majority of producers surveyed still nominated information on production (pest control, equipment, weather forecasting) and marketing as the type of information they needed to help them make better business decisions. This is primarily due to growers falling back to on-farm activities which they feel are more immediate and they have greater control over. However, the producers surveyed also nominated education and training in becoming 'more commercially savvy' and 'moving up the supply chain' as providing the greatest assistance in helping them become more competitive.

Overcoming the 'price taker' paradigm

Service providers described a section of producers as operating under the old paradigm of growing a crop and taking it to market for the prices available on the day. These 'price takers' are generally medium to small growers who do not 'pre-sell' their crops and therefore have little control over the prices they receive. Becoming more competitive will require these growers to adopt a whole new system of production, a more structured business model and new partnerships – something that the larger producers have been able to achieve.

Improvement in competitiveness will be in a variety of concepts that will overcome the 'price taker' paradigm. This could be potentially achieved by:

- Having sufficient scale to sell to supermarkets on long term agreements
- Investing in technology to achieve price points or particular quality levels
- Focusing on niche markets.

Considering the future viability of the business

The proportion of Australian vegetable farms with negative business profit was 55% in 2008-2009, ranging from 34% in Western Australia to 73% in New South Wales. These figures indicate that a high proportion of vegetable growers earn small incomes and incur a significant opportunity cost by remaining in the industry. Hired or contracted labour remains the major cost for vegetable growers, who are more exposed to labour costs than other agricultural industries. This has led to a strong focus on mechanisation where possible both in the field and within packing operations. Continued research and development in this area will be vital to maintaining cost effectiveness within the vegetable industry in Australia.

The financial data for 2008-2009 confirms the findings of previous surveys, in that scale of operations impacts on financial performance. The rate of return for growers with less than five hectares under vegetables was -1.1% while the largest growers had positive rates of return on capital of 9.2%.

Given these figures, it is timely for many vegetable growers to consider the future viability of their business. This requires thinking through some of the difficult decisions associated with either restructuring what they do, relocating their business or retiring.

To address the issues described above and with a focus on increasing the competitiveness within the vegetable industry, InnoVeg aimed to develop a series of resources and deliver activities to assist vegetable growers with:

- The management of their finances
- Understanding how their business is performing
- Management of their business into the future.

Building an industry that has a strong focus on business management and not just production will be a long, possibly generational, process. The activities outlined in this process are just the first steps to be built on by future development programs.

6.2 Activities

6.2.1 Consultation

InnoVeg worked collaboratively with industry service providers (such as state vegetable associations and R&D organisations) to develop and implement this package for interested grower groups within their networks.

The development of this material drew upon the expertise of industry service providers and where required, the process was also used to ‘up-skill’ providers who wanted to improve their business management skills.

The development of the resources and delivery of this project occurred in partnership with service providers in Tasmania, Queensland, New South Wales and Western Australia. Partners included:

- Andrew Heap, Vegetable Industry Facilitator for the Tasmanian Farmers and Graziers Association (Tasmania)
- Clinton McGrath, Industry Development Officer for Department of Employment, Economic Development and Innovation (Queensland)
- Alison Anderson, Senior Policy Advisor, New South Wales Farmers Association (New South Wales)
- John Shannon, Policy and Program Manager for Vegetables WA (Western Australia).

The consultation process involved meeting with organisations, leading growers and advisors. More than 30 growers and advisors were consulted.

6.2.2 Business Cases

InnoVeg resourced the development of a series of example Business Cases for common business decisions faced by vegetable growers as part of the Talking Business pilot project.

The topics for the Business Cases were defined through discussions with industry service providers and growers ranging in production size and enterprise type around Australia. The Business Cases were based on common issues identified through the discussions (i.e. what business decisions are troubling growers most?).

The example Business Cases were based on real business decisions using real numbers and followed a practical decision-making process that vegetables growers could apply to their own situation.

This information is designed to assist growers with:

- Financial planning
- Managing risk
- Calculating costs, prices and profits
- Monitoring financial performance.

6.2.3 Case Studies

InnoVeg also resourced the development of a series of case studies which outline and discuss the characteristics of different business models. The case studies focus on the components within each business that help determine success and profitability (including innovation and planning).

Information provided in the case studies is designed to assist growers to:

- Understand costs of production
- Identify the key factors affecting business performance
- Identify best practices
- Identify key indicators to measure performance

- Determine the financial viability of different business models.

6.2.4 Mentoring

The example Business Cases and Case Studies were developed in collaboration with service providers and industry support staff through a mentoring process coordinated by InnoVeg.

Interested service providers were involved in the development of the example Business Cases and Case Studies. By being involved in the process, service providers and industry support staff improved their knowledge and skills in business management in the vegetable industry.

6.2.5 Workshops

InnoVeg trialled the example Business Cases and Case Studies with existing groups of vegetable growers in Queensland, New South Wales and Western Australia. The resources were tested with the groups using a discussion group format, which encourages growers to share their business management experiences and issues, learn from each other and work collaboratively to solve problems.

The discussion groups were also beneficial for gathering feedback on the resources for further refinement.

6.3 Outputs

6.3.1 Business Cases

InnoVeg has supported the development of ten Business Cases through the Talking Business program.

The title and a brief description of each Business Case is provided below in Table 6-1.

Table 6-1: Business Cases developed through the Talking Business project.

No.	Title	Summary
1	Buy a Truck or Use a Contractor?	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates two scenarios: ▪ Should I buy a truck and do my own cartage? ▪ Should I sell my truck and use contractors?
2	Capsicum Grader	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Is it worth buying a new automated capsicum grader?
3	Developing a Block of Land for Vegetable Production	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Should we invest in developing a block to expand our enterprise?

4	IPM in Lettuce	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ How much do I need to reduce crop damage to justify the extra costs of higher priced chemicals and a crop scout?
5	Lettuce Planter	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Is it worth buying two new planters? (Will the new machines be cheaper to own and operate when compared to the existing machines?)
6	Property Relocation Part A	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Should I expand production to a new area or to relocate the existing farming activities to a new property?
7	Property Relocation Part B	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Should I expand production to a new area or to relocate the existing farming activities to a new property?
8	Tractor Replacement	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates two scenarios: ▪ Should I replace the old tractor and keep the contractors? ▪ Should I buy a new tractor, keep the old one and save on contractors?
9	New Irrigator	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Should I purchase a new lateral move irrigator in addition to the existing two lateral move irrigators?
10	Expansion Through Vertical Integration	A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. This business case investigates the following scenario: ▪ Should I expand the business activities through additional sorting and packaging into small packages for sale to existing wholesale and retail market places?

InnoVeg has promoted the Business Cases from the Talking Business program through two feature stories in the Vegetables Australia Magazine:

- Planting seeds of thought – Lettuce Planter Business Case – Janurary/February Edition 2012
- Discussion better business – Overview of the Talking Business program – March/April Edition 2012.

All Talking Business Business Cases have been published on the AUSVEG website and promoted through the InnoVeg e-newsletter. Hard copies have also been distributed to the vegetable industry through CIOs and at the 2012 AUSVEG Convention.

http://ausveg.com.au/rnd/businesscases.htm

Appendix 5: Example of Talking Business Cases

6.3.2 Case Studies

InnoVeg has supported the development of eight Case Studies through the Talking Business project.

The title and a brief description of each Case Study is provided below in Table 6-2.

Table 6-2: Business Cases developed through the Talking Business project.

No.	Title	Summary
1	What Drives the Economy	This fact sheet provides a brief explanation of four key economic variables, how these variables interact and what a grower may need to consider in assessing the impact that they can have on their vegetable growing business.
2	Building a Sound Vegetable Growing Business	This case study aims to describe how well managed businesses are run. The case study is based on discussions with a range of successful vegetable growing businesses in New South Wales, Queensland, Western Australia and Tasmania.
3	Direct Sales and Food Safety	This case study explores the benefits and considerations for vegetable growers who might be considering direct sale of their produce to the public. It describes the issues and calculations the grower has to consider, in order to make good decisions about how to pursue a direct sales business.
4	How is Our Business Going	This case study was written to help vegetable growers understand their businesses better. It aims to simplify the process of analysing the financial performance of the business.
5	Using Cost of Production for Decision Making	This case study shows how calculating cost of production can be used to help vegetable growers make decisions.
6	Vegetable Supply Agreements	This case study is designed to help vegetable growers understand the risks and requirements of entering into a Vegetable Supply Agreement (Contract) with processors, rather than selling produce through the existing wholesale markets.
7	Labour Management	This case study is designed to help vegetable growers understand the key aspects of employing staff and labour management in their business to achieve positive outcomes.
8	Exiting the Industry	This case study aims to help vegetable growers understand the key aspects of creating and adopting an exit strategy to achieve the best outcome for their business.

All Talking Business Case Studies have been published on the AUSVEG website and promoted through the InnoVeg e-newsletter. Hard copies have also been distributed to the vegetable industry through CIOs and at the 2012 AUSVEG Convention.

http://ausveg.com.au/rnd/businesscases.htm

Appendix 6: Example of Talking Business Case Studies

6.3.3 Mentoring

InnoVeg worked successfully with three delivery partners throughout the Talking Business mentoring process. These delivery partners were mentored through the development of the Business Cases and Case Studies and trained to deliver Talking Business workshops with their grower groups. Mentees included:

- John Shannon and Sarah Houston, Policy and Program Manager and Field Extension Officer for Vegetables WA (Western Australia)
- Clinton McGrath, Industry Development Officer for Department of Employment, Economic Development and Innovation (Queensland)
- Alison Anderson, Senior Policy Advisor, New South Wales Farmers Association (New South Wales).

6.3.4 Workshops

InnoVeg ran a total of eight workshop/discussion group sessions over the duration of the Talking Business project. These sessions are described below in Table 6-3.

Table 6-3: Talking Business workshop/discussion group sessions

No.	Location	Purpose	No. of Participants	Type of Participants
1	TAS	Consultation	12	Growers and service providers
2	NSW	Consultation	5	Growers
3	NSW	Testing Products	2	Growers
4	QLD	Consultation	12	Growers and service providers
5	QLD	Testing Products	12	Growers and service providers
6	WA	Consultation	8	Growers
7	WA	Testing Products	3	Growers
8	WA	Testing Products	12	Service providers
Total			**66**	

InnoVeg has also developed a facilitator's guide to running business discussion groups.

Appendix 7: Guide for running Talking Business workshops

6.4 Outcomes

The project resulted in:

- Improved skills of 4 delivery partners within the industry
- Improved business management skills amongst 30 service providers
- Improved business management skills amongst 36 growers
- A legacy of an approach and materials that continue to be used to improve the business management skills of more growers
- Initiate a change in culture.

6.5 Highlights

The Talking Business suite of products initiated a change in culture and approach towards business decision-making within the vegetable industry.

The products were seen by growers as being highly relevant to their own situations and experiences as demonstrated by the level of enthusiasm for these products at the 2012 AUSVEG Convention, where approximately 2,750 copies of the Business Cases and Case Studies were distributed.

7 Consumers and Markets

7.1 Overview

The Consumers and Markets sub-program aims to increase competition within the Australian vegetable industry by building skills and knowledge amongst vegetable growers, support staff, service providers and supply chain partners to facilitate:

- More informed business decision making based on an understanding of consumer and market information
- Stronger relationships and better collaboration within vegetable industry supply chains.

InnoVeg has collaborated with the Consumers and Markets sub-program to establish two accredited training programs:

1. Vegetable Marketing and Supply Chains, and
2. Professional Negotiation for Vegetable Growers.

The Vegetable Marketing and Supply Chains course aims to:

- Enhance the skills of support staff and service providers (such as state vegetable associations and R&D organisations) within the vegetable industry
- Improve the understanding of consumers and markets amongst vegetable growers
- Develop an approach that remains as a legacy and that continues to be used to improve the understanding of consumers and markets within the vegetable industry into the future
- Build upon the Consumers and Markets products and resources produced through the VIDP (Veginsights)
- Initiate a cultural change with a view to 'assisting the vegetable industry to become more commercially savvy'.

This training program has been developed and delivered (as a pilot) by the Goulburn Ovens Institute of TAFE (GOTAFE).

The Professional Negotiation for Vegetable Growers course aims to:

- Improve confidence and effective negotiation capability even in complex, high pressure situations
- Develop the ability to employ the most successful negotiation strategies, assess risk and plan effectively
- Develop the ability to own the negotiation, control the approach and improve the profit outcome
- Develop the ability to identify and handle the negotiation tactics regularly used by buyers and tailor approach to different trading psychologies
- Develop the ability to orchestrate trading across a complex range of concessions, not relying on price

- Develop the ability to differentiate between the “overt” and “covert” positions of the other party to recognise real business needs, overcome barriers, manage conflict and secure the deal.

This training program has been developed and delivered (as a pilot) by KONA.

7.2 Activities

7.2.1 Vegetable Marketing and Supply Chains

The ‘Vegetable Marketing and Supply Chains’ short course aims to assist Australian vegetable growers to develop their business and enhance competitiveness in an expanding global market. InnoVeg has supported the development and implementation of this short course pilot program.

The ‘Vegetable Marketing and Supply Chains’ short course comprises three nationally recognised units of competency:

- Monitor a Supply Chain Operation
- Market Products and Services
- Manage Price Risk through Trading Strategy.

On completion of this course, participants will have the skills and knowledge to adapt to contemporary national and international vegetable markets by enhancing business and/or governance processes and practices. Material from this course will also assist with target marketing, understanding consumer behaviour and monitoring and managing supply chains.

This course uses existing nationally recognised units of competency. This means that this course can be used as a contribution to a Diploma of Production Horticulture. This course is specifically aimed at vegetable growers. However, people from every section of the supply chain and service industries are also encouraged to participate.

InnoVeg has liaised extensively with the Consumers and Markets sub-program in the compilation and development of materials for industry outputs.

GOTAFE, supported by InnoVeg have:

- Analysed existing Consumers and Markets resources
- Developed learning resources (including pre and post course evaluations and assessment tools)
- Conducted a pilot of the ‘Vegetable Marketing and Supply Chains’ short course at the Melbourne Markets with 15 participants including growers, industry support staff and service providers.

7.2.2 Professional Negotiation for Vegetable Growers

The Professional Negotiation for Vegetable Growers short course aims to assist Australian vegetable growers to develop knowledge and skills in professional negotiation.

Vegetable growers are often involved in detailed and high level negotiations. They negotiate contracts, prices with their customers, wages and staff conditions, and a wide range of input cost agreements including contractors, equipment and fertilisers.

Most vegetable growers have no formal negotiation training and yet are often pitched against professional negotiators with many years of commercial experience. The Professional Negotiation for Vegetable Growers short course was designed to assist vegetable growers to address this discrepancy.

KONA, supported by InnoVeg and the Tasmanian Farmers and Graziers Association have:

- Developed tailored negotiation training materials specifically for vegetable growers
- Conducted a pilot of the 'Professional Negotiation for Vegetable Growers' short course in two locations in Tasmania (Launceston and Devonport) with a total of 21 participants including growers and industry support staff.

7.3 Outcomes

InnoVeg has supported the development of two independent short courses relating directly to improving the knowledge and skills of vegetable growers in the area of marketing, supply chains and professional negotiation. These courses are available for all Registered Training Organisations with appropriate skills to deliver across Australia.

The project resulted in:

- Improved marketing and supply chain skills amongst 15 growers and service providers within the vegetable industry
- Improved professional negotiation skills amongst 21 growers and service providers within the vegetable industry
- A legacy of an approach and materials that continue to be used to improve the consumers and markets skills of more growers into the future
- A legacy of an approach and materials that continue to be used to improve professional negotiation skills of more growers into the future.

7.4 Highlights

InnoVeg has contributed to providing foundational information on marketing and supply chains to complement the products of the Consumers and Markets sub-program.

The development of two accredited training programs will provide a legacy for the VIDP into the future.

8 LOTE

8.1 Overview

The Australian Bureau of Statistics (ABS) estimated that in 2003, there were approximately 4,390 vegetable growing operations and 6,000 growers across Australia, producing more than $1.7 billion worth of produce. In 2005, the 'Vegetable Growers with A Language Other Than English Snapshot Report' identified that 40% of Australian Growers were from a Language Other Than English (LOTE) background.

Industry consultation across Australia highlighted a number of issues relating to product safety and quality occurring within the community of LOTE growers. These included poor understanding of:

- Best practice chemical usage
- Post-harvest management of product
- Environmental stewardship.

There are a number of reasons for this, including:

- Poor communication between LOTE growers and the rest of the Australian industry
- Lack of regulatory drivers (most of the growers supply direct to the market without needing to comply to a quality assurance program)
- Disconnect within the supply chain between production and retail
- Short-term view of the industry.

If not addressed, these issues have the potential to affect the viability and reputation of the whole vegetable industry.

To address these issues, InnoVeg supported the development and delivery of a series of resources, workshops and activities specifically designed for LOTE growers in the Sydney basin of New South Wales (NSW) and the rural Darwin region in the Northern Territory (NT).

InnoVeg worked collaboratively with the existing LOTE programs being delivered in these areas through NSW Department of Primary Industries, the NSW Farmers Association, the NT Government and the Northern Territory Horticulture Association to target the following groups of LOTE growers:

- Chinese in the Sydney Basin (300 growers)
- Lebanese in the Sydney Basin (400 growers)
- Cambodians in the Sydney Basin (60 growers)
- Vietnamese in the Sydney Basin (50 growers)
- Vietnamese in rural Darwin region (80 growers).

These five Priority Language Groups make up over 80% of all vegetable growers in NSW and the NT.

8.2 Activities

8.2.1 New South Wales

Research conducted in January 2010, identified information on maintaining product quality and safety as the highest priority for LOTE growers in the Sydney Basin.

In response to this need, InnoVeg supported the development of a series of resources and workshops on the following topics:

- Farm sanitisation and hygiene and Food Safety Plans
    - Translation of factsheets for field vegetable sanitation and hygiene and case studies based on the “Keep It Clean” farm hygiene manual
    - One language based workshop with each of the LOTE grower groups (four in total). The workshops presented the translated “Keep It Clean” information and translated Freshwise resources.
- Water use and quality
    - Bilingual water quality fact sheets on wash water safety, spray water quality, irrigation water quality and minimising water use.
- Spray application
    - Translation of the VIDP Spray Application Basics fact sheet into Chinese, Khmer and Vietnamese.

8.2.2 Northern Territory

In the Northern Territory, the information needs of LOTE growers are slightly different because of the geographical isolation of the growers and the resulting disconnect between the growers and the other end of the supply chain where their product is sold. The three highest priority topics in rural Darwin region were:

- Post-harvest management and the supply chain
- Product quality and safety
- Environmental stewardship.

In response to this need, InnoVeg supported the delivery of a series of workshops, farm audits and grower tours on the following topics:

- Post-harvest management and the supply chain
    - One language based workshop on post harvest handling
    - One LOTE grower tour from the paddock to the markets to conduct a through chain demonstration to show the benefits of managing and measuring performance through the supply chain, promote the benefits of cool-chain management and improve communication with the central markets.
- Product quality and safety
    - Ten language based on-farm food safety audits. These audits provided a practical hands-on extension of what was learned through the Freshcare workshops, which

growers have completed in the past. This also served as an ongoing quality analysis for evaluation and problem identification on-farm.

- Water allocations and regulation
    - Three language based workshops with Vietnamese LOTE grower groups. The workshops provided a follow up from previous workshops that presented translated Water Smart Farms resources. The resources cover the following topics: groundwater, water planning, groundwater ecosystems, bores and pumps, good water management, backflow and preventing pollution
    - Twelve language based on-farm water audits. These audits provided a practical hands-on extension of what was learned through the Water Smart Farms workshops. This also served as an ongoing quality analysis for evaluation and problem identification on-farm.

8.2.3 Community of Practice

The Language Other Than English (LOTE) Community of Practice (CoP) was formed in October 2011. The CoP is made up of vegetable industry support staff who work specifically with LOTE vegetable growers. The formation of the LOTE CoP was supported by InnoVeg.

The purpose of the LOTE CoP is to provide LOTE support staff around Australia with a regular opportunity to work together to:

- Share experiences, ideas and methods used
- Provide updates on current LOTE projects in each state
- Share products and resources
- Share experiences on building relationships with LOTE growers and community leaders.

Prior to the formation of the LOTE CoP, LOTE support staff had limited opportunities to work collaboratively with others in this specialised field. The LOTE CoP agreed to meet quarterly.

8.3 Outputs

8.3.1 New South Wales

In NSW, InnoVeg has supported the development of 15 fact sheets translated in to 3 additional languages; Vietnamese, Chinese and Khmer.

The title and a brief description of each fact sheet is provided below in Table 8-2.

Table 8-2: LOTE fact sheets

No.	Title	Translations	Summary
1	Preventing pests and diseases in field vegetables	Vietnamese	This fact sheet series has been produced to provide a practical guide to help you to economically and effectively use preventative strategies to manage pests in your crops. Farm hygiene is the basis of preventative management.
		Chinese	
		Khmer	
2	Crop monitoring	Vietnamese	This fact sheet provides information on different

		Chinese	methods to monitor pests and diseases in your field crop.
		Khmer	
3	Plant sources of pests and diseases	Vietnamese	This fact sheet provides information on plant sources of pests and diseases in field crops. Plant sources include weeds, other crops, crop debris, ornamental plants and seedlings.
		Chinese	
		Khmer	
4	Non-plant sources of pests and diseases	Vietnamese	This fact sheet provides information on non-plant sources of pests and diseases in field crops. Non-plant sources include people, vehicles, machinery, rubbish, tools, soil amendments and soil.
		Chinese	
		Khmer	
5	Farm layout and check and control plans	Vietnamese	This fact sheet provides information on farm layouts that minimise the risk of pest and disease problems being carried onto the farm and between crops on the farm.
		Chinese	
		Khmer	
6	Work procedures	Vietnamese	This fact sheet provides information on work procedure that minimise the risk of a person carrying pest and disease problems into a crop.
		Chinese	
		Khmer	
7	Vehicle movement and buffer zones	Vietnamese	This fact sheet provides information on managing the risk of pest and disease introduction created by vehicles and machinery coming on to a farm.
		Chinese	
		Khmer	
8	Weeds, windbreaks and water management	Vietnamese	This fact sheet provides information on managing the spread of pests and diseases through appropriate management of weeds, wind and water.
		Chinese	
		Khmer	
9	Waste management	Vietnamese	This fact sheet provides information on the benefits and appropriate methods for managing waste on the farm.
		Chinese	
		Khmer	
10	Other farm management options to reduce pests	Vietnamese	This fact sheet provides information on other farm management options to reduce pests including quarantine and worker and visitor hygiene.
		Chinese	
		Khmer	
11	Wash water safety	Vietnamese	This fact sheet provides information on assessing the risk of contaminating produce by using water that may be contaminated with chemicals or microbes.
		Chinese	
		Khmer	
12	Water quality for chemical spraying	Vietnamese	This fact sheet provides information on the impacts of water quality of spray efficacy.
		Chinese	
		Khmer	
13	Irrigation water quality	Vietnamese	This fact sheet provides information on water quality issues and the impacts that poor quality irrigation water can have on your crop.
		Chinese	
		Khmer	
14	Minimising water use	Vietnamese	This fact sheet is designed to provide some ideas to improve water use efficiency at the field and farm scale
		Chinese	

		Khmer	and thereby minimise water use.
15	Spray application basics	Vietnamese	This fact sheet outlines the basics of spray application to maximise the amount reaching the target and minimise the amount reaching off-target areas.
		Chinese	
		Khmer	

In addition to the development and distribution of these fact sheets, InnoVeg has also supported the delivery of:

- One language based workshop with each of the LOTE grower groups (four in total). The workshops presented the translated "Keep It Clean" information and translated Freshwise resources.

All translated fact sheets have been published in the translated resources guide on the AUSVEG website and promoted through the InnoVeg e-newsletter.

www.ausveg.com.au/lote

Appendix 8: Example of translated Fact Sheets

8.3.2 Northern Territory

In the NT, InnoVeg has supported the delivery of:

- One language based workshop on post harvest handling
- One LOTE grower tour from the paddock to the markets
- Sixteen (16) language based on-farm food safety audits
- Three language based water allocations and regulation workshops with Vietnamese LOTE grower groups
- Twenty five (25) language based on-farm water audits.

8.3.3 Community of Practice

The LOTE CoP formed in October 2011. The CoP had their inaugural meeting in November 2011 in Melbourne. The CoP has met quarterly since its inception with meetings occurring via teleconference in March 2012 and June 2012.

At the November CoP meeting as CoP work plan was agreed. The following outputs have been completed by the LOTE CoP supported by InnoVeg (Table 8-3).

Table 8-3: LOTE CoP Outputs from agreed workplan

No.	Title	Summary
1	Translated resources guide	This brochure aims to build better knowledge amongst LOTE support staff about the information and resources that are currently available across Australia so that better coordination and complementarity of effort and resources can be achieved into the future.
2	Guidelines for working with translators and interpreters	These guidelines aim to facilitate effective translating and interpreting services in the Australian Vegetable Industry. Their purpose is to assist service providers working with vegetable growers whose first language is not English. Working with translators and interpreters to deliver workshops,

		training and written material requires detailed planning. It is important to use appropriate learning and communication styles; delivery structures must be customised to achieve successful outcomes in vegetable farming communities where the primary language used is not English.
3	Distribution list of relevant state LOTE representatives and translators	This contact list aims to improve communication between LOTE support staff and service providers around Australia by providing up-to-date contact details.

In addition to the outputs described above, InnoVeg also supported the LOTE CoP to include:

- A list of translated resources in the November/December 2011 and June 2012 InnoVeg e-newsletters
- Include a LOTE feature story in the January/February edition of the Vegetables Australia Magazine – "Translating better practices".

The translated resources guide and the guidelines for working with translators and interpreters have been published on the AUSVEG website and promoted through the InnoVeg e-newsletter.

www.ausveg.com.au/lote

Appendix 9: Example of LOTE CoP Products

8.4 Outcomes

The project resulted in:

- Improved knowledge and skills amongst 80 LOTE growers to manage for better product quality and safety in accordance with an accredited system i.e. FreshCare
- Access to translated resources for LOTE growers on farm sanitisation and hygiene for field crops
- Improved knowledge and skills amongst 64 LOTE growers to manage for better farm sanitisation and hygiene
- Improved understanding amongst 5 NT LOTE growers of the importance of managing and measuring performance through the supply chain, cool-chain management and communication with the central markets
- Improved understanding amongst 13 NT LOTE growers of post harvest handling and management
- Improved understanding of water allocations and regulations amongst 25 LOTE growers
- Access to translated resources for LOTE growers on wash water safety, spray water quality, irrigation water quality and minimising water use and spray application basics
- Better connected industry support staff working specifically with LOTE growers
- Better knowledge amongst LOTE support staff about the information and resources that are currently available across Australia so that better coordination and complementarity of effort and resources can be achieved into the future.

8.5 Highlights

The LOTE activities in NT and NSW filled an industry need and therefore generated a significant amount of enthusiasm and participation

Participants in the Community of Practice benefited greatly from improved communication and collaboration on LOTE specific issues demonstrating the need for continued support in this area.

"*The LOTE community of practice has been a fantastic way to network Australia wide with others working with growers whose first language is not English. The Community of Practice has also facilitated connections with NSW growers, with a view to future bi-lateral visits between NT and NSW growers in the future to share experiences and technology. Growers from both centres have expressed interest to visit one other*."

9 Industry Leadership

9.1 Overview

This project was designed to meet the needs of leaders within the vegetable industry. Many of these leaders have undertaken some type of leadership activity within the industry over the past 4-5 years. The project was designed to utilise and harness the learning and enthusiasm developed within these individuals to provide longer term benefits for themselves and the industry.

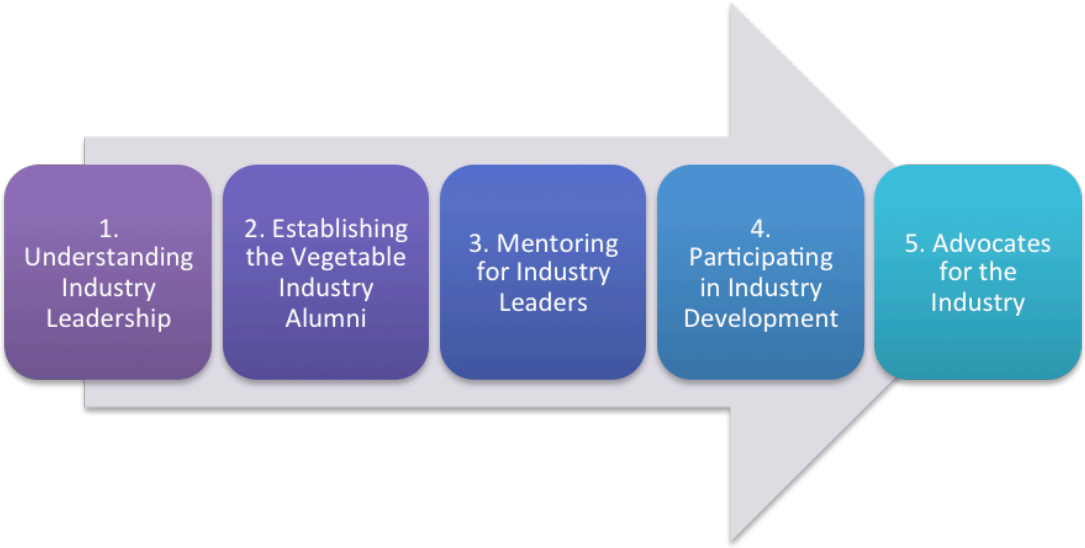
The purpose of the project was to provide the vegetable industry with a process for establishing a leadership Alumni with associated ongoing Alumni activity.

The scope of the project initially included graduates from Growing Leaders, Australian Rural Leadership Program, TRAIL, Nuffield Fellowships and Churchill Fellowships related to the vegetable industry.

The Vegetable Industry Alumni focused on developing the skills of leadership graduates and assisting them in contributing to industry development activities into the future. This involved:

- Providing an information conduit between industry organisations and graduates to ensure inclusion of the graduates into industry committees/boards
- Assisting industry organisations to develop a "how to get involved" guide
- Setting up an Alumni online conversation portal
- Establishing an annual Alumni activity connected to one of the industry "conferences/gatherings"
- Establishing a formal mentoring process for the industry
- Contributing to the testing of industry materials and participating in train the trainer activities for programs
- Enabling and assisting leaders to become advocates for the vegetable industry.

9.2 Activities



The activities undertaken through the industry leadership project included:

1. Understanding Industry Leadership

This activity described the process for involvement in industry committees and boards. For many new entrants understanding how the election process works can be a key barrier.

2. Establishing the Graduate Alumni Industry Network (GAIN)

This activity focused on providing appropriate tools for the leaders group to continue to network with other industry leaders. The establishment of GAIN involved:

- Development of portal site in consultation with an informal advisory team
- Development of an engagement process and materials
- Invitation to industry leaders to engage
- Launching of GAIN at the AUSVEG Convention
- Production of a calendar of key leadership events related to the industry.

3. Mentoring for Industry Leaders

This activity related to providing emerging industry leaders with ongoing support through their leadership journey.

4. Participating in Industry Development

The Vegetable Industry Development Program (VIDP) has developed a number of resources and programs to be utilised by industry associations and groups. Many of these resources need to be tested with industry leaders prior to their wider implementation. This activity involved engaging industry leaders in industry development activities.

5. Advocates for the Industry

Access to activities of GAIN have assisted emerging industry leaders to have a more in-depth appreciation of the industry and provide them with the skills to be advocates for their industry.

9.3 Outputs

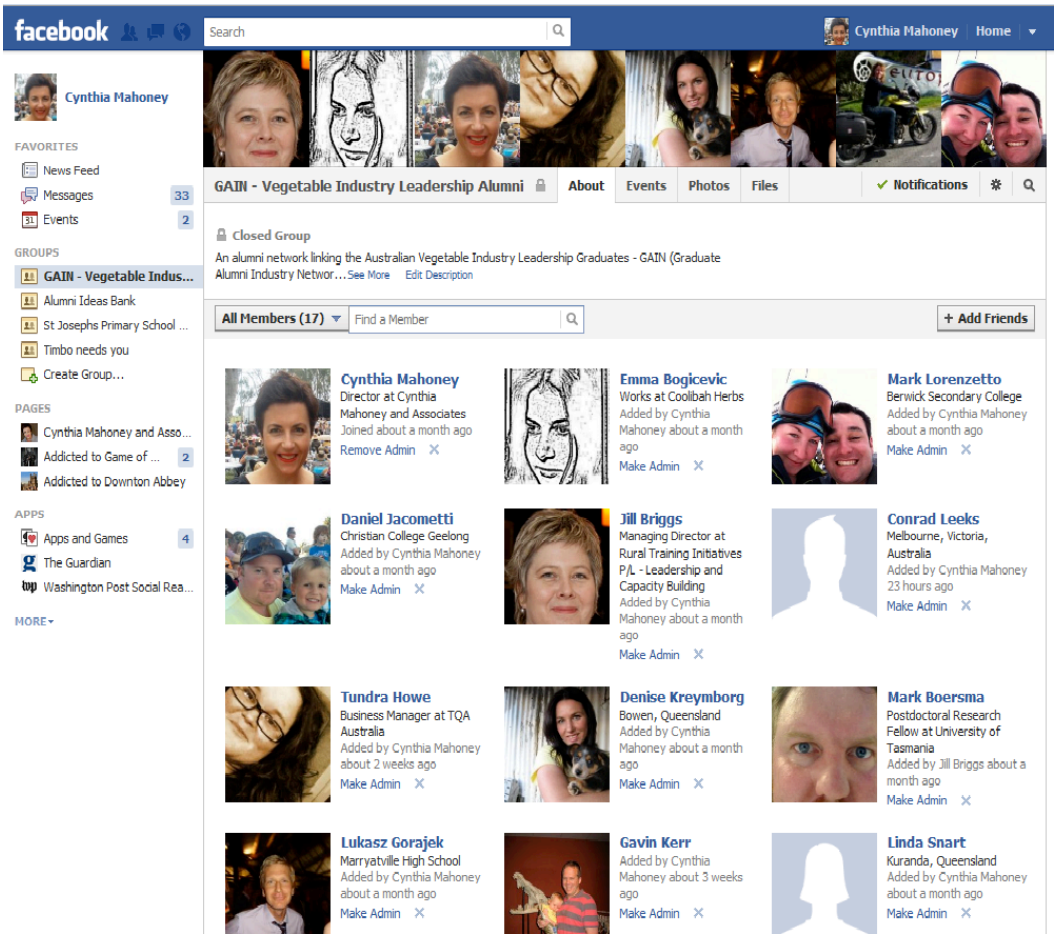
InnoVeg has supported the establishment of GAIN, the first vegetable industry leadership alumni network. The outputs from this project include:

- Alumni membership of 80 leadership graduates
- Formation of alumni steering committee – Gavin Kerr, Jane Lovell, Alison Anderson, Lukasz Gorajek, Tom Loveless, Tundra Howe, Andrew Dewar
- Launch of GAIN at the 2012 AUSVEG Convention with over 200 delegates in attendance
- Planning workshop/focus group held in May 2012 to establish purpose and key outcomes for GAIN in the future (attended by 12 people)
- Commitment by GAIN steering committee to develop a business plan for GAIN and communicate essential outcomes to other alumni and the vegetable industry
- A networking event attended by 25 alumni (and some current Growing Leaders participants) along with other key industry representatives (e.g. HAL, VDIP)
- The GAIN welcome pack distributed to members
- Development and distribution of a GAIN Mentoring Package, GAIN Advocacy Overview and GAIN Industry Directory to members of the alumni.

9.4 Outcomes

The project resulted in:

- Alumni membership of 80 leadership graduates
- Alumni members acting as advocates for the vegetable industry through various committees and industry forums (e.g. AUSVEG Working Groups and Convention)
- Commitment from the GAIN steering committee to continue to network beyond the VIDP
- Ongoing pro-bono support of GAIN by Rural Training Initiatives and TQA Australia who view this initiative as an essential industry activity
- GAIN social media platforms established for ongoing communication between industry leadership graduates (Twitter (40 Followers), Facebook (26 Friends) and LinkedIn).



9.5 Highlights

GAIN has provided industry leadership graduates with an opportunity to continue their leadership journey. The program identified the enthusiasm of participants to contribute to industry in a broad range of roles.

The launch and industry support demonstrated at the 2012 AUSVEG Convention highlighted the importance of this initiative for the future of the industry.

10 Implications

10.1 Key Findings

Major issues - content

Extensive consultation with key stakeholders groups (state associations, state R&D organisations, IAC members and service providers) and growers across Australia highlighted the:

- Need to focus on business competiveness for the industry to remain viable
- Requirement for increasing capacity of industry in relation to business management and the understanding of consumers and markets
- Potential to harness the knowledge and skills of service providers and state associations to promote information to growers
- Need to have functioning grower groups with trusted facilitators as an efficient and effective means to disseminate information
- Importance of translation R&D information into knowledge that is relevant and useable for the grower
- Opportunity to utilise a range of methods to distribute information to growers including electronic, written materials and face-to-face activities.

Preferred approach - process

The review of extension and analysis of industry development models in other industries highlighted that adoption of particular management practices and technologies depends largely on the:

- Industry context (e.g. industry profitability and limiting resources)
- Farming context (e.g. business fundamentals – equity, structure, succession, farming systems, irrigation infrastructure)
- Personal attributes (e.g. attitude to risk, propensity for change, motivations, values, skills, expertise).
- Utilisation of trusted providers of information already existing within the industry to supply producers with information on research outcomes e.g. service provider networks, and the
- Provision of support to build skills and capacity within producers and their communities to adopt better management practices and make better business decisions.

This analysis enabled the development of 10 principles that guided the implementation of the InnoVeg sub-program. These principles have served the InnoVeg program well and should be incorporated into the next phase of industry development activities. The principles are:

1. Understand and respect the target audience
2. Segment the target audience and identify expected outcomes
3. Understand motivations for adoption of innovation
4. Ensure clarity of objectives/activities and alignment with partners/target audience

5. Utilise a range of extension methods/models
6. Consider range of different learning styles
7. Appreciate complexity of decision-making
8. Focus on capacity building
9. Utilise trusted service providers with appropriate skills
10. Adopt a flexible and responsive approach

Major outcomes

The activities undertaken were guided by the industry needs and our understanding of how best to deliver this information within a highly diverse industry structure. Highlights from the activities undertaken are described below.

Information Provision and Facilitation

- InnoVeg provided a conduit for development of knowledge and its adoption through working with industry via service providers and state organisations and growers.
- The materials produced were positively received by industry and provide an enduring legacy.

Talking Business

- The Talking Business suite of products initiated a change in culture and approach towards business decision-making within the vegetable industry.
- The products were seen by growers as being highly relevant to their own situations and experiences as demonstrated by the level of enthusiasm for these products at the 2012 AUSVEG Convention.

Consumers and Markets

- InnoVeg has contributed to providing foundational information on marketing and supply chains to complement the products of the Consumers and Markets sub-program.
- The development of an accredited training program will provide a legacy for the VIDP into the future.

LOTE

- The LOTE activities in NT and NSW filled an industry need and therefore generated a significant amount of enthusiasm and participation
- Participants in the Community of Practice benefited greatly from improved communication and collaboration on LOTE specific issues demonstrating the need for continued support in this area.

Industry Leadership

- GAIN has provided industry leadership graduates with an opportunity to continue their leadership journey. The program identified the enthusiasm of participants to contribute to industry in a broad range of roles.

- The launch and industry support demonstrated at the 2012 AUSVEG Convention highlighted the importance of this initiative for the future of the industry.

10.2 Lessons Learnt

The delivery of the InnoVeg sub-program and VIDP more broadly represented a new and innovative method for delivering services and research and development findings to industry. As a consequence there were a range of expectations and beliefs around how and what the program would deliver.

As with any new way of doing business there are lessons that were learnt along the journey that would benefit others embarking on a similar path.

Industry structures and demographics

The industry is very complex, consisting of a variety of crops and business types. This means that significantly different mechanisms are needed to successfully implement development programs with various groups. Our analysis and experience highlighted that activities need to be targeted for different groups based on relative size, experience, geography, markets and existing networks.

It became evident that an approach that works with one commodity sector in one region may not be transferable to another commodity in a different region. Connecting with the existing networks and industry representatives was critical in determining the best approach to meeting a specific region's needs.

Collaboration and Communication

Collaboration and communication are essential to the effective implementation of development programs. The VIDP was a very large program for the vegetable industry and required good collaboration between sub-programs and with broader industry networks. Relationships take considerable time and effort to develop and maintain.

The inclusion of InnoVeg in the VIDP occurred after the other sub-programs had been developed. Ideally, InnoVeg should have been established at the same time with expectations around sub-program contributions to the VIDP team clearly described.

Relationships with the collaborative industry organisations has evolved to a stage where there is trust and recognition of roles. However, this has taken some time to develop. Collaboration with industry service providers and researchers has also required effort to develop as there was a concern about the project at the commencement as it was a great change from previous industry development.

Mutual Respect and Understanding

When working in a complex structural environment it is important that groups and individuals are clear about their role and contribution to the broader industry outcomes.

As with any major change program, at the commencement of the project there were uncertainties about roles and responsibilities for many participants (industry organisations,

HAL, AUSVEG, researchers, VIDP team, service providers) in the delivery of development activities to industry. There was also suspicion associated with 'who was doing what'.

Over time the participants of industry development established an understanding of their roles and responsibilities and also a respect for how others could contribute.

The development of mutual respect and understanding takes considerable time and effort. The InnoVeg sub-program has a clear role in providing a conduit of information and knowledge to industry and responding to industry needs. This function was operating well at the completion of the project and was non-threatening to industry researchers.

Focusing on the Industry Needs

Many reports have highlighted what industry requires for it to remain competitive. These reports invariably describe increased capacity and understanding of business management and consumers and markets. However, the individual grower is much more interested in learning about issues of immediate relevance – 'the bug of the week' syndrome. Focusing on issues that are a high priority for the whole industry can be difficult at a grower level.

Our activities emphasised the need to have trusted advisors that have credibility with agronomic based issues before addressing topics such as business management and consumers and markets. The benefit of having a grower group with a trusted facilitator and strong internal relationships was repeatedly recognised.

Consultation

Industry development focuses on the provision of research to growers so that it can be applied. Whilst there is a role in turning research into knowledge it is just as important to ensure that research being undertaken is relevant and meets industry priorities.

Regular consultation and opportunities to collect feedback are essential for ensuring that programs meet the needs of industry and respond to emerging issues.

Industry Support

The VIDP and the InnoVeg sub-program represented a new way of delivering industry development. Associated with this new approach were inherent risks but also endless opportunities. The vision for VIDP was one that many industries have identified and aimed to achieve.

The InnoVeg sub-program had great potential to deliver new and innovative methods for industry development. However, the implementation of InnoVeg was greatly hampered by indecision and lack of unified support.

Whilst the InnoVeg sub-program delivered on its objectives the rate of implementation could have been accelerated and enhanced through a stronger industry commitment.

Large industry development programs need to have wholesale industry support to realise their potential.

Legacy

The goal of the Vegetable Industry Development Program was "*to provide knowledge, tools and insights to decision makers to improve the competitiveness of Australian vegetable*

growers in domestic and international markets". The InnoVeg sub-program contributed significantly to this goal sometimes working in a challenging external environment.

11 Recommendations

InnoVeg and VIDP have left a legacy for the industry. It is critical that the industry utilises the learning and knowledge from the program in the implementation of the new Strategic Investment Plan.

Priorities for the next phase include:

- Consideration of the 10 principles for delivery of industry development programs
- Continuation of the 'business management' and 'consumers and markets' packages and promotion of existing resources (e.g. 'Talking Business' Business Cases and Case Studies)
- Continued use and development of information that is relevant to an individual and the industry more broadly (e.g. access to Fact Sheets via website)
- Maintaining and building on the relationships that have been established with researchers, service providers, industry support staff (e.g. support for CIOs) and growers and ensuring continued communication (e.g. InnoVeg e-newsletter)
- Focusing on the diverse growers audiences and targeting extension programs that meet their needs (e.g. support for existing grower groups)
- Facilitating continued collaboration between individuals with common interests (e.g. industry leaders (GAIN) and LOTE support staff).

Most importantly the industry needs to have considerable ownership of the industry development approach and provide wholesale support for its implementation.

12 Acknowledgements

InnoVeg would like to acknowledge the many industry people who contributed to the development and implementation of the program particularly:

- The Vegetable IAC (2009) with the vision and courage to do something differently
- HAL (especially Richard Stephens, Kathryn Lee and Will Gordon)
- VIDP Coordinators (David Heinjus, Lu Hogan, Dee Heinjus)
- Other VIDP sub-programs leaders – Ian James, Dianne Fullelove, Lauren Thompson, Andrew White, Steve Spencer, Martin Kneebone
- State associations and organisations involved in CIO delivery
- The many researchers and industry development officers
- Industry service providers, and
- Most importantly growers who gave so freely of their time.

13 References

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14 Appendices

Appendix 1: Example of InnoVeg e-newsletter

IN THIS ISSUE

RD&E CALENDAR

No listed events

Unsubscribe

Click to instantly unsubscribe from this mailing list.

Send to a friend

Send this email to someone you think may be interested.

Thursday December 8, 2011

Welcome

Welcome to the November/December edition of the InnoVeg newsletter. InnoVeg as part of the Vegetable Industry Development Program (VIDP) aims to build relationships and facilitate information flow within the vegetable industry, providing producers with multiple ways to access, obtain and understand relevant research outcomes. This newsletter is distributed on a monthly basis to service providers within the vegetable industry and provides the latest information on:

• Recent activities and outputs from the VIDP which will benefit the vegetable industry

• Outcomes from current and recently completed Research, Development and Extension (RD&E) projects

• RD&E activities for the vegetable industry across Australia

If you have any queries, would like further information or wish to provide feedback on any of the items below please contact Anne-Maree Boland on 03 9882 2670. Please send this information on to anyone you think may be interested.

This is the last InnoVeg newsletter for 2011. The next edition will be in January 2012.

Wishing everyone a happy and safe Christmas and New Year!

Back to top

VIDP Update

InnoVeg

InnoVeg has recently produced **Handy Hints for Vegetable Growers: a resources guide.**

This brochure summarises useful resources for vegetable growers in the following areas:

• Pest and Disease Management

• Production Management

• People Management

• Resource Management, and

• Business Management.

The resources include fact sheets, booklets, user guides and online programs. To access the guide, please click here.

The guide is also available in hard copy and will be posted out with the Vegetables Australia magazine in January 2012.

Consumers and Markets

The October edition of Veginsights is now available providing an update on key market variables, consumer and retail market trends, and innovations of relevance to vegetable producers. It includes coverage of:

• A new era for retail in Australia as conventional store based retail finds more competition from online options

• Lack of convenience hinders healthy eating

• Super sweet Roman onion set for UK debut, and

• An innovative pickled potato product.

This month's category focus is on **Eggplant**. Key highlights include:

• The retail market for Eggplant is currently valued at $29 million per year, and

• Eggplants are a relatively high value product that is purchased by consumers for an average of $5.33/kg, which is higher than the average retail price of $3.50/kg for all vegetables.

To find out more and 'what it means' to you as vegetable producers and/or marketers, read the full document here.

Economics

Interest rate cuts in successive months by the Reserve Bank of Australia (RBA) will provide welcome relief to some family budgets that are fully stretched. However, vegetable growers will continue to face a cautious attitude by consumers to spending.

The accompanying inflationary pressures that have been associated with past commodity booms in Australia have not eventuated. This has provided scope for the RBA to take out some insurance against the possible adverse consequences on Australia from the European debt crisis.

The Australian Bureau of Agriculture and Resource Economics and Sciences has released its findings from the latest survey of the financial performance of the Australian vegetable industry. An article on this will appear in the next edition of Vegetables Australia. A full copy of the report can be accessed here.

Back to top

RD&E Update

LOTE Community of Practice

There are a number of vegetable industry support staff who work independently to support Language Other Than English (LOTE) growers around Australia.

Until recently, staff that work with LOTE communities, had limited opportunity to work collaboratively.

In October 2011, the Vegetable Industry Development Program supported the formation of a LOTE Community of Practice. The purpose of the Community of Practice is to provide support staff around Australia with a regular opportunity to work together to share information, build knowledge, develop expertise and solve problems.

A LOTE Community of Practice workshop was held on the 23rd November to share experiences on working with LOTE growers and materials that have been developed in each state.

If you would like to be involved in this or would like further information, please contact Anne-Maree Boland on 03 9882 2670 or at anne-mareeb@rmcg.com.au.

Translated VIDP Fact Sheets

Language Other Than English (LOTE) growers make up a significant proportion of Australian vegetable growers. As a result, Vegetables WA have translated a number of VIDP Fact Sheets. Translated Fact Sheets include:

- Business Decision Making – Vietnamese
- A Smooth Transition: navigating your way through the family business – Vietnamese
- Business Management: Thinking Through the Numbers – Vietnamese
- Managing Pesticide Resistance – Vietnamese

To access electronic copies of the translated Fact Sheets, please contact lease contact Stephanie Drum on 03 9882 2670 or at stephanied@rmcg.com.au.

Back to top

RD&E Activities

NSW Farmers Workshops

NSW Farmers in collaboration with NSW DPI and Protected Cropping Australia recently held successful workshops for the protected cropping industry in Sydney and Coffs Harbour. The workshops, funded by HAL using the vegetable levy and matched funds from the Australian Government, showcased outcomes from vegetable levy funded projects. The Coffs Harbour workshop was held in conjunction with a trade show organised by Golden Dawn and Norco Rural.

Special guests and presentations included;

PCA Chairman Graeme Smith
- Outcomes of the national greenhouse recycling project and pesticide residues in hydroponics project.
- How to get the best out of high volume spraying.
- Overview of a 5 day greenhouse technical management course to be delivered in 2012 across all major regional grower areas.

Len Tesoriero, NSW DPI

• Disease management.

Jeremy Badgery-Parker, NSW DPI

• Benchmarking.

• Greenhouse productivity.

NSW Farmers has also recently conducted a workshop in Mildura in collaboration with NSW DPI, Vic DPI and the Victorian Vegetable Growers Association. Topics including pollination research, suspension of dimethoate, ICA's for interstate trade, food safety, precision horticulture and a production costs calculator for vegetable growers were discussed.

Copies of the workshop presentations are available on the Vegetable Industry Development Program section of the NSW Farmers website.

Back to top

Other News

Luis Gazzola Appointed AUSVEG Director

Luis Gazzola Past President and current executive committee member of Vegetable Growers Association of Victoria (VGAVic) was appointed to the Board of AUSVEG at the Company's Annual General Meeting held on Monday 21 November 2011 in Melbourne.

VGA Vic President David Wallace expressed his delight for Luis' appointment after seven years as VGA Vic President, and was pleased that Luis would continue to provide valuable input into the national vegetable industry body.

VIDP at the AUSVEG Conference

The Vegetable Industry Development Program has secured a booth at the AUSVEG Convention Trade Show. The AUSVEG National Convention, Trade Show and Awards for Excellence will be held from 10-12 May 2012 at Wrest Point Hotel Casino Hobart, TAS.

A range of resources will be available at the VIDP booth including VIDP Fact Sheets, Veginsights monthly and quarterly reports, Vegetable Spotlights and Category Profiles to name a few.

Make sure you come and say hello to the team at the Convention.

For more information on the AUSVEG Convention, please click here.

Back to top

InnoVeg is part of the Vegetable Industry Development Program - a HAL initiative funded using the National Vegetable Levy and matched funds from the Australia Government.

Appendix 2: Example of InnoVeg Fact Sheets

VERSION 2
MARCH 2012

Vegetable Industry Development Program

Mega Pests

Managing Major Chewing and Biting Insects

What is the nature of these pests?

Corn earworm *(Helicoverpa armigera)*, native budworm *(Helicoverpa punctigera)* and diamondback moth (DBM, *Plutella xylostella)* are destructive pests. The caterpillars (larvae) of these pests are difficult to control for a number of reasons including development of resistance to pesticides, rapid population increases, and the practical difficulties of achieving complete spray coverage in some at-risk crops (e.g. sweet corn, Brassica crops, lettuce).

Heliothis larvae feeding on sweet corn

A desperate need for more affordable and effective control of DBM and corn earworm has led many growers to seek help and then trial and implement integrated management approaches. Integrated Crop Protection (ICP), also referred to as IPM, considers the whole production system - all pest threats, the crop, soil health and environmental influences. In ICP, the aim is not zero pests, but rather sustainable pest management to reduce damage to below economic levels.

The management of the *Helicoverpa* species (together referred to as 'heliothis') and DBM, is complex. Knowledge of the beneficial organisms in and around your crops, and their relationship with the pests, is necessary in order to make effective treatment decisions. The pest pressure, the number of beneficials and their population trend (increasing or decreasing) can be determined through close monitoring, and are the basis of pest management decisions at each crop stage. Monitoring and scouting are particularly important steps in managing chewing and biting pests in your crops. This fact sheet provides basic information and know-how, to get you started.

ICP tips for managing chewing and biting pests

- Read the fact sheet: Mega Pests The Basics of Protecting Your Crops
- Use resistant varieties where available
- Consider a production break, especially in brassica production regions
- Identify and monitor populations of both pests and beneficials. Record observations of eggs, small larvae, and adults
- Don't rely on synthetic insecticides for control – understand all the available management options. Rotate between pesticide groups to avoid resistance
- Know your acceptable limits of crop damage and identify when you may need to spray
- If insecticide sprays are necessary, choose soft options to avoid disrupting natural enemies
- Understand environmental conditions conducive to the survival and spread of pests and beneficials, and to biopesticide performance
- Disrupt pest life cycles by targeting overwintering and survival sites

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Vegetable Industry Development Program

What attracts these pests?

Warm, humid weather and host plants like sweet corn, brassicas and lettuce, provide the perfect environment for DBM and heliothis. The climate in south-east Queensland is particularly attractive but in all states, these crops are susceptible at certain times of the year.

The continuous presence of susceptible hosts in combination with overuse of broad spectrum synthetic chemicals (and resultant chemical resistance) has allowed pest population increases, and given rise to reports of poor pest control and variable produce quality. These directly affect grower income.

How can I protect my farm from these caterpillars?

Start early! Start looking! Record your observations

Look at incoming transplants and make sure they are clean and free of eggs and larvae, before planting. Wireworms, cutworms and armyworms attack newly transplanted and emerging crops. Scout young crops regularly: turn over leaves and check for eggs, larvae, and recent damage, and also for the presence of beneficial organisms. Scouting is particularly important in lettuce and brassicas because every part of these plants - in all stages of their development - are subject to attack.

Weather monitoring is also critical because temperatures affect the generation times of pests and beneficials that have been introduced.

Scout crops regularly and know what to look for

Pheromone traps can be used to give early warning of the presence of some pests. Finding heliothis eggs should trigger crop protection activity. The appearance of the eggs provides predictive information useful in decision-making about the timing of the crop protection activity. Newly laid eggs are white in colour, brown eggs are nearing hatching, and shiny black eggs are parasitised and unlikely to hatch. Treatments are needed before larvae burrow into the parts of developing crops, where they are impossible to treat.

Of specific relevance to lettuce and brassica crops is scouting at the heart stage. This requires cutting open the heads to check for the larvae (caterpillars) themselves. Sampling may be at random but it is more informative when the relative feeding damage on wrapper leaves is recorded for each inspected head. Sampling charts are useful as they provide growers with a guide to the minimum number of plants to be checked, to give confidence the results from them are valid and representative of the whole block.

Implementing ICP - understanding the options

Predicting the potential effectiveness of ICP requires understanding of the damage thresholds and the targets of each ICP practice. The ICP approaches that consider both the pest life cycles and the stages at which crops are most at risk, are likely to be more effective.

The first step is to limit use of broad spectrum insecticides and instead use biopesticides and soft option insecticides. The nature of commercially available beneficials and biopesticides and their sensitivities need to be understood to ensure these options are used effectively. Important information on biopesticide application timing, rates and coverage appears on the product label along with additional guidelines, eg. for *Bacillus thuringiensis* (Bt) applications, avoid overhead irrigation on the treated area for 24 to 48 hours to prevent wash-off; stickers that promote adherence to leaf surfaces and UV light inhibitors may enhance efficacy.

An excellent source of information on commercially available beneficials is The Good Bug Book (Second Edition) and website (www.goodbugs.org.au).

Beneficial organisms, like parasitoid wasps (e.g. *Diadegma, Trichogramma* and *Telenomus*), predatory bugs (e.g. shield bugs, damsel bugs and assassin bugs), tachnid flies and earwigs readily control caterpillars. Spiders, lacewings and ladybirds are more generalist predators which can also offer relief against some aphids and thrips. If beneficials are present they can often control low numbers of pests. However, if conditions favour the pests, their populations may build rapidly and additional control methods (eg. narrow-spectrum insecticides, biopesticides or introduced beneficials) may be needed to restore the balance.

Trichogramma - an important egg parasitoid of moth eggs

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Vegetable Industry Development Program

Biopesticides include *Bacillus thuringiensis* (Bt), a bacterium that is applied as a spray (e.g. sold as Dipel®). Bt is effective against all caterpillar species that eat it including heliothis and DBM larvae. Bt spray coverage needs to be complete and it should be applied at egg hatching and young larval stages.

The **nuclear polyhedrosis virus (NPV)** is another biopesticide. It is a viral pathogen that is species specific, i.e. Gemstar® and Vivus® are formulations of the Helicoverpa NPV and are only effective when eaten by heliothis caterpillars. They are most effective against young caterpillars, and therefore crop stages where egg laying is most prevalent, should be targeted, eg. sweet corn silks.

Soft option insecticides like spinetoram and related fermentation products of biological organisms (eg. Success Neo®) affect the nervous system of heliothis, some thrips and beetle pests. They are quick, safe `knockdowns'. Chlorantraniliprole (Coragen®) and flubendiamide (Belt®) are specific to caterpillar pests. These technologies are safe to use and safe for the environment. However, overuse of any one product may lead to the development of resistance.

Case study: Successful management of corn earworm in Queensland using ICP approaches

The sweet corn and brassica industries have led the way on implementing effective and sustainable ICP measures against chewing insects. Sweet corn growers in SE Queensland have been successfully managing corn earworm in situations where scouting and monitoring has supported decision-making, and environmental conditions have suited the application of biological pesticides and the establishment and protection of beneficials (parasitoids and predators).

Loss of pest control, the economics of conventional control and variable product quality were the major reasons that the Lockyer Valley sweet corn growers took a regional approach and gravitated to ICP for corn earworm management. In particular, the growers have made monitoring a routine practice and have developed skills in making timely and successful introductions of beneficials.

Important steps taken by successful growers

Experienced ICP researchers helped introduce ICP practices to Lockyer Valley growers. The growers realised early on they needed training as they were not familiar with the pest life cycle or that of the native beneficials. They were trained in how to recognise pests and beneficials in their various life cycle stages, when and where to monitor for them, and how to effectively protect beneficials by limiting the use of synthetic insecticides.

Soil monitoring

Because spring-summer sweet corn crops are at greatest risk, soil monitoring starts in the winter with over-wintering heliothis pupae the target of inspections. In one-metre row lengths, growers dig carefully to expose emergence tunnels and look for pupae in the chambers. The pupae are usually found in the upper 10 cm. If more than one pupa is found in 10 m2, the growers will cultivate to disrupt the pest's life cycle.

Use of beneficials

The egg parasitoid wasp (*Trichogramma pretiosum*) is hard to monitor directly because of its tiny size, but sweet corn growers have become confident about finding and identifying newly laid (white), close to hatching (brown) and parasitised (shiny black) heliothis eggs. Their numbers provide information on the expected pest pressure and required timing of action. The more black eggs found, the lower the necessity for pest-specific action.

Heliothis eggs courtesy Brad Scholz Queensland Department of Primary Industries

Regular monitoring

Up to the tasselling stage, the sweet corn growers check the whole plant during weekly scouting. Thereafter, the monitoring is twice weekly and the tassels and silks are the main inspection points. The growers apply Bt and NPV sprays at this time. For many growers these are the only spray applications until just prior to harvest. Sensitivity to ultra-violet light makes late afternoon spraying of these biopesticides necessary and modifications to boom sprayers have enabled the sprays to be directed at the cobs. The effectiveness of these treatments is constantly reviewed by growers who make adjustments specific for their crop and equipment.

Consumers are ICP drivers too

Use of ICP to control chewing insects can reduce reliance on synthetic pesticides, and reduce labour requirements (as a result of an overall reduction in spraying). Synthetic pesticide use is a rarely-used "fall back" practice today. However, some ICP growers believe consumers are not ready to accept ladybird beetles or wasps in their produce, even though they are harmless and often dead. Reluctantly, but to ensure these contaminating organisms are not present, some growers use synthetic sprays approximately three days before harvest. It is expected that consumer education will result in changes in market requirements and acceptance, which in turn will drive future expansion of the already successful ICP approach.

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"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

A selection of helpful resources

There are many additional useful resources that can be accessed within the secure area of the AUSVEG website. Go to the Technical Insights page and then to the R+D Insights Database (search engine) where you can initiate a Search using Key Words.

Available resources include:

1. **National Diamondback Moth Project Website** (Via the `Publications' link, you can download a handbook, newsletters, a chart showing the impact of insecticides on natural enemies, etc.)
   http://www.sardi.sa.gov.au/pestsdiseases/horticulture/horticultural_pests/diamondback_moth
2. **Diamondback moth sampling plan** (computer program). VIC DPI
   http://www.dpi.vic.gov.au/agriculture/pests-diseases-and-weeds/pest-insects/ag0512-diamondback-moth/sampling-plan
3. **Sweet Corn Integrated Pest Management (IPM).** 2003. VegeNotes
   http://www.vgavic.org.au/pdf/VegeNote-Sweetcorn-IPM.pdf
4. **Sweet Corn Pests and their Natural Enemies** - an IPM Field Guide. 2000. Llewellyn R.
   https://www.bookshop.qld.gov.au/ProdView.aspx?popup=1&Category=SXXC306020&Product=1864239727
5. **Lettuce Leaf** - all issues: http://www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/lettuce-leaf
6. **Lettuce Leaf** (specific issues - Sept 2007, July 2007):
   http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/167278/Issue29-0707.pdf
   http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0003/201882/Issue-30-2007.pdf
7. **Lettuce Information Kit.** Agrilink, your growing guide.
   http://era.deedi.qld.gov.au/1660/ - See "Key Issues" – pages 45-58; and the "Problem Solver"
8. **Brassica Information Kit.** Agrilink, your growing guide.
   http://era.deedi.qld.gov.au/1965/ - See "Key Issues" – pages 183-255; and the "Problem Solver"
9. **Sweet Corn Information Kit.** Agrilink, your growing guide.
   http://era.deedi.qld.gov.au/1980/ - See "Key Issues" – pages 167-229; and the "Problem Solver"
10. **Resources recently developed for Integrated Pest Management (IPM) in Lettuce and Brassicas Resources** available as spiral bound ute guides and posters from David Carey (Queensland) 13 25 23; callweb@deedi.qld.gov.au; Rob Dimsey (Victoria) (03) 5152 0600 or robert.dimsey@dpi.vic.gov.au.

    Resources may be downloaded as 'pdfs' from the Horticulture Industry Network (HIN) website using the following instructions:

    a. **Brassica Ute Guide (Manual)** - This ute guide, entitled "Brassica Best Practice Integrated Pest Management" can be downloaded as a pdf using this link: http://www.hin.com.au/Resources/Manual-Brassica-Ute-Guide.aspx

    b. **Brassica crop protection products** - A guide to potential impacts on beneficials (Poster) – This item can be downloaded as a pdf by clicking on the link below (which initiates a search on the HIN website). In March 2012, this search only brought up two results, one of which is "Poster Brassica Crop Protection Products".
    http://www.hin.com.au/search.aspx?searchtext=brassica

    c. **Lettuce Ute Guide (Manual)** - This ute guide, entitled "Lettuce Best Practice Integrated Pest Management" can be downloaded as a pdf using this link: http://www.hin.com.au/Resources/Manual-Lettuce-Ute-Guide.aspx

    d. **Lettuce crop protection products** - A guide to potential impacts on beneficials (Poster) – This item can be downloaded as a pdf by clicking on the link below (which initiates a search on the HIN website). In March 2012, this search brought up 9 results, one of which is "Poster Lettuce crop protection products". http://www.hin.com.au/search.aspx?searchtext=lettuce

    e. **Best Practice IPM** - Overview (Poster) – This item can be downloaded as a pdf by clicking on the link below (which initiates a search on the HIN website). In March 2012, this search brought up 57 results. The first one was this poster.
    http://www.hin.com.au/search?searchtext=IPM+overview

    These resources should be used in conjunction with the field identification guides previously produced for lettuce and brassicas:

    f. **Pests, beneficials, diseases and disorders in lettuce: field identification guide. 2003. NSW DPI.** This field identification guide is a companion to "Integrated pest management in lettuce: information guide". The two can be purchased as a package or separately via the following web page:
    http://www.dpi.nsw.gov.au/aboutus/resources/bookshop/ipm-lettuce-field-id-guide

    g. **Field guide to pests, diseases and disorders of vegetable brassicas.** 2000. DPI VIC. Available free of charge to levy-paying vegetable growers ($27.50 for non-levy payers). Call Crop Health Services (DPI Victoria) on: (03) 9210-9356.
11. **The Good Bug Book** (Second Edition) or CD. Download individual chapters associated with the commercially available biocontrol agents and their chemical sensitivity, or go to the Good Bugs website: http://www.goodbugs.org.au

Acknowledgement

Original text was prepared by Scholefield Robinson Horticultural Services Pty Ltd and Sandra McDougall (NSW DPI). This version was revised and updated by Peter Deuter, Lara Senior and John Duff of Agri-Science Queensland (DEEDI) in March 2012.

Appendix 3: Handy Hints for Vegetable Growers: a resources guide

Horticulture Australia

InnoVeg

Horticulture Australia Limited

Handy Hints for Vegetable Growers

a resources guide

www.ausveg.com.au/handyhints

About this Brochure

This brochure summarises useful resources for vegetable growers. Each has been grouped into one of five focus areas - pest and disease management, production management, people management, resource management and business management. The resources include fact sheets, booklets, user guides and online programs. In many cases other resources are available, however these represent some of the most recent resources, which are applicable to a wide range of vegetable producers.

To access the resources online visit www.ausveg.com.au/handyhints.

If you would like any of these resources mailed to you in hard copy, please contact your State Association (contacts listed below) or **AUSVEG** (03 9822 0388).

NSW: NSW Farmers Association - 02 8251 1700
NT: Northern Territory Horticultural Association - 08 8983 3233
QLD: Growcom - 07 3620 3844 or 1800 654 222
SA: Grow SA - 08 8282 9200
TAS: Tasmanian Farmers and Graziers Association - 03 6332 1800
VIC: Vegetable Growers Association of Victoria - 03 9687 4707
WA: Vegetable WA - 08 9481 0834

The brochure has been developed through the Vegetable Industry Development Program.

CONTENTS

Pest and Disease Management

Plant Biosecurity

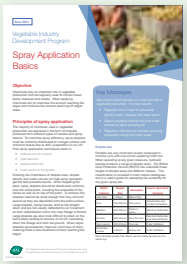
Vegetable Industry Development Program (HAL 2011)

A factsheet providing a set of management practices and activities that can be carried out on-farm to protect your property from the entry and spread of pests.

Spray Application Basics

Vegetable Industry Development Program (HAL 2011)

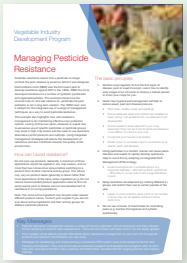
A factsheet outlining the principles for spray application in order to maximize spray efficiency.



Managing Pesticide Resistance

Vegetable Industry Development Program (HAL 2011)

A factsheet outlining some basic principles to avoid pesticide resistance.



Viruses in Vegetable Crops in Australia: integrated Virus Disease Management

(Persley & Gambley 2009)

A fact sheet discussing the different types of viruses found in vegetable crops in Australia, their transmission and strategic measures for control and management.

Farm Biosecurity Manual for the Northern Adelaide Plains Vegetable Growers

(Plant Health Australia 2010)

A manual outlining farm protection measures relevant to all biosecurity threats.

Mega Pests

Vegetable Industry Development Program (HAL 2011)

A series of fact sheets outlining how you can protect your crops and the general environment, by reducing pest pressure through the application of an integrated approach to crop protection.

Topics include:

- The Basics of Protecting your Crops
- Managing Chewing and Biting Insects
- Managing Foliar Diseases
- Managing Soilborne Diseases
- Managing Sucking Pests

Keep it CLEAN: Reducing Costs and Losses in the Management of Pests and Diseases in the Greenhouse

(Badgery-Parker 2009)

A comprehensive guide for greenhouse growers that lists and describes more than 70 management practices that can significantly reduce the costs and losses that can result from pests and diseases. Free to all Australian vegetable-levy-paying greenhouse growers. May also be purchased.

A **series of fact sheets** describing ten essential practices for effective pest and disease management in greenhouses have also be produced in conjunction with the Keep it CLEAN guide.

Lettuce Best Practice: Integrated Pest Management

(Dimsey et al. 2010)

This ute guide will assist with your Integrated Pest Management program for insects, diseases, viruses, nematodes and weeds in lettuce crops.

Brassica Best Practice: Integrated Pest Management

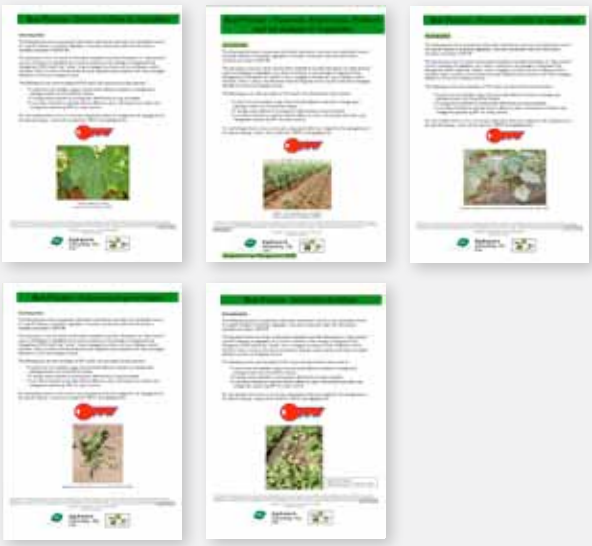
(Dimsey et al. 2010)

This ute guide will assist with your Integrated Pest Management (IPM) program for brassica crops. It includes an overview of IPM and several pest and diseases, as well as monitoring and farm hygiene advice.

Best Practice for Vegetables

(Dal Santo & Holding 2009)

A series of booklets outlining an Integrated Crop Management (ICM) and Integrated Pest Management (IPM) approach to the control of various pests and diseases including Downy Mildew, Fusarium, Pythium and Rhizoctonia root rots, Powdery Mildew and Sclerotinia. This approach aims to minimise the development of fungicide resistance, minimise pesticide residues in food, reduce environmental impacts and limit possible restrictions in trade.



Downy Mildew in Vegetables

Fusarium, Rhizoctonia, Pythium Root Rot Diseases in Vegetables

Powdery Mildew in Vegetables

Sclerotinia in Green Beans

Sclerotinia in Lettuce

Production Management

Good Practice Guide
(Vegetables WA 2007)

A guide encompassing a range of resources aimed at achieving sustainable vegetable production on the Swan Coastal Plain, WA.

Full Document

Nutrient Management

Water Management

Pest and Disease Management

Managing Biodiversity, Waste, Air Quality, and Energy

Soil Management

Post Harvest Management for Vegetables: Facts on Preventing Losses
Vegetable Industry Development Program (HAL 2011)

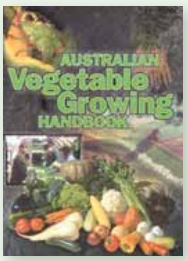
A fact sheet outlining how to maintain the quality of vegetable crops post harvest. Maintaining good vegetable quality requires good systems and communication throughout the supply chain.

Organic Vegetable Production – Soil Management and Crop Establishment
(Neeson 2010)

This factsheet covers soil fertility and crop nutrition, determining crop nutrient requirements, soil preparation and planting, irrigation and post-harvest management and marketing for organic vegetable production.

Australian Vegetable Growing Handbook
(Salvestrin 1998)

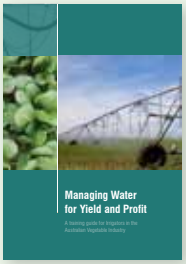
A document intended for the commercial vegetable grower but also contains useful information for home gardeners on the Australian vegetable industry, crop establishment, vegetable varieties, plant nutrition, irrigation, vegetable diseases, pest and weed control, postharvest handling and storage, and marketing. Note: some information may be outdated.



Best irrigation Practices for Vegetables
(Yiasoumi 2004)

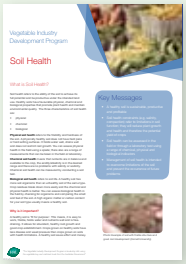
An overview of how best to irrigate vegetable crops to save money and reduce run-off.

Managing Water for Yield and Profit
(Jolbing et al. 2008)



A booklet providing information and tools to help vegetable growers manage crop water use for maximum return, minimise production risks and calculate the real value of the water applied.

Soil Health
Vegetable Industry Development Program (HAL 2011)



A fact sheet outlining the importance of soil health in promoting plant health and maintaining environmental quality, the characteristics of good soils and poor soils and how to identify them on your property.

Best Practice Guidelines for Growing Vegetables
(NSW Primary Industries – Agriculture 2011)

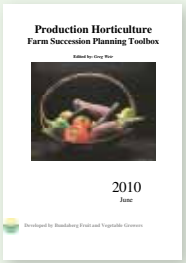
Overview of best practices for vegetable farms including planning, soil management, irrigation and crop fertilisation.

Healthy Soils for Sustainable Vegetable Farms
(Whitman et al. 2007)

A ute guide providing a tool to help growers measure, record, interpret, manage and monitor the health of their soil and to put in place practices that will maintain and restore soil health, sustainability, productivity and profitability. For a copy of the Healthy Soils for Sustainable Vegetable Farms Ute Guide, please contact AUSVEG on 03 9822 0388 or at info@ausveg.com.au.

People Management

Production Horticulture: Farm Succession Planning Toolbox
(Bundaberg Fruit & Vegetable Growers 2010)

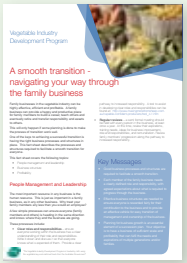


Planning for farm succession allows you to anticipate and prepare for traumatic events such as early deaths, divorce, desertion or a family member deciding to quit farming. This workbook helps with succession planning on farm.

Capable and Confident Producers
(AWI 2008)

A website from the Making More From Sheep program that outlines a range of procedures and tools useful for all farmers regarding allocating responsibility, effective communication, developing a sound business purpose, building knowledge and skills and maintaining a happy work and family balance.

A Smooth Transition – Navigating Your Way Through the Family Business
Vegetable Industry Development Program (HAL 2011)



This fact sheet describes the processes and structures required to facilitate a smooth transition through the family business.

Manage Recruitment Selection and Induction Processes
(Australian Flexible Learning 2011)

An online program about staffing needs, recruitment, selecting and inducting staff.

Develop Teams and Individuals
(Australian Flexible Learning Framework 2011)

An online program for developing an ongoing training program for new and existing staff and a plan for improved work performances.

Resource Management

EnviroVeg Manual

(AUSVEG 2011)

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. For a copy of the EnviroVeg Manual, please contact AUSVEG on 03 9822 0388 or at info@ausveg.com.au.

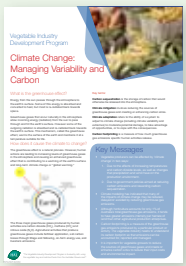
Horticulture for Tomorrow: Environmental Assurance Guidelines

(HAL 2008)

Guidelines that provide growers with a voluntary guide to common practices and expectations for environmental management. The guidelines include 8 key management chapters and a self-assessment checklist for environmental assurance management on-farm.

Climate Change: Managing Variability and Carbon

Vegetable Industry Development Program (HAL 2011)



A fact sheet outlining the contribution of horticulture to climate change, the impact of climate change on horticulture and ways in which farmers can reduce their vulnerability to climate change through adaptation and mitigation.

Vegetable Carbon Calculator

(South Australian Research and Development Institute (SARDI) and Arris Pty Ltd 2010)

The Vegetable Carbon Calculator is an online carbon footprinting tool specifically designed for the Australian vegetable industry. The Vegetable Carbon Calculator will help growers to identify their on-farm carbon footprint and will allocate this footprint to specific crops or crop categories. The Calculator identifies carbon emissions associated with fertiliser use, electricity, fuel, waste, refrigerants and land use change.

Guide to Using Native Plants on the Northern Adelaide Plains to Benefit Horticulture

(Wood et al. 2009)

A guide containing a brief discussion of the usefulness of native plant species with respect to horticulture, followed by information on the six steps involved in undertaking revegetation on horticultural properties.

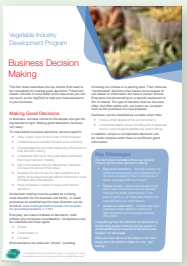
Native Vegetation and Pest Control

(AUSVEG 2008)

A fact sheet describing the important role played by native vegetation in the management of vegetable pests and diseases.

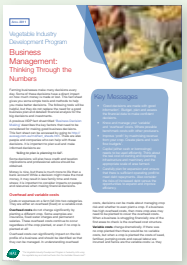
Business Management

Business Decision Making
Vegetable Industry Development Program (HAL 2011)



This fact sheet describes the key factors that need to be considered for making good decisions including risk and uncertainty, people issues and access to information.

Business Management: Thinking Through the Numbers
Vegetable Industry Development Program (HAL 2011)

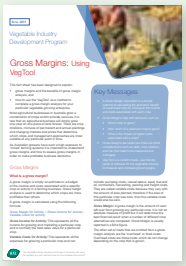


This fact sheet gives growers some simple tools and methods to help make better business decisions.

VegTool
(Scholefield Robinson Horticultural Services Pty Ltd 2009)

A simple computer program developed to assist vegetable growers with making decisions about what to grow based on an analysis of potential income and likely operating costs.

Gross Margins: Using VegTool
Vegetable Industry Development Program (HAL 2011)



This fact sheet has been designed to explain gross margins, the benefits of gross margin analysis and how to use the 'VegTool' as a method to complete a gross margin analysis for your particular vegetable growing enterprise.

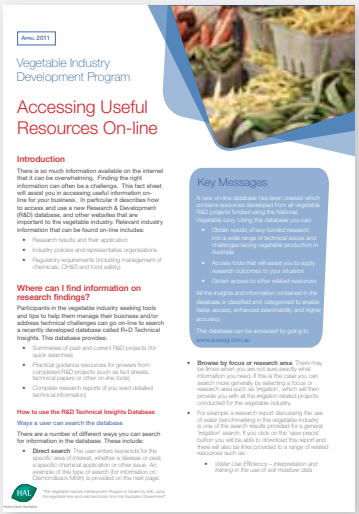
Skills Audit Tool
(Fullelove 2011)

A tool to help vegetable growers identify opportunities for improving their business skills and the skills of the whole farm business unit. It identifies learning priorities that will enhance the profitability, competitiveness and sustainability of a business.

Accessing Useful Resources On-line

Vegetable Industry Development Program (HAL 2011)

A fact sheet that will assist you in accessing useful information on-line for your business. In particular it describes how to access and use the new Research & Development (R&D) database, and other websites that are important to the vegetable industry.



Anno. 2011

Vegetable Industry Development Program

Accessing Useful Resources On-line

Introduction

There is so much information available on the internet that it can be overwhelming. Finding the right information can often be a challenge. This fact sheet will assist you in accessing useful information on-line for your business. In particular it describes how to access and use a new Research & Development (R&D) database, and other websites that are important to the vegetable industry. Relevant industry information that can be found on-line includes:

- Research results and their application
- Industry policies and representative organisations
- Regulatory requirements (including management of chemicals, OH&S and food safety)

Where can I find information on research findings?

Participants in the vegetable industry seeking tools and tips to help them manage their business and/or address technical challenges can go on-line to search a recently developed database called R+D Technical Insights. This database provides:

- Summaries of past and current R&D projects (for quick searches)
- Practical guidance resources for growers from completed R&D projects (such as fact sheets, technical papers or other on-line tools)
- Complete research reports (if you want detailed technical information)

How to use the R&D Technical Insights Database

Ways a user can search the database

There are a number of different ways you can search for information in the database. These include:

- **Direct search**: The user enters keywords for the specific area of interest, whether a disease or pest, a specific chemical application or other issue. An example of this type of search (for information on Diamondback Moth) is provided on the next page.

Key Messages

A new on-line database has been created which contains resources developed from all vegetable R&D projects funded using the National Vegetable Levy. Using this database you can:

- Obtain results of levy-funded research into a wide range of technical issues and challenges facing vegetable production in Australia
- Access tools that will assist you to apply research outcomes to your situation
- Obtain access to other related resources

All the insights and information contained in the database is classified and categorised to enable faster access, enhanced searchability and higher accuracy.

The database can be accessed by going to www.ausveg.com.au

- **Browse by focus or research area**: There may be times when you are not sure exactly what information you need. If this is the case you can search more generally by selecting a focus or research area such as "irrigation", which will then provide you with all the irrigation related projects conducted for the vegetable industry.
- For example a research report discussing the use of water benchmarking in the vegetable industry is one of the search results provided for a general 'irrigation' search. If you click on the 'view precis' button you will be able to download this report and there will also be links provided to a range of related resources such as:
  - *Water Use Efficiency – interpretation and training in the use of soil moisture data*

HAL
Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

Appendix 4: Example of Talking Business Cases

Horticulture Australia

InnoVeg

Horticulture Australia Limited

BUSINESS CASE

Tractor Replacement

Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

Content

Business Case
REPLACING A TRACTOR

What is a business case?

A business case is a formal process of planning to provide the decision-maker with useful information to help them make a decision. You will have greater confidence in your decision, if you use a formal process and make sure you count the right things the right way, whilst also considering the things that cannot be counted.

This business case has been developed as an example. You can use the method described here to help you with your own decisions by inserting your figures into the 'How to calculate it?' tool.

Introduction

A vegetable grower is considering replacing their old tractor with a new one. There are lots of jobs going on around the farm and they feel that a modern tractor will offer greater benefits (e.g. technology and safety improvements). However they are worried whether the extra capital required to replace the tractor is worth it.

The grower is also not sure whether it might be worth keeping the old tractor to do some of the odd jobs that they get contractors for, because the timing of operations means that they could not use the new tractor in both roles.

What is the decision?

The decision for this grower is "do I replace the old tractor and keep the contractors?" or "do I buy a new tractor, keep the old one and save on contractors?" Thus, there are really two separate decisions, or scenarios.

What do you have to count?

Depreciation

An investment in new machinery will increase the grower's depreciation. This is not a cash cost, but a critical allowance to make when calculating profit. If you do not account for depreciation, then you will not have any money available to replace the machinery when needed.

In this case, the old tractor and the new tractor both depreciate. It is sometimes difficult to estimate machinery depreciation, however, it is important to estimate and test your thinking with a few different figures.

Cost of capital

An investment in new machinery also means that the business will need to use spare cash or increase borrowings to pay for the machine, thus they will need to consider the cost of capital. The cost of borrowed capital is obvious (i.e. the interest cost), but the cost of your own capital is less so. Why should you value it any less? Money spent on a tractor, means less money to spend elsewhere, e.g. increase marketing, pay less overdraft interest, improve irrigation systems. Thus, your own capital has a value too, it is known as an 'opportunity cost'.

Productivity benefits

Why does the grower want to buy the new tractor? Productivity benefits. Some productivity benefits may include: reduced labour costs, reduced machinery costs, greater area planted, same area planted quicker, and/or access to different higher priced markets. Thus, these benefits need to be defined and quantified.

In this case, defining the financial benefits can be difficult. It is important to think carefully about how the new (or extra) tractor will improve management and either reduce costs or increase income.

Operating costs

The grower is comparing two different tractors, so they will have different operating costs. They need to quantify the cost to run the tractor, any changes in repairs and maintenance, and of course, labour efficiency.

Contracting costs

Finally, upgrading to a new tractor may provide the opportunity to reduce the cost of contractors, as there are some jobs the grower cannot do at present, which they will be able to do with the new tractor. This is a benefit to the business, but make sure you count your own costs of doing these jobs, e.g. labour, fuel and oil.

The scenario

Here are the three scenarios to be considered describing the current situation, possible future situation of a new tractor and possible future situation of a new plus an old tractor:

What do you count?	**Current situation** *(Existing tractor)*	**Possible future situation #1** *(New tractor only)*	**Possible future situation #2** *(New tractor + old tractor)*
Depreciation	The current tractor is 10 years old and worth about $15,000. It probably has 5 more years before it has scrap value only ($0).	The new tractor (90HP) will cost $75,000 plus the grower will receive $15,000 for the trade-in. The new tractor will be worth about $25,000 in 10 years time. If the tractor is very well maintained, it may not depreciate by this amount. It is worth testing a number of scenarios.	The new tractor will cost $75,000 but there will be no trade-in. The new tractor will be worth about $25,000 in 10 years time. If the current tractors hours are reduced, then its life could be extended out to 10 years.
Cost of capital	With a bit of debt to repay, any spare cash is valued at 8%.	Capital is still worth 8%, whether borrowed or not.	Capital is still worth 8%, whether borrowed or not.
Productivity benefits	The current tractor does about 500 hours work per year.	The new tractor will reduce labour costs. Jobs will be done in about 70% of the time, so each hour of using the new tractor will save 0.3 of an hour of labour.	The labour productivity gains are still available, but cannot be used for the contracting jobs as both jobs happen at the same time.
Operating costs	The old tractor costs $5,000 to maintain, and $5 per hour in fuel and oil.	The new tractor will use the same amount of fuel as the old one, but will cost less per year to maintain ($3000).	The new tractor will use the same amount of fuel as the old one, but will cost less per year to maintain ($3000). If the current tractors hours are reduced, then its maintenance costs could be halved to $2,500.
Productivity benefits	Contractors are used for some jobs because there is only one tractor available. For example – minor earthmoving, cleaning drains. The business spends around $7,500 per year on these jobs, as there are about 75 hours of work for which the contractor charges $100 per hour.	The timing of operations means that the contractor will still have to be used.	By keeping the old tractor, the grower will not need the contractor any more. However, they will need to count the labour, fuel and oil costs required to run the old tractor for those 75 hours.

How do you calculate it?

Figure 1:

Cost of tractor operations

ASSUMPTION	NOW	NEW ONLY	NEW + OLD
Capital Costs			
Current value	$15,000	$75,000	$90,000
Trade-in	$0	$15,000	$0
Salvage value	$0	$25,000	$25,000
Expected life (years)	5	10	10
Interest rate / opportunity cost	8.0%	8.0%	8.0%
Labour Costs			
Number of hours used	500	350	350
Number of staff	1	1	1
Staff costs (incl. on costs)	$22	$22	$22
Operating Costs			
Repairs & maintenance - old	$5,000		$2,500
Repairs & maintenance - new		$3,000	$3,000
Fuel and oil ($/hr)	$5	$5	$5
Cost of Contracting Jobs			
cost of contractor	$100	$100	$0
number of hours	75	75	75

CALCULATION	NOW	NEW ONLY	NEW + OLD
Costs			
Depreciation	$3,000	$3,500	$6,500
Interest / opportunity cost	$1,200	$4,800	$7,200
Labour costs	$11,000	$7,700	$7,700
Repairs & maintenance	$5,000	$3,000	$5,500
Fuel & oil	$2,500	$1,750	$1,750
Cost of contracting jobs	$7,500	$7,500	$2,025
Total costs	$30,200	$28,250	$30,675
Is it more profitable?		YES	NO
by how much?		$1,950	$-475

NB: Refer to the appendix for a more detailed example of how these numbers were calculated.

The calculations show that the most profitable scenario is to purchase the new tractor and trade-in the old one. However, it is a near thing, i.e. the change in total costs is only about $2,500 from the NEW ONLY to NEW + OLD scenario. Thus, other non-financial considerations such as increased flexibility will become really important in the final decision.

The key factor which will determine if it is worth replacing an old tractor with a new one, is just how much it will cost (depreciation and interest) versus what productivity benefit (labour, repairs and maintenance) you can capture.

However, when considering keeping the old tractor in addition to the new tractor, in this situation, the key variable is the cost of the contractor.

...when considering keeping the old tractor in addition to the new tractor, in this situation, the key variable is the cost of the contractor.

Figure 2:

Effect of the cost of the contractor on the savings achieved.

	COST OF THE CONTRACTOR		
Scenario	**$150/hr**	**$100/hr**	**$50/hr**
New Only	$1,950	$1,950	$1,950
New + Old	$3,275	-$475	-$4,225

The numbers presented in Figure 2 are the savings that can be achieved by replacing the old tractor (NEW ONLY) and buying a new tractor, but keeping the old one to replace the contractor (NEW + OLD) at different contractor costs.

1. The savings caused by replacing the old tractor do not change with changes in the cost of the contractor.
2. However, as the cost of the contractor reduces, the savings that can be achieved by keeping the old tractor to do those jobs are less. At $150/hr, it is worth it, but at $50/hr or below, it is not.

Use the “How do you calculate it?” tool provided at www.ausveg.com.au/businesscases to test your own numbers.

What are the risks and how can they be managed?

What is the risk?	Why is this a risk?	How can this risk be managed?
Occupational Health and Safety (OH&S)	The old tractor might be unsafe, or becoming increasingly unsafe if not maintained appropriately.	Keep your equipment **regularly maintained** and ensure you are up to date with all OH&S requirements.
The right tractor for the right job	The jobs that you have used a contractor for might require a tractor with different capabilities than the old one and as it ages it might be less capable.	Have a look at the jobs you need done, consider the tractor required, consider what type of tractor the contractor used and **make sure you have the right tractor for the right job**.
Staff error	Getting used to using a new machine can take a while, especially if you or your staff have been using the old ones for a long time. The automated systems will be more sensitive, so it might need a little bit of extra care when operating it.	**Staff training is essential**. Not just when you first buy it, but throughout the season to ensure you learn while you use it and maximise the benefit to your business.

What else is important?

Unmeasurable benefits and costs

Every decision involves changes (benefits and costs) in your business, some that can be measured and those that cannot. The calculation above demonstrates how to count the things that should be counted, but it is also important to consider those things that cannot be calculated.

When the calculation shows a clear benefit, it is a “no brainer”! Similarly, if there were a clear cost disadvantage from making the change, it would be obvious. However, it may well be the unmeasurable benefits and costs that swing your decision when the calculation is a “close thing”.

Occupational Health and Safety (OH&S)

At a minimum you must comply with the relevant OH&S legislation to ensure the health and safety of your employees, your family and yourself. If in doubt, a few extra dollars invested in quality machinery might save you heaps in medical bills, fines and, more importantly, the welfare of everyone who works in your business.

Timeliness

An updated tractor might help you get those critical jobs, like planting, spraying and harvesting, done on time. This can increase your yields and save you a fortune in downgraded product. Often when the calculations are a “close thing”, this is the issue which will tempt people to update.

Comfort and ease of use

The old tractor may be rough to drive, temperamental, hot, dusty and noisy. A new tractor that improves the comfort and ease of use will improve staff motivation and productivity, and simply make those important jobs easier to do.

New technology

Most new machinery comes with upgraded technology these days. Thus, you are rarely simply replacing the old one with a new replica. The new tractor may have increased technological capabilities like auto-steer, or GPS compatibility. These technologies may have benefits for your business in the future, if not now, and need to be factored into such a decision.

Appendix – Detailed calculation

ASSUMPTION	NOW	NEW ONLY	NEW + OLD
Capital Costs			
Current value	$15,000	$75,000	$90,000
Trade-in	$0	$15,000	$0
Salvage value	$0	$25,000	$25,000
Expected life (years)	5	10	10
Interest rate / opportunity cost	8.0%	8.0%	8.0%
Labour Costs			
Number of hours used	500	350	350
Number of staff	1	1	1
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Operating Costs			
Repairs & maintenance - old	$5,000		$2,500
Repairs & maintenance - new		$3,000	$3,000
Fuel and oil ($/hr)	$5	$5	$5
Cost of Contracting Jobs			
cost of contractor	$100	$100	$0
number of hours	75	75	75

CALCULATION	NOW	NEW ONLY	NEW + OLD
Depreciation			
current value	$15,000	$75,000	$90,000
less trade-in	$0	$15,000	$0
less salvage value	$0	$25,000	$25,000
equals amount to depreciate	$15,000	$35,000	$65,000
divided by expected life	5	10	10
Equals depreciation	**$3,000**	**$3,500**	**$6,500**
Interest / Opportunity Cost			
current value	$15,000	$75,000	$90,000
less trade-in	$0	$15,000	$0
equals total investment	$15,000	$60,000	$90,000
multiplied by interest rate	8.0%	8.0%	8.0%
Equals interest / opportunity cost	**$1,200**	**$4,800**	**$7,200**
Labour Costs			
Number of hours used	500	350	350
multiplied by number of staff	1	1	1
equals total staff hours	500	350	350
multiplied by staff costs/hr	$22	$22	$22
Equals labour costs	**$11,000**	**$7,700**	**$7,700**
Repairs & Maintenance			
repairs & maintenance - old	$5,000	$0	$2,500
plus repairs & maint. - new	$0	$3,000	$3,000
Equals repairs & maintenance	**$5,000**	**$3,000**	**$5,500**
Fuel & Oil			
number of hours used	500	350	350
multiplied by fuel & oil cost/hr	$5	$5	$5
Equals fuel & oil	**$2,500**	**$1,750**	**$1,750**
Cost of Contracting Jobs			
cost of labour per hour	n.a.	n.a.	$22
plus cost of fuel & oil/hour	n.a.	n.a.	$5
equals own costs	n.a.	n.a.	$27
cost of contractor	$100	$100	n.a.
multiplied by number of hours	75	75	75
Equals cost of contracting jobs	**$7,500**	**$7,500**	**$2,025**
Total Cost			
Depreciation	$3,000	$3,500	$6,500
Interest / opportunity cost	$1,200	$4,800	$7,200
Labour costs	$11,000	$7,700	$7,700
Repairs & maintenance	$5,000	$3,000	$5,500
Fuel & oil	$2,500	$1,750	$1,750
Cost of contracting jobs	$7,500	$7,500	$2,025
Total cost	**$30,200**	**$28,250**	**$30,675**
Is it more profitable?		**YES**	**NO**
by how much?			
total cost of now		$30,200	$30,200
less total cost of new only		$28,250	
less total cost of new + old			$30,675
Equals by how much?		**$1,950**	**-$475**

Disclaimer

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HAL
Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

Appendix 5: Example of Talking Business Case Studies

Horticulture Australia

InnoVeg

Horticulture Australia Limited

CASE STUDY

How is Our Business Going?

Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

Content

Case Study
HOW IS OUR BUSINESS GOING?

Introduction

This case study is written to help vegetable growers understand their businesses better. It specifically answers the question – how is our business going? Vegetable growers will be able to make better decisions if they understand the financial performance of their business more clearly, e.g. whether to expand, take risks, or invest in infrastructure.

Vegetable businesses handle lots of money. They have many documents that provide information on money going in and out of the business. This case study aims to simplify the process of analysing the financial performance of the business.

Why analyse your business?

Many business people (not just vegetable growers) measure the success of their business via the balance of their bank account, how much tax they are paying, whether they can live the way they want to, or whether they are growing the things they want to as well as they can. These are all important indicators of business success, but do not, of themselves, give you a complete picture.

Unfortunately, too many businesses run into difficulty because they only rely on these indicators and by the time they are not performing, it can be too late to turn the business around, or undo a major decision that has gone wrong because you should never have done it.

Thus, regularly (annually or seasonally) analysing your business helps you to understand what drives the profitability of your business (as opposed to its production, or your lifestyle), so as you can make better decisions about inputs, crop selection, expansion, vertical integration, relocation and many other issues that are the focus of the InnoVeg business cases and case studies.

Tax statements versus management statements

Every business must prepare a taxation return every year. Your accountant will use your financial records (cash book, bank statements, invoices and receipts) to prepare a Profit and Loss Statement and a Balance Sheet. The main purpose of this work is to calculate the business' tax liability.

It is very important to recognise that your Taxation Profit or Loss is not the same as your Management (or real!) Profit or Loss.

Taxation law defines what income is assessable and what costs are deductible for the purposes of calculating your tax liability. For example:

- You may be able to write-off (depreciate) the value of new equipment faster than what happens in real life (accelerated depreciation).
- You may also be able to claim the full cost of some capital expenditure (e.g. investment in environmental protection) in the year it occurs, rather than over its useful life.
- You may also include payments between the different business entities you have, e.g. payment of land lease by a farm operating company to your superannuation fund, which owns the land. Whilst a legitimate deductible expense for the operating company, if the same person owns the two entities, then they are really just "internal transfers" of funds to keep arrangements clean for taxation and legal purposes.

Finally, it is important to recognise that tax is a business expense. Thus, it is appropriate for a business to seek to minimise those expenses within the ethical and legal framework in which it operates. Whilst the old saying, "profitable farmers pay tax" is correct, not many accountants are praised by their client for calculating a large tax liability!

Thus, your Management Profit or Loss may be significantly different than your Taxation Profit or Loss.

Despite these differences, your Taxation Profit & Loss Statement can be very useful in understanding the performance of your business. This case study takes the Taxation Profit & Loss Statement and some other readily available information, and uses them to analyse business performance.

Getting started

Firstly, find your most recent taxation statements. You will need between three and five years of statements to obtain a longer-term view and account for seasonal variation. When you find these statements, you will note that each statement usually includes two years of data, i.e. the year just concluded (current year) and the one prior (last or previous year). This makes it a little easier to get multiple years!

It will help to analyse the information if you can get them in an electronic form, such as a spreadsheet. An example of a vegetable grower's Taxation Profit & Loss Statement in spreadsheet format is attached in Appendix A.

A summary of this information is shown in the following table.

SUMMARY OF TAXATION P&L STATEMENT	2007	2008	2009	2010
Sales – vegetables	$892,091	$859,235	$705,674	$663,402
Total cost of sales	$283,355	$293,542	$263,241	$155,981
Gross profit from trading	$608,736	$565,693	$442,433	$507,421
Total Income	$623,629	$633,707	$516,949	$514,791
Total Expenses	$465,413	$541,851	$524,371	$462,181
Net Profit/(Loss)	$158,216	$91,856	$-7,422	$52,610

This table shows the business has made a taxation profit in three of the four years, and in one year there was a small loss.

A few other observations can be made about this information:

- Vegetable sales have decreased from around $900,000 to $660,000.
- Cost of sales decreased significantly in 2010.
- Gross profit from trading increased in 2010 despite lower vegetable sales because the cost of sales decreased.

Although these observations are interesting, they don't provide much insight into how the business is going or assist in decision-making.

Sorting the information

In most cases, the information in the Taxation Profit & Loss Statement is listed in alphabetical order. This is of little use for management decision-making. Therefore, the first task is to rearrange this information into groups, which are useful for your decision-making.

Refer to Appendix A. You will note that we have added how we intend to allocate (group together) these income and expense items to the first column of the spreadsheet. The table below is a guide or legend for the codes used.

Code	Group	Definition
VC	Variable costs	Variable (or direct) costs are those costs that vary directly with production, e.g. fertilizer, packaging, casual harvest labour. Grouping these costs together helps to calculate how much it costs to grow and/or pack a crop.
OHC	General overhead costs	General overhead (or fixed) costs are those costs that you have to pay regardless of production (i.e. they hang over your head!), e.g. rates, insurance, accountant, permanent labour, repairs and maintenance. Grouping them together helps you calculate how much your crops need to make, net of variable costs, for your business to be profitable.
P&E	Plant & equipment costs	Plant & equipment costs are a form of overhead cost, but are categorised separately because they often comprise a large component of the overhead costs in a mechanised vegetable operation. Also, unlike other overhead costs, they may change considerably if you change crop or operations.
DEP'N	Depreciation	Depreciation is another form of overhead cost, usually associated with plant & equipment, but is categorised separately because it is a calculation, not a cash cost. As a rule of thumb, 10-15% of the value of your plant & equipment should be depreciated each year. This will be higher if you have hi-tech equipment that is replaced regularly.
FC	Finance costs	Finance costs are the costs of using other people's assets, e.g. interest on borrowed money, lease of land, and hire purchase of equipment. They are grouped together to clearly identify your financial commitments to other people. They also separated because different business may have similar operations and, thus costs, but may be financed differently. Thus, it enables an easier comparison of those operations.
OI	Other income	Other income is income you have earned within the business, but is not directly related to your core business, e.g. interest or sales of minor products like fodder. It is grouped together and separated from your main income stream to allow you to focus on the profitability of your core business, whilst not forgetting to count it.
Wages, fuel & oil	Rebates	Rebates are a form of other income directly related to a specific cost, e.g. diesel fuel rebate. Where they exist it is more valuable to your decision-making to include them as a negative cost (rebate) adjacent to the actual cost, so you see the actual cost of that item to your business.
Exclude	Exclude	Some items included in a Taxation P&L should not be included in a Management P&L, as they distort the real financial performance of your business, e.g. interest rate subsidy, capital items, payments to related entities. **Note**, in this example "water conservation" is actually the cost of their water purchases, thus our treatment of it. However, this terminology usually refers to capital expenditure on water and, therefore would normally be excluded. Make sure you understand the categories your accountant uses!

Making use of the information

Once you have sorted the information into these groups, you only need to do a few simple calculations and you have a very useful Management Profit & Loss Statement.

Appendix B shows the original information from the Taxation Profit & Loss Statement after it has been sorted into these groups, plus some additional calculations and terminology, which are explained below.

Other information	How to use this information
Area	The area of operations has been added to compare costs and profitability on a per hectare basis. This may also be useful for other units e.g. pallet or box.
Gross Margin	Gross Margin is the income less variable costs. If you are looking to expand, or change crops, it will help you understand if it will be profitable. However, be aware, if extra overhead costs are required to expand or change crop, they are not included and need to be accounted for in the decision.
Total operating costs	Total operating costs are included to ensure we still maintain an overview of what our total costs are once we have broken them up into their groups. It also helps you identify useful benchmarks like costs as a percentage of your income.
Operating surplus/(loss)	Operating Surplus/(Loss) is your total income less your total operating costs. This is a cash measure because we have not yet accounted for non-cash items, such as depreciation and owner's labour.
Owner's labour	If you are to have a true and accurate picture of how your business is going, then you need to account for the family labour that is employed within the business, but not directly paid by the business, i.e. living off drawings. The best measure of this is to think about how much you would need to pay to employ a farm manager to take on your responsibilities.
EBIT	Earnings Before Interest and Tax is a common measure of the operating performance of a business. You will see it in the annual report of all major businesses. This measure is the most relevant for comparison with other businesses, because they may operate similarly, but have different financing and taxation arrangements.
EBT	Earnings Before Tax is really your final profit, after you have paid for your finance. This is what you have left to reinvest in the business, make other investments, withdraw for lifestyle choices beyond your wage (owner's labour) and pay tax.

How profitable are you?

Now that you have sorted the information and done a few useful calculations, what does it tell you about how profitable your business is, and why? A summary of our example Management Profit & Loss Statement in Appendix B is presented below.

ROW	SUMMARY	2007	2008	2009	2010
1	Area (ha)	40	40	40	40
2	Sales – vegetables	$892,091	$859,235	$705,674	$663,402
3	Variable costs	$569,908	$647,101	$612,014	$465,903
4	Gross Margin	**$322,183**	**$212,134**	**$93,660**	**$197,499**
5	Gross Margin per hectare	**$8,055**	**$5,303**	**$2,342**	**$4,937**
6	General overhead costs	$24,456	$25,581	$24,322	$26,529
7	Plant & equipment costs	$28,701	$24,336	$29,400	$17,861
8	Total overhead costs	$53,157	$49,917	$53,722	$44,390
9	Total operating costs	$623,065	$697,018	$665,736	$510,293
10	Operating Surplus / (loss)	**$271,107**	**$177,789**	**$47,621**	**$160,479**
11	Depreciation	$62,178	$46,099	$42,846	$38,294
12	Owner's labour	$50,000	$50,000	$50,000	$50,000
13	EBIT (Earnings before interest and tax)	**$158,929**	**$81,690**	**($45,225)**	**$72,185**
14	Finance costs	$50,713	$68,533	$68,809	$69,575
15	EBT (Earnings before tax)	**$108,216**	**$13,157**	**($114,034)**	**$2,610**

The analysis shows that the business generated a healthy EBT (15) in 2007, but it has declined rapidly since then, incurring a substantial loss in 2009 and recovering to "break-even" in 2010.

Why has this occurred?

- Sales of vegetables (2) have been declining over the period, especially in 2009.
- However, total operating costs (9) have remained relatively stable until 2010.
- In 2010, sales of vegetables (2) decreased further, but there was a large decrease (~$150,000) in variable costs (3), leading to a higher gross margin (4).
- There was also a slight decrease in plant & equipment costs (7) and depreciation (11).
- Reference to Appendix B shows that the following variable costs have decreased significantly:
  - Purchases (of vegetables for packing) ~$80,000
  - Payroll costs (of packers) ~$54,000
  - Packaging ~$13,000

Thus, the analysis shows that the business has reduced its losses by removing or reducing its packaging activities. This may indicate that they were not overly profitable previously, but more knowledge of the business is required to make that judgement. Importantly, an understanding of how the business was tracking helped this vegetable grower make an important decision that eliminated their loss. They now need to make further changes to increase their profitability back to 2007 levels.


LIABILITIES
Income Taxes Payable
Current Portion–Deferred
Other Accrued Expenses
Other Current Liabilities
TOTAL CURRENT
Noncurrent Portion
Noncurrent Portion
Noncurrent Portion
Other Noncurren
TOTAL NONC
TOTAL LIAB
Retained Ca
Valuation E
0.97
1.28
0.00
1.15
0.09
39.42
3.25
1.72
9.01
4.80
0.00
9,000
645
$309,040
25,500
13,520
70,700
37,605
owing Crops
List)
ASSETS
Market)

How well are you using your capital?

The standard (or traditional) way of measuring profitability is to compare the profit generated by the assets or equity invested in the business, i.e. measuring investment returns. This approach is useful for determining how efficiently you are using your capital in your business, compared with alternative investments, e.g. other business ventures, bank deposits, the property or share markets.

The two standard measures of investment return are:

1. Return to capital, which is the return to all of the capital (yours and our financiers) invested in the business, and is calculated as EBIT divided by total assets (capital), as a percentage.
2. Return to equity, which is the return to your capital (net worth or equity) only, and is calculated as EBT divided by net worth (equity), as a percentage.

Apart from the Management Profit & Loss Statement already prepared in Appendix B, you will need an up-to-date Balance Sheet. Be wary of your Taxation Balance Sheet, as it uses historical values for assets and your assets are often spread across a number of different business structures and, therefore, balance sheets. Bring them together and use current market values for all your assets.

A simplified balance sheet for our example vegetable grower is provided below.

BALANCE SHEET	VALUES
Value of land & water	$1,500,000
Value of plant & equipment, and sundry items	$300,000
Total assets (or capital)	**$1,800,000**
Value of all external debt	$1,000,000
Net worth (or equity)	**$800,000**

Note:

- Total assets (or capital) equals the sum of the value of the land & water, plant & equipment, and sundry items.
- Net worth (or equity) equals total assets (or capital) less the value of all external debt.

The calculations of investment returns for our example vegetable grower are presented in the table below.

INVESTMENT RETURNS	2007	2008	2009	2010
EBIT (earnings before interest and tax)	$158,929	$81,690	($45,225)	$72,185
Total assets (or capital)	$1,800,000	$1,800,000	$1,800,000	$1,800,000
Return to capital (RTC)	**9%**	**5%**	**-3%**	**4%**
EBT (earnings before tax)	$108,216	$13,157	($114,034)	$2,610
Net worth (or equity)	$800,000	$800,000	$800,000	$800,000
Return to equity (RTE)	**14%**	**2%**	**-14%**	**0%**

The analysis shows that:

- The returns mirror the calculations of EBIT and EBT above, as we have calculated the returns based on the current Balance Sheet.
- The Return to Capital was comparable with other investments in 2007.
- The Return to Equity has greater variation, but balances out to almost 0% over the period.

The greater variation in RTE compared with RTC demonstrates the additional risk associated with having significant debt, i.e. it accentuates the result. When you are running a profitable business, good use of debt to expand that business will further increase that profitability, but when you are running an unprofitable business, debt exacerbates the loss. This is what economists refer to as the “Principle of increasing risk”.

An alternative approach

An alternative approach to examining your investment returns is to split your assets into the business (or operating) assets and the land and water (or real estate) assets. This approach is useful if you consider, as some people do, that farmers are in two businesses, real estate and farming. Thus, what returns you obtain for your real estate investment (return from leasing and capital gain) and what return to you obtain from your business (or operating) assets.

This approach is also useful for the purposes of succession planning (refer to the fact sheet, "A smooth transition – navigating your way through the family business"), as one way to facilitate succession planning is for the owners of the real estate assets (usually the parents) to lease them to the next generation. This provides them with the opportunity to operate the farming business, provide an income for the retiring parents, but leaves asset distribution for an independent process (usually via the estate). Of course, a profitable business is the key ingredient for this to work properly!

This alternative approach is demonstrated in the table below for our example vegetable grower.

REFERENCE	ALTERNATIVE APPROACH	2007	2008	2009	2010
1	EBIT (Earnings before interest & tax)	$158,929	$81,690	($45,225)	$72,185
2	Value of land & water	$1,500,000	$1,500,000	$1,500,000	$1,500,000
3	Lease at 5%	$75,000	$75,000	$75,000	$75,000
4	Other leases (paddock lease)	$19,250	$9,625	$7,087	$3,938
5	**Total cost of capital**	**$94,250**	**$84,625**	**$82,087**	**$78,938**
6	Business profit	$64,679	($2,935)	($127,312)	($6,753)
7	Business capital (plant & equipment)	$300,000	$300,000	$300,000	$300,000
8	**Return to business capital**	**22%**	**-1%**	**-42%**	**-2%**

This calculation is completed as follows:

- Determine a fair lease value (3) – we have used 5% of the value of land and water (2). This is because agricultural land is often leased for about 3% to 5% of value, whilst irrigation water is often leased at 5% to 7% of value. However, the market (demand and supply) determines the lease price, not some arbitrary percentage value.
- Include other leases (4) and add them together to calculate the total cost of capital (5).
- Calculate business profit (6) by subtracting the cost of capital (5) from the EBIT (1).
- Calculate the return to business capital (8) by dividing the business profit (6) by the value of the business capital (7), as a percentage.

The analysis shows that:

- The business could easily afford to pay a commercial lease on the real estate assets in 2007 and provide a healthy investment return of 22%.
- However, it incurred an extremely heavy loss of 42% in 2009.
- It was only break-even in 2008 and 2010.

Thus, like debt, leasing all of the land and water assets you need to run a farming operation has substantially increased the variation (risk!) in returns. However, the alternative approach does provide a clear message about how much the business needs to improve its financial performance if it wishes two generations to live comfortably off its returns.

Conclusions

A business can build a very valuable source of information by setting up a consistent method of analysing their annual financial statements. Each year more information can be added to the analysis and a long-term view of the business' financial performance can be developed.

This information is very useful to discuss the business with your advisors, bankers and other people involved in the business. Also, if you are thinking of bringing another person into the business, this analysis will be very important for them to understand the financial performance of the business.

Appendix A – Example Taxation Profit & Loss Statement

ALLOCATION	INCOME	2007	2008	2009	2010
	Sales - vegetables	**$892,091**	**$859,235**	**$705,674**	**$663,402**
	Less Cost of Sales				
VC	Purchases	$201,608	$202,717	$190,428	$111,356
VC	Freight & cartage	$44,632	$49,543	$59,980	$44,488
VC	Packaging - vegetables	$37,115	$41,282	$12,833	$137
	Total cost of sales	**$283,355**	**$293,542**	**$263,241**	**$155,981**
	Gross Profit from Trading	**$608,736**	**$565,693**	**$442,433**	**$507,421**
OI	Agistment	$1,576	$120		
OI	Interest received	$505	$237	$104	$6,642
OI	Rebates received - catchment authority			$2,989	
wages	Rebates received - wages	$598	$1,002	$2,112	
fuel & oil	Rebates received - diesel	$12,214	$7,674	$8,109	
exclude	Interest rate subsidy		$28,766	$56,612	
exclude	Flood relief grant		$15,000		
OI	Sales - fodder		$7,040	$4,590	$728
OI	Sundry income		$8,175		
	Total Income	**$623,629**	**$633,707**	**$516,949**	**$514,791**
	EXPENSES				
OHC	Accountancy fees	$1,000	$1,100	$1,200	$1,670
OHC	Bank charges	$682	$1,002	$739	$202
FC	Borrowing expenses	$568	$883	$814	$1,383
OHC	Consultants fees		$1,818		
VC	Contract work				$37,563
DEP'N	Depreciation	$62,178	$46,099	$42,846	$34,997
P&E	Depreciation - motor vehicles				$3,297
OHC	Electricity & gas	$3,465	$4,132	$5,102	$5,208
VC	Fertilizer & spreading	$14,558	$25,583	$26,300	$19,490
VC	Fuel & oil	$33,403	$41,079	$37,371	$20,938
VC	Harvesting		$1,500	$1,020	$792
P&E	Hire of plant & equipment		$730	$27	
OHC	Insurance	$2,420	$2,695	$3,036	$4,315
FC	Interest	$30,895	$58,025	$60,908	$64,254
OHC	Journals & reference books	$229	$233	$264	$131
OHC	Licences, registrations, permits	$3,642	$2,693	$830	
P&E	Motor vehicle expenses	$4,868	$4,251	$4,451	$2,018
exclude	Pasture restoration		$15,067		
FC	Paddock lease	$19,250	$9,625	$7,087	$3,938
OHC	Permits, licences & fees				$1,095
OHC	Postage, printing & stationery	$636	$876	$886	$473
OHC	Protective clothing	$372	$461	$454	$139
OHC	Rates & land tax	$8,628	$6,814	$7,007	$9,975
P&E	Repairs & maintenance	$23,634	$19,092	$24,486	$15,644
VC	Sprays & spraying	$42,900	$30,830	$35,685	$28,951
OHC	Staff training & welfare			$695	$973
VC	Superannuation	$14,518	$13,176	$18,451	$11,092
OHC	Sundry expenses	$339	$445	$282	$133
OHC	Telephone	$2,755	$3,020	$3,513	$1,895
P&E	Tool replacements	$199	$263	$436	$199
VC	Wages	$168,398	$197,274	$184,776	$141,493
OHC	Waste disposal	$288	$292	$314	$320
VC	Water expenses	$5,139			
VC	Water conservation	$10,879	$45,873	$48,337	$44,718
VC	Workcover	$9,570	$6,920	$7,054	$4,885
	Total Expenses	**$465,413**	**$541,851**	**$524,371**	**$462,181**
	Net Profit/(Loss)	$158,216	$91,856	($7,422)	$52,610

Appendix B – Example Management Profit & Loss Statement

ALLOCATION		2007	2008	2009	2010
	Area (hectares)	**40**	**40**	**40**	**40**
	Sales - vegetables	**$892,091**	**$859,235**	**$705,674**	**$663,402**
	Variable Costs				
VC	Contract work				$37,563
VC	Fertilizer & spreading	$14,558	$25,583	$26,300	$19,490
VC	Freight & cartage	$44,632	$49,543	$59,980	$44,488
VC	Fuel & oil	$33,403	$41,079	$37,371	$20,938
fuel & oil	Rebates received - diesel	($12,214)	($7,674)	($8,109)	
VC	Harvesting		$1,500	$1,020	$792
VC	Packaging - vegetables	$37,115	$41,282	$12,833	$137
VC	Purchases	$201,608	$202,717	$190,428	$111,356
VC	Sprays & spraying	$42,900	$30,830	$35,685	$28,951
VC	Superannuation	$14,518	$13,176	$18,451	$11,092
VC	Wages	$168,398	$197,274	$184,776	$141,493
wages	Rebates received - wages	($598)	($1,002)	($2,112)	
VC	Water expenses	$5,139			
VC	Water conservation	$10,879	$45,873	$48,337	$44,718
VC	Workcover	$9,570	$6,920	$7,054	$4,885
	Total variable costs	**$569,908**	**$647,101**	**$612,014**	**$465,903**
	Gross margin	**$322,183**	**$212,134**	**$93,660**	**$197,499**
	Gross margin per hectare	**$8,055**	**$5,303**	**$2,342**	**$4,937**
	Other income				
OI	Agistment	$1,576	$120		
OI	Interest received	$505	$237	$104	$6,642
OI	Rebates received - catchment authority			$2,989	
OI	Sales - fodder		$7,040	$4,590	$728
OI	Sundry income		$8,175		
	Total other income	**$2,081**	**$15,572**	**$7,683**	**$7,370**
	General Overhead Costs				
OHC	Accountancy fees	$1,000	$1,100	$1,200	$1,670
OHC	Bank charges	$682	$1,002	$739	$202
OHC	Consultants fees		$1,818		
OHC	Electricity & gas	$3,465	$4,132	$5,102	$5,208
OHC	Insurance	$2,420	$2,695	$3,036	$4,315
OHC	Journals & reference books	$229	$233	$264	$131
OHC	Licences, registrations, permits	$3,642	$2,693	$830	
OHC	Permits, licences & fees				$1,095
OHC	Postage, printing & stationery	$636	$876	$886	$473
OHC	Protective clothing	$372	$461	$454	$139
OHC	Rates & land tax	$8,628	$6,814	$7,007	$9,975
OHC	Staff training & welfare			$695	$973
OHC	Sundry expenses	$339	$445	$282	$133
OHC	Telephone	$2,755	$3,020	$3,513	$1,895
OHC	Waste disposal	$288	$292	$314	$320
	Total general overhead costs	**$24,456**	**$25,581**	**$24,322**	**$26,529**
	Plant & Equipment Costs				
P&E	Hire of plant & equipment		$730	$27	
P&E	Motor vehicle expenses	$4,868	$4,251	$4,451	$2,018
P&E	Repairs & maintenance	$23,634	$19,092	$24,486	$15,644
P&E	Tool replacements	$199	$263	$436	$199
	Total plant & equipment costs	**$28,701**	**$24,336**	**$29,400**	**$17,861**
	Total overhead costs	**$53,157**	**$49,917**	**$53,722**	**$44,390**
	Total operating costs	**$623,065**	**$697,018**	**$665,736**	**$510,293**
	Operating surplus / (loss)	**$271,107**	**$177,789**	**$47,621**	**$160,479**
	Depreciation				
DEP'N	Depreciation - motor vehicles				$3,297
DEP'N	Depreciation	$62,178	$46,099	$42,846	$34,997
	Total depreciation	**$62,178**	**$46,099**	**$42,846**	**$38,294**
	Owner's labour (estimate)	**$50,000**	**$50,000**	**$50,000**	**$50,000**
	EBIT (earnings before interest and tax)	**$158,929**	**$81,690**	**($45,225)**	**$72,185**
	Finance Costs				
FC	Borrowing expenses	$568	$883	$814	$1,383
FC	Interest	$30,895	$58,025	$60,908	$64,254
FC	Paddock lease	$19,250	$9,625	$7,087	$3,938
	Total finance costs	**$50,713**	**$68,533**	**$68,809**	**$69,575**
	EBT (earnings before tax)	**$108,216**	**$13,157**	**($114,034)**	**$2,610**
	Non Management Items				
exclude	Interest rate subsidy		$28,766	$56,612	
exclude	Flood relief grant		$15,000		
exclude	Pasture restoration		$15,067		

Disclaimer

This business case was produced and edited by RMCG (ph: 03 9882 2670). RMCG produces these business cases with the expectation that users exercise their own skill and care with respect to its use. Before relying on or altering any business practices, users should carefully evaluate the accuracy and relevance of the information for their purpose and should obtain appropriate professional advice relevant to their particular circumstances.

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Appendix 6: Guide for running Talking Business workshops

Vegetable Industry Development Program

Using Talking Business Resources

Introduction

The 'Talking Business' project aims to assist those in the vegetable industry (both growers and those advising them) to making business decisions, through the provision of a range of resources. These resources provide a framework for the decision-making process, and aim to facilitate discussion regarding business decisions both amongst growers and with their advisers.

The 'Talking Business' resources consist of business cases and case studies, which have been developed in collaboration with vegetable growers and advisers around Australia. They are based on a range of scenarios that require business decisions which vegetable growers have identified as being either difficult or confusing.

The theory behind 'Talking Business' is that many decisions are complex and difficult. Often vegetable growers find identifying and discussing how they make these decisions difficult. However it is well-known that by discussing decisions, growers become more confident in their decision-making and ultimately make better decisions. For each scenario, the resource will enable the reader to:

- Lay out a framework for determining the financial costs and benefits
- Identify the 'unmeasurable' costs and benefits
- Identify the key assumptions required to make the decision and the potential risks
- Determine what it all means for 'me'.

Vegetable growers may choose to use the resources within their own business to:

- Assist with a decision in a family business. For example all business owners need to understand how a decision has been made. The business cases will explain the theory and the real figures can be set out clearly using the spreadsheets. Business owners may then discuss the figures and the other important issues which influence the decision.
- Assist in other business decisions not covered directly in the available business cases. Where a vegetable grower is making a decision which is not covered in the business cases, they may still use the same principles. For example the purchase of a carrot washer is not specifically covered in a business case, however the principles discussed in the business case for the capsicum grader are the same and can be directly applied to this decision.

This guide has been developed to assist advisors in using the resources, in a group or one-on-one situation, to facilitate discussion around decision-making processes.

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The Materials

A business case is a formal process of planning, to provide the decision-maker with useful information to help them make a decision. Each of the business cases:

- Uses a specific example to demonstrate how the calculations are done. The figures in the example are based on a real case, however every farm is different and it is very important each vegetable grower uses their own figures based on their particular situation. In some cases the example used in the business case won't be relevant to the growers situation, however the principles used to make the decision can be used to assist with decision-making.
- Have been simplified to demonstrate the important principles behind the decision-making. For a specific real-life situation it is important that a more detailed business case is developed prior to making the decision.
- Have a spreadsheet which can be used for the vegetable grower to do their own calculations. The vegetable grower can put their own figures into the cells. The cells with blue text can be changed, however all the other cells are locked.
- Enables growers to logically calculate the benefits and costs, and highlights other factors which may be important. Good decision-making involves a combination of calculating the benefits and costs, and considering a range of other factors such as risk, uncertainty and social factors.

Business cases have been prepared on the following topics:

Title	Summary
Buy a Truck or Use a Contractor?	This business case investigates two scenarios: ▪ Should I buy a truck and do my own cartage? ▪ Should I sell my truck and use contractors?
Capsicum Grader	This business case investigates the following scenario: ▪ Is it worth buying a new automated capsicum grader?
Developing a Block of Land for Vegetable Production	This business case investigates the following scenario: ▪ Should we invest in developing a block to expand our enterprise?
IPM in Lettuce	This business case investigates the following scenario: ▪ How much do I need to reduce crop damage to justify the extra costs of higher priced chemicals and a crop scout?
Lettuce Planter	This business case investigates the following scenario: ▪ Is it worth buying two new planters? (Will the new machines be cheaper to own and operate when compared to the existing machines?)
Property Relocation Part A and B	This business case investigates the following scenario: ▪ Should I expand production to a new area or to relocate the existing farming activities to a new property?
Tractor Replacement	This business case investigates two scenarios: ▪ Should I replace the old tractor and keep the contractors? ▪ Should I buy a new tractor, keep the old one and save on contractors?
New Irrigator	This business case investigates two scenarios: ▪ Should I continue with the two existing lateral move boom irrigators? ▪ Should I purchase a new lateral move irrigator in addition to the existing lateral move irrigators?

Expansion Through Vertical Integration	This business case investigates the following scenario: ▪ What are the additional costs and additional income achievable from vertical integration / value adding of a portion of the sweet corn crop for the fresh market?

A case study outlines and discusses the characteristics of different business models. The case studies focus on the components within each business that help determine success and profitability (including innovation and planning).

Information provided in the case studies is designed to assist growers to:

- Understand costs of production
- Identify the key factors affecting business performance
- Identify best practices
- Identify key indicators to measure performance
- Determine the financial viability of different business models.

Case studies have been prepared on the following topics:

Title	Summary
Building a Sound Vegetable Growing Business	This case study aims to describe how well managed businesses are run. The case study is based on discussions with a range of successful vegetable growing businesses in New South Wales, Queensland, Western Australia and Tasmania.
Direct Sales and Food Safety	This case study explores the benefits and considerations for vegetable growers who might be considering direct sale of their produce to the public. It describes the issues and calculations the grower has to consider, in order to make good decisions about how to pursue a direct sales business.
How is Our Business Going	This case study was written to help vegetable growers understand their businesses better. It aims to simplify the process of analysing the financial performance of the business.
Using Cost of Production for Decision Making	This case study shows how calculating cost of production can be used to help vegetable growers make decisions.
Vegetable Supply Agreements	This case study is designed to help vegetable growers understand the risks and requirements of entering into a Vegetable Supply Agreement (Contract) with processors, rather than selling produce through the existing wholesale markets.
Labour Management	This case study is designed to help vegetable growers understand the key aspects of employing staff and labour management in their businesses to achieve positive outcomes.
Exit Strategy	This case study aims to help vegetable growers understand the key aspects of creating and adopting an exit strategy to achieve the best outcome for their business.

Using the resources

The resources have been developed so they can be used individually by vegetable growers within their business. However the greatest benefits are likely to be realized when the resources are used within a facilitated group situation, which generates a wide-ranging discussion around the decision-making process.

A strong financial/business background is not required due to the detailed spreadsheet at the end of the business case, which sets out in detail how each calculation was made. It is advisable however to carefully read through the

business case to gain a good understanding of the calculations before presenting this material to others. Once 'real' numbers start to be entered into the spreadsheets it can be easy to become confused as the numbers change. Make sure you have a thorough understanding of the principles and theory behind the calculations!

Principles

An understanding of extension principles will assist in successfully using these, and other similar resources, in a group or one-on-one situation. Things to consider include:

Principle	Description
Understanding and respecting the target audience	Understanding the audience includes an analysis of their different needs and circumstances, the decisions they find difficult, the assistance they require and how they use information. Assessment of the audience incorporates: ▪ Industry context ▪ Farming context ▪ Personal attributes. Talking Business resources should be used on groups of growers where a specific need has been identified rather than using a 'blanket' approach for all growers (one size does not fit all).
Understanding motivations for adoption of innovation	It should be recognised that growers have good reasons for not adopting a specific innovation (practice and/or technology) and this is not necessarily limited by lack of knowledge. Adoption of an innovation may occur for a range of reasons relating to the individuals motivations – including social benefits such as labour saving, prestige, comfort and opportunities for recreation (not just finance).
Considering a range of different learning styles	These resources should be used in a range of activities suited to different learning styles. While some producers may be happy to discuss the way they make decisions in a group situation, others may be more comfortable working one-on-one or simply being provided with the material to work on by themselves.
Appreciate complexity of decision making	An appreciation of the complexity of farm decision-making will facilitate the use of these resources. The focus should be on striving for better decisions rather than best practice – given many decisions are complex and best practice implies there is only one way to achieve a desired outcome. The advisor or extension worker is often one of many people in the decision making process.
Focus on capacity building	As decisions become more complex there is a need for increased people skills and human capacity. These resources can support better decision-making by: ▪ Helping improve producers awareness and skills in the decision making process ▪ Developing intuition to improve decision making i.e. facilitating farmers ability by increasing their experience, discussion of and thinking about a particular area. There is a core need to build capacity of individuals to seek the relevant information and make the correct decisions for their individual situation.
Adopt a flexible and responsive approach	Evaluation is critical for the on-going adaptation and continued success of any resources. Regularly survey the vegetable growers you work with to determine if objectives are being achieved and adapt your delivery in response to these findings.

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Approach

Business Cases

The use of the Talking Business resources in small groups, with members who already know each other, will promote confidentiality and openness in the discussion. A suggested approach for using these resources within a facilitated group situation is:

- Begin by asking the group what are the important decisions they are faced with in their business. This will lead to a general discussion within the group on the issues that concern them most or the topics they find hardest to make decisions on.
- Bring it back to one example - a common theme may become evident or there may be an opportunity to use a business case scenario which interests most of the group.
- Hand-out to the group the business case or case study that applies to that particular example/scenario. Ask the group to read the business case and discuss in pairs what influences their decision.
- Start to enter 'real' figures provided by the growers into the spreadsheet – encourage growers to provide their own figures as the group will become most interested when the business case is applicable to their situation.
- Discuss the financial aspect of the decision (i.e. using the lettuce planter business case as an example):
    - How much is it going to cost (including the cost of capital, operating costs and depreciation)?
    - What will you get back (what are the productivity benefits)?
    - What are the assumptions required to make the calculations and how sensitive are they?
- Once all the numbers have been entered and discussed progress to the other things that haven't yet been considered. These may include the 'unmeasurable' benefits and costs such as:
    - An improvement in product quality (i.e. less dirt in lettuce if purchasing a new lettuce harvester)
    - An improvement in staff conditions on the planter and/or harvester (less OH&S concerns)
    - Potential risks and how they can be measured
    - Will this investment require you to be 'locked in' to using the new planter/harvester? Lifestyle is an important factor. A new investment (even if it generates more income) may not be worthwhile if the grower spends all their time working.
- Remember not to get too caught up in the numbers. The purpose of the exercise is to think and talk through the principles required to make the decision, rather than the decision itself!

Broadening the discussion to include the factors beyond the costs and returns (i.e. will the decision reduce risk, increase risk, improve the quality of product, ensure market is retained) is important for thinking through how the decision will impact on the whole business. An awareness of the other Talking Business resources will assist the advisor in facilitating these discussions. The case study 'How is Our Business Going' in particular could be useful when leading these types of discussions as it aims to simplify the process of analysing the financial performance of the business.

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Case Studies

Vegetable growers commonly cite concerns about insecurity of price and relationship with buyers. This issue highlights how uncertain the business is, and how this dominates decision-making. Common discussion points amongst a group of vegetable growers may be around:

- The cost of producing vegetables
- The need to build a business within a market
- The need to understand the profitability of a business
- The need to be rewarded for labour, capital and make a profit.

The Talking Business case studies can assist advisors and growers in exploring these issues and how it impacts on grower's businesses by providing further information on:

- Analysing and understanding the financial performance of their business
- Labour management
- Using costs of production for decision-making

While the aim of these resources are to promote discussion within a group situation, they have also been designed for use in one on one discussions with growers, or as handouts to encourage discussion of business decisions in the field.

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Appendix 7: Example of translated Fact Sheets

Chương Trình Phát Triển Ngành Rau

Đưa Ra Quyết Định Kinh Doanh

Tờ thông tin này mô tả các yếu tố chủ chốt cần được xem xét để đưa ra các quyết định sáng suốt. Các tờ thông tin sau này sẽ tập trung chi tiết hơn vào các nguồn lực quý vị có thể sử dụng (chẳng hạn như VegTool) để giúp quý vị đưa ra quyết đị nh trong kinh doanh của mình.

Đưa Ra Các Quyết Định Sáng Suốt

Trong kinh doanh, thành công đến với những người có các quyết định lớn đúng đắn. Tuy nhiên, việc đưa ra quyết định sáng suốt không dễ chút nào.

Để đưa ra các quyết định kinh doanh sáng suốt hơn, nông dân cần:

- Có một tầm nhìn rõ ràng về tương lai của việc kinh doanh của họ
- Hiểu và xem xét các rủi ro và bất trắc
- Nhận ra các ảnh hưởng không làm tối đa hóa lợi nhuận trong việc đưa ra quyết định của họ
- Hiểu rằng tất cả chúng ta đều có các định kiến và thành kiến mà tác động tới việc đưa ra quyết định
- Trao đổi với những người chịu ảnh hưởng của quyết định và chú ý đến quan điểm của họ
- Phát triển các kỹ năng đưa ra câu hỏi đúng và thu thập và phân tích đầy đủ thông tin liên quan để có thể tự tin vào quyết định đó
- Có các quy trình tại chỗ để đánh giá và cải thiện quyết định

Toàn bộ quá trình đưa ra quyết định phải được hướng dẫn theo định hướng chắc chắn, rõ ràng cho doanh nghiệp và gia đ ình. Có thể tìm thấy quy trình hữu ích trong việc thiết lập định hướng rõ ràng này tại: www.makingmorefromsheep.com.au/plan-for-success/procedure_1.1.htm

Hàng ngày, chúng ta đưa ra hàng trăm quyết định, hầu hết đều không có bất kỳ sự xem xét có ý thức nào. Có thể phân loại tất cả các quyết định thành ba kiểu:

- Đơn giản
- Phức tạp; hoặc
- Rắc rối

Hầu hết các quyết định chúng ta đưa ra đều là 'đơn giản', gồm có việc lựa chọn quần áo hay chỗ đậu xe. Và cũng có những quyết định 'phức tạp' mà yêu cầu một mức độ tính toán hay thông tin nào đó nhưng có câu trả lời chính xác. Ví dụ như việc quyết định tới một nhà hàng hay đi xem một bộ phim cụ thể. Dạng quyết định mà chúng ta ít thường xuyên đối mặt hơn, nhưng thường phải đấu tranh với quyết định đó, được gọi là 'rắc rối' chẳng hạn như mua một bất động sản mới.

Các quyết định có thể được phân loại là rắc rối khi:

- Có mức độ rủi ro và bất trắc cao
- Kết hợp các vấn đề về con người gồm cả áp lực xã hội và các ưu tiên và/hoặc nhược điểm về tâm lý

Ngoài ra, các quyết định đơn giản hay phức tạp có thể trở thành rắc rối khi không có đầy đủ thông tin tốt.

Thông Điệp Quan Trọng

Tờ thông tin này xem xét về ba yếu tố then chốt gây ảnh hưởng đến việc đưa ra quyết định:

- **Rủi ro và bất trắc** – việc điều hành trang trại đòi hỏi phải thường xuyên đánh giá và quản lý rủi ro và bất trắc. Rủi ro là nguồn gốc của các lợi nhuận và tổn thất trên mức trung bình.
- **Các vấn đề về con người** – các xem xét về xã hội thường ảnh hưởng nhiều hơn tới việc đưa ra quyết định hơn là tối đa hóa lợi nhuận của nông dân. Điều này có vẻ hiển nhiên, tuy vậy hầu hết các quyết định và công cụ vẫn tập trung vào các yếu tố lợi nhuận.
- **Tiếp cận thông tin** – việc đưa ra quyết định rắc rối được tiến hành dễ dàng hơn bằng cách hỏi các câu hỏi đúng và phân tích thông tin sẵn có.

Việc xem xét cách các yếu tố khác nhau của hệ thống canh tác tương tác có thể có ích trong việc hiểu tác động của các quyết định (xem sơ đồ ở trang cuối cùng).

Sau khi quý vị hoàn thành tất cả các bước trong tờ thông tin này, đừng sợ khi nghe theo "trực giác" của mình.

HAL Horticulture Australia

"Chương Trình Phát Triển Ngành Rau được HAL tài trợ bằng cách sử dụng tiền thuế rau và các quỹ tương ứng từ Chính Phủ Úc".

Rủi Ro và Bất Trắc

Nông dân có thể đưa ra quyết định sáng suốt hơn bằng cách vượt qua một chút bối rối do môi trường hoạt động liên tục thay đổi gây ra. Việc điều hành trang trại đòi hỏi phải liên tục đánh giá và quản lý rủi ro và bất trắc. Rủi ro là nguồn gốc của các lợi nhuận và tổn thất trên mức trung bình.

Với việc kinh doanh điều hành trang trại có rủi ro kinh doanh mà liên quan đến mặt hoạt động của việc điều hành kinh doanh, và rủi ro tài chính mà liên quan đến việc cấp vốn cho việc kinh doanh đó.

- Rủi ro và bất trắc trong kinh doanh gồm có toàn bộ phạm vi rủi ro về sản xuất và giá cả. Các nguồn rủi ro chính đó là sự biến động về thời tiết và biến động về giá cả sau khi đã đưa ra và thực hiện các quyết định sản xuất.
- Rủi ro và bất trắc tài chính đề cập cụ thể tới khoản nợ của một doanh nghiệp liên quan đến vốn cổ phần, tức là quý vị sử dụng bao nhiêu phần trăm tiền của người khác để làm vốn kinh doanh tương ứng với tiền riêng của quý vị (gọi là tỷ số vốn vay) và tác động của việc đó đối với nhịp độ tăng trưởng hay sự suy yếu của một doanh nghiệp. Tỷ số đó càng cao, rủi ro càng cao.

Các nhà quản lý rất ít kiểm soát trực tiếp đối với hầu hết các sự cố rủi ro kinh doanh, tuy nhiên họ có kiểm soát trong việc chuẩn bị và ứng phó với các diễn biến này.

Điều quan trọng là những người khác nhau có sự chủ quan và trải nghiệm khác nhau đối với rủi ro. Do đó các cá nhân phải xem xét rủi ro và bất trắc từ góc độ cá nhân của họ bằng cách sử dụng các công cụ hữu ích đối với họ.

Có thể tìm thấy công cụ đánh giá rủi ro kinh doanh hữu ích tại: www.makingmorefromsheep.com.au/plan-for-success/tool_1.10.htm

Người Đưa Ra Quyết Định Sáng Suốt

Jo Blaggs, một người trồng rau ở huyện Bundaberg đang xem xét việc xây dựng một xưởng đóng gói mới.

Anh biết đây không phải một quyết định dễ dàng hay đơn giản cho nên anh đã suy nghĩ về các rủi ro liên quan bằng cách nói chuyện với người hàng xóm mà đã xây xưởng mới cách đây 10 năm. Người hàng xóm khuyên anh không nên dùng quá nhiều vốn vì ông ấy nhận thấy giá cả kém trong một vài năm đã gây áp lực lớn tới vòng quay tiền mặt.

Anh nói chuyện với anh trai và vợ và họ bảo rằng họ lo lắng về việc dùng quá nhiều vốn vì họ chỉ mới mua đất cách đó hai năm.
Anh nói chuyện với người quản lý ngân hàng của mình và đã thu xếp một tỷ lệ lãi xuất tốt ở mức cố định. Cuối cùng anh đã tiến hành phân tích đầu tư trong giai đoạn 15 năm. Phân tích này cho thấy tỷ suất lợi nhuận là 18%. Điều này giúp vợ và anh trai anh thấy tin tưởng.

Quản Lý Thích Nghi

Đối với các quyết định mà được đưa ra lặp đi lặp lại, có thể học hỏi và làm cho tốt hơn từ các quyết định trước đó. Điều này yêu cầu phải có quy trình tại chỗ để đánh giá, ghi chép và đưa ra phản hồi về kết quả của các quyết định. Quy trình này được gọi là "quản lý thích nghi" và đặc biệt hữu ích trong môi trường bất trắc và hay thay đổi.

Đưa Ra Quyết Định Thiết Thực

Việc đưa ra quyết định thiết thực yêu cầu phương án quản lý rủi ro đối với quá trình đưa ra quyết định, bằng cách điều tra sự bất trắc của một tình huống, tức là chúng ta đang phải giải quyết loại rủi ro nào? Sự bất trắc đó tác động như thế nào đến kết quả mong muốn của chúng ta? Sau đó có thể đưa ra quyết định để đối mặt với các thay đổi của tương lai.

Một quyết định (hay giải pháp) thiết thực là quyết định mà:

- Vẫn khả thi trong phạm vi rộng nhất của các tương lai có thể xảy ra
- Tăng tính linh hoạt và đưa ra các tùy chọn
- Phù hợp với các hành động được đề xuất khác
- Có thể được thực hiện trong ngân sách dự kiến hoặc dựa theo bằng chứng đủ hợp lý để giải thích vốn đầu tư thêm cho một bên thứ ba.

HAL Horticulture Australia
"Chương Trình Phát Triển Ngành Rau được HAL tài trợ bằng cách sử dụng tiền thuế rau và các quỹ tương ứng từ Chính Phủ Úc".

Các Vấn Đề Về Con Người

'Các vấn đề về con người' bao trùm phạm vi rộng về các nhân tố xã hội và tâm lý mà có ảnh hưởng lớn tới các quyết định chúng ta đưa ra.

Các xem xét xã hội thường có ảnh hưởng tới việc đưa ra quyết định của nông dân hơn là tối đa hóa lợi nhuận. Điều này có vẻ rõ ràng, tuy nhiên hầu hết các cuộc thảo luận và công cụ vẫn tập trung vào các yếu tố lợi nhuận.

Các xem xét xã hội liên quan đến việc đưa ra quyết định có thể bao hàm các thuộc tính cá nhân như:

- Tính cạnh tranh, lòng thương
- Thái độ đối với rủi ro và tăng trưởng
- Mong muốn được liên kết với những người cùng địa vị/hàng xóm

Còn có các ràng buộc mạnh mẽ về xã hội mà làm phức tạp hóa việc đưa ra quyết định gồm cả các mối quan hệ với gia đình, cộng đồng và đất đai.

Giải quyết sự rắc rối đòi hỏi các kỹ năng của con người (khả năng của con người) ở mức cao hơn so với các vấn đề sản xuất mà thường được giải quyết bằng cách sử dụng các phát triển công nghệ. Nông dân cần các kỹ năng để tiếp cận nhiều phương án sẵn có để có thể quyết định hành động phù hợp nhất cho tình huống của họ. Điều này có thể đòi hỏi sự tham gia của các nhà tư vấn, làm việc trong một môi trường học hỏi cộng tác, và/hoặc cải thiện mức kiến thức của họ.

Tờ Thông Tin VIDP 'Một bước chuyển đổi thuận lợi – tìm hướng đi của quý vị qua việc kinh doanh của gia đình' cung cấp cơ cấu hỗ trợ trong làm việc với những người trong doanh nghiệp của quý vị. Liên hệ hiệp hội rau tại tiểu bang của quý vị để lấy bản sao tờ thông tin này.

Tiếp Cận Thông Tin

Việc tìm kiếm và phân tích thông tin đúng sẽ giảm tính rắc rối của việc đưa ra quyết định.

Tiếp Nhận Thông Tin Tốt

Khi chúng ta không thể xem xét hợp lý rủi ro, các quyết định đơn giản và phức tạp có thể trở nên rắc rối bởi vì xuất hiện bất trắc không cần thiết. Những người làm việc giỏi nhất giảm bất trắc và các rủi ro không mong muốn thông qua việc phân tích kỹ lưỡng, và dùng trực giác của họ để giải quyết những yếu tố bất trắc của các quyết định rắc rối.

Rõ ràng là, có ranh giới giữa sự phân tích quá nhiều và không đủ. Ranh giới này thay đổi dựa trên kinh nghiệm và thách thức đó là phải quyết định ở điểm nào việc phân tích thêm cũng không giảm bất trắc.

Hỏi Đúng Câu Hỏi

Phần đầu tiên và quan trọng nhất trong quá trình đưa ra quyết định đó là hiểu rõ quyết định là về điều gì. Việc chuyển quyết định thành một câu hỏi là rất hữu ích.

Ví dụ, có thể quý vị muốn mở rộng kinh doanh. Phạm vi câu hỏi liên quan đến mục tiêu này gồm có:

- Liệu việc mua bất động sản bên cạnh có cải thiện được khả năng sinh lợi của chúng ta không?
- Chúng ta có cần xây dựng thêm xưởng đóng gói không?
- Chúng ta có cần thuê người quản lý khác không?
- Chúng ta có cần đưa thêm cây trồng mới vào luân canh không?

Tìm Nguồn Thông Tin Cần Thiết

Sau khi xác định câu hỏi, quý vị sẽ phải quyết định cần thông tin nào để trả lời câu hỏi đó. Ví dụ

Liệu việc mua bất động sản bên cạnh có cải thiện được khả năng sinh lợi của chúng ta không?

Thông tin liên quan là:

- Phân tích về khả năng sinh lợi của nông trại trong năm năm qua
- Dự đoán về khả năng sinh lợi của bất động sản mới
- Yêu cầu vay và lãi suất
- Danh sách vốn bổ sung cần để phát triển bất động sản mới

Phân Tích Thông Tin

Khi quý vị đã biết câu hỏi và thông tin quý vị có thể phân tích thông tin bằng cách sử dụng các quy tắc sau:

- Chỉ tính thu nhập bổ sung và chi phí bổ sung – những điều mà sẽ thay đổi lợi nhuận của quý vị!
- Đừng quên các chi phí tiết kiệm được và thu nhập tính trước từ sự thay đổi – đó cũng là "bổ sung"!
- Định giá vốn của quý vị – dù vay hay không, cũng tốn tiền của quý vị, vì quý vị có thể trả hết nợ, hoặc đầu tư vào nơi nào khác!

Biết Các Điểm Mạnh và Điểm Yếu trong việc Đưa Ra Quyết Định của Quý vị

Hãy thực sự trung thực về các định kiến và thành kiến cá nhân của quý vị khi đưa ra lựa chọn. Ví dụ, Bob Black biết rằng để đáp ứng nhu cầu của người tiêu dùng hiện đại anh sẽ có nhiều lợi nhuận hơn nếu thực hiện dây chuyền đóng gói mới.

Tuy nhiên, anh vẫn luôn sản xuất rau với khối lượng lớn cho thị trường và đó là điều cha anh cũng đã làm. Việc thiếu động lực để thay đổi này có nghĩa là Bob sẽ từ bỏ lợi nhuận có thể thu được và có thái độ thận trọng trước rủi ro.

Bob phải công nhận rằng anh vui vẻ khi làm mọi việc theo cách anh luôn làm – anh không trì hoãn quyết định mà anh thoải mái với vị trí của anh hiện giờ.

HAL Horticulture Australia

"Chương Trình Phát Triển Ngành Rau được HAL tài trợ bằng cách sử dụng tiền thuế rau và các quỹ tương ứng từ Chính Phủ Úc".

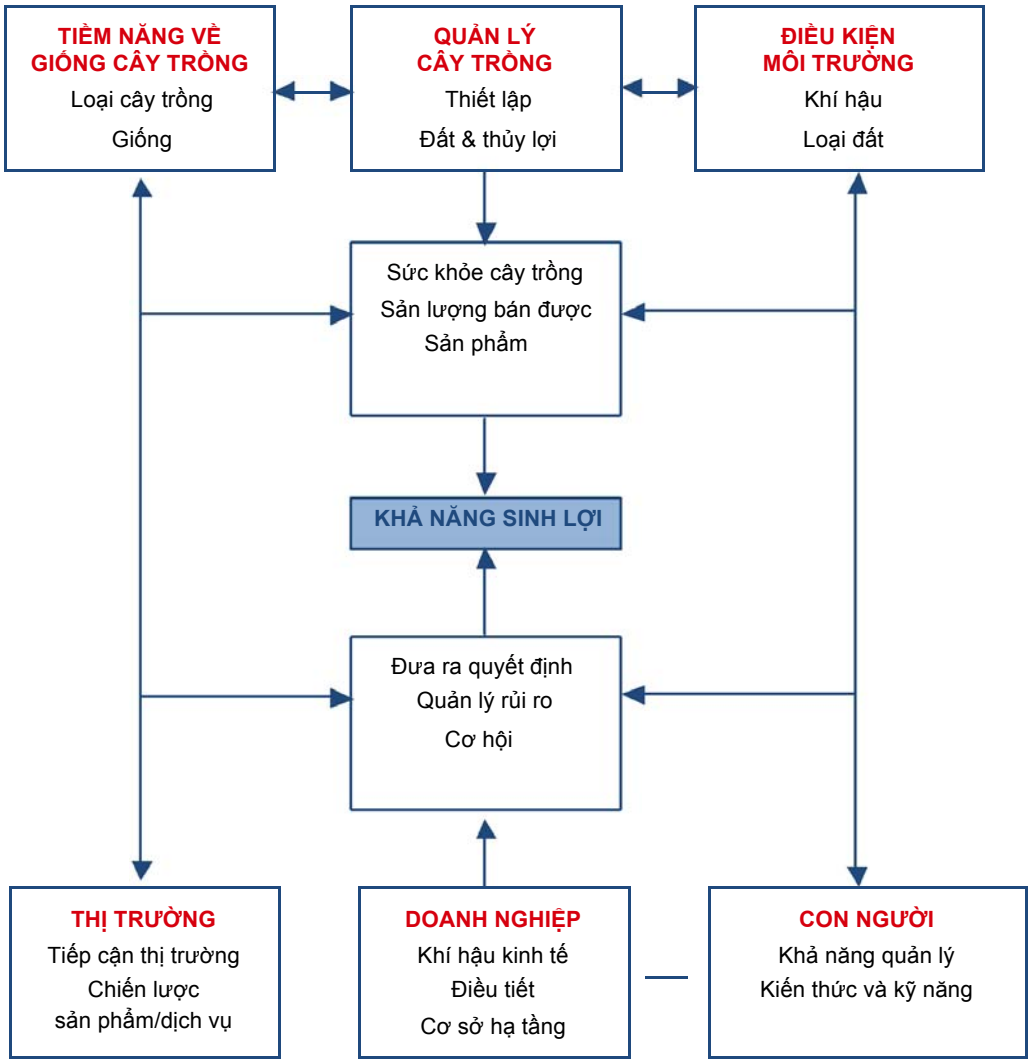
Đưa Ra Quyết Định Kết Hợp

Không bao giờ đưa ra quyết định dựa trên các mẩu thông tin riêng lẻ – mà phải xem xét đến toàn bộ hệ thống trang trại kết hợp với các khía cạnh cá nhân, tài chính và môi trường.

Việc xem xét cách các thành tố khác nhau trong hệ thống canh tác tương tác có thể hữu ích trong việc hiểu tác động của các quyết định. Sơ đồ sau mô tả một trong số nhiều mối quan hệ qua lại cần được xem xét (xem dưới đây).

Một số người rất có kinh nghiệm trong việc kết hợp tất cả các phần của một quy trình với nhau. Mọi người thường phải viện đến việc sử dụng "trực giác". Lý do "trực giác" hữu ích và phù hợp đối với các quyết định rắc rối là vì chúng ta cần dùng kinh nghiệm để tính đến nhiều yếu tố tức thời và phải đưa ra quyết định tốt nhất cho các tình huống đó.

Vì vậy, đừng lo lắng sau khi quý vị đã thực hiện tất cả các bước trong tờ thông tin này để nghe theo "trực giác" của mình.



Thông Tin Bổ Sung

Việc đưa ra quyết định sáng suốt có thể là khó khăn và đôi khi chỉ tìm hiểu về vấn đề này là chưa đủ. Hỗ trợ sẵn có để giúp đưa ra quyết định rắc rối. Nếu quý vị muốn làm việc về các vấn đề này theo nhóm nhỏ tại khu vực của mình vui lòng liên hệ với Kristen Stirling từ chương trình InnoVeg theo số 03 9882 2670 hoặc tại địa chỉ kristens@rmcg.com.au.

"Chương Trình Phát Triển Ngành Rau được HAL tài trợ bằng cách sử dụng tiền thuế rau và các quỹ tương ứng từ Chính Phủ Úc".

Horticulture Australia

Appendix 8: Example of LOTE CoP Products

JUNE 2012

Vegetable Industry Development Program

A Guide to Translated Resources for the Australian Vegetable Industry

About this brochure

This brochure summarises translated resources available to growers with a Language Other Than English (LOTE) background, trainers and support staff in the Australian vegetable industry.

Resources have been grouped into eight focus areas – general farm productivity, pest management, soil management, water management, pesticide use, food safety, transport and marketing, and business management.

The resources include fact sheets, booklets, posters, newsletters, magazines and DVDs.

Other translated resources are available, however these represent some of the most recent and accessible resources, which are applicable to a wide range of growers whose first language is not English.

For each resource listed in this guide an indication is given as to which languages it has been translated. The following key to languages has been used:

E = English

A = Arabic

C = Chinese (Cantonese unless otherwise stated)

K = Khmer/Cambodian

V = Vietnamese

Government Departments (particularly State Departments of Primary Industries) and industry organisations occasionally produce translated resources. Contact local departmental officers and industry organisations to find out about other translated resources available.

This brochure has been developed through the Vegetable Industry Development Program (VIDP).

HAL Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

General Farm Productivity

Market Grower Fact Sheet Series

(NSW Department of Primary Industries 2007)

E A C K V

A series of 10 fact sheets designed to support markets gardeners, particularly those with a LOTE background. Topics covered: Development applications; Putting up a farm shed; Water reuse systems; Farm dams; Communicating with neighbours; Zoning and land use; Landfill; Reducing your costs; Organic farming; Accessing interpreters when dealing with Councils and Government Departments.

Download here.

WA Grower Magazine

(vegetablesWA)

E V

A quarterly magazine including Vietnamese translation (from the June 2011 edition onwards) of select articles, covering a range of topics such as good agricultural practices, agricultural issues, and grower case studies.

Download here.

Asian and World Foods Newsletter

(Rural Industries Research and Development Corporation)

E C K V

Published every two months, this newsletter provides R&D updates and information relevant to Asian vegetable crops and other lesser known vegetables and fruits. To be placed on the mailing list please contact RIRDC – rirdc@rirdc.gov.au or phone (02) 6271 4100.

Implementing Tools for Sustainable Agriculture on the Northern Adelaide Plains (NAP): Better Growing Toolkit

(Adelaide and Mount Lofty Ranges NRM Board 2010/2011)

E K V

A series of fact sheets designed to help vegetable growers understand more about good agricultural practices, particularly the management of soil and water resources. Each fact sheet incorporates English/Khmer or English/Vietnamese translations. Whilst the fact sheets were prepared for training on the NAP, information provided is relevant to most vegetable growers. Topics covered include soil management, water management, salinity, waste management and revegetation by design (using native vegetation to assist in pest management).

Download here.

Training to Grow Your Business

(Arris Pty Ltd 2010/2011)

E K V

A series of fact sheets produced as part of the 'Training to Grow Your Business' Training Program. Some of the fact sheets were produced with the assistance of the Adelaide and Mount Lofty Ranges NRM Board through the 'Implementing Tools for Sustainable Agriculture on the Northern Adelaide Plains (NAP)' program. Each fact sheet incorporates English/Khmer or English/Vietnamese translations. Whilst the fact sheets were prepared for training on the NAP, information provided is relevant to most vegetable growers. Fact sheets cover a range of topics including soil properties and their measurement and management, tobamoviruses, hydroponics, and using data from weather stations to estimate crop water use. Please contact Arris Pty Ltd for copies of the fact sheets – www.arris.com.au.

HAL Horticulture Australia

"The Vegetable Industry Development Program is funded by HAL using the vegetable levy and matched funds from the Australian Government".

Pest Management

Mega Pests: The Basics of Protecting your Crops

(Vegetable Industry Development Program – HAL 2011)

E V

Key Integrated Crop Protection (ICP) Principles are discussed in this fact sheet, along with a list of helpful resources. The Vietnamese version of this VIDP fact sheet appears in the September 2011 edition of the 'WA Grower' magazine.

Download Vietnamese version here.

Download English version here.

Tobamoviruses

(Queensland Department of Agriculture, Fisheries and Forestry, formerly DEEDI 2010)

E V K

Published as part of the 'Training to Grow Your Business' Training Program delivered by Arris Pty Ltd, this fact sheet provides information about tobacco mosaic virus, tomato mosaic virus and pepper mild mottle virus: host plants and symptoms; survival and spread; management. English/Khmer and English/Vietnamese translations of the fact sheet are available. Please contact Arris Pty Ltd for copies of the translated fact sheets – www.arris.com.au.

Download English version here.

Keep it Clean for Field Vegetables

(NSW Department of Primary Industries 2012)

E C K V

A series of 10 fact sheets to help growers economically and effectively use preventative strategies to manage pests in field vegetable crops. The key message is that farm hygiene is the basis of preventative pest management. Topics covered: Preventing pests and diseases in field vegetables; Crop monitoring; Plant sources of pests and diseases; Non-plant sources of pests and diseases; Farm layout and check and control points; Work procedures; Vehicle movement and buffer zones; Weeds, windbreaks and water management; Waste management; Other farm options to reduce pests.

Download here.

Integrated Pest Management Strategies for Control of Key Pests in Asian Baby Leaf Vegetables

(Department of Primary Industries, Victoria 2008)

E V

A fact sheet containing information about pest monitoring and scouting, key pests and their critical times, and pest control strategies in Asian baby leaf vegetables. Includes the impact of a range of insecticides on beneficial insects and spiders.

Download Vietnamese version here.

Please contact DPI Victoria, Bairnsdale office for copies of the English version of the fact sheet on (03) 5152 0400.

Quality Issues, Key Pests and Beneficials in Asian Baby Leaf Vegetables

(Department of Primary Industries, Victoria 2009)

E V

Included on this poster is information about key pests of Asian baby leaf vegetable crops such as aphids, Onion thrips, Rutherglen bug, Diamondback moth and Cabbage cluster caterpillar, and the types of damage they cause. Information about beneficials such as ladybird beetles, hoverfly and lacewings is also provided.

Download Vietnamese version here.

Download English version here.

Diseases of Asian Vegetables in Northern Australia

(NT Government/Qld Government/NTHA/Growcom 2002)

E V

Providing an English/Vietnamese translation this poster is a pictorial guide to the key diseases of Asian vegetables in Northern Australia. It also includes information about crops affected, disease symptoms and good management practices. For copies of the poster please contact the NT Government Department of Resources, Primary Industries Division, Horticulture Information Line on (08) 8999 2357.

Insects of Asian Vegetables in Northern Australia

(NT Government/Qld Government/NTHA/Growcom 2002)

E V

Providing an English/Vietnamese translation this poster is a pictorial guide to the key insect and mite pests of Asian vegetables in Northern Australia. It also includes information about crops attacked, types of damage and beneficials. The importance of recognising good insects and mites versus pest insects and mites is highlighted. For copies of the poster please contact the NT Government Department of Resources, Primary Industries Division, Horticulture Information Line on (08) 8999 2357.

Diamondback moth Control in Asian Leafy Brassica Crops

(NSW Department of Primary Industries 2008)

E C

This fact sheet provides information in an English/Chinese translation about Diamondback moth and its management in Asian leafy brassica crops. Topics covered include: life cycle; damage caused; preferred crop hosts and alternative weed hosts; crop monitoring; choice of insecticides; when to spray; insecticide resistance management strategy.

Download here.

Identification of Greenhouse Vegetable Foliar Diseases

(South Australian Research and Development Institute)

E V

This fact sheet outlines how to identify key greenhouse vegetable foliar diseases and the environmental conditions which favour them: Powdery mildew; Downy mildew; Grey mould (Botrytis); Sclerotinia.

Download Vietnamese version here.

Download English version here.

Impact of Insecticides on Natural Enemies Found in Brassica Vegetables

(HAL 2005)

E C

This chart lists the insecticide active ingredients available in Australia for the control of nine key Brassica pests, and ranks these active ingredients according to their impact on natural enemies overall. The flip side of the chart shows the impact rating of the types of insecticide on each of six specific groups of natural enemy (egg parasitoids, larval and pupal parasitoids, predatory beetles, predatory bugs, lacewings, spiders).

Download here.

Brassica IPM National Newsletter

(SARDI/HAL 2002–2010)

E C

As part of the HAL funded National Diamondback moth project, Issues 1 to 11 of the Brassica IPM newsletter were translated into Chinese. The newsletters provide information on managing Brassica pests such as White blister, Diamondback moth and Clubroot. Other topics include insecticide resistance management and using beneficials and soft chemicals to control Brassica pests.

Download here.

Managing Western Flower Thrips & Tomato Spotted Wilt Virus in Vegetables

(DPI Victoria/HAL 2003)

E V

This CD ROM aims to help growers identify and manage one of Australia's most costly diseases, Tomato spotted wilt virus (TSWV), which is spread by Western flower thrips (WFT). It includes a series of 4 short videos in English and Vietnamese: Identifying the pest; How the damage is caused; Non-chemical control; Chemical control. Also included is a range of factsheets and the video voiceover script in both languages.

Download here.

Using Native Plants to Benefit Horticulture

(SARDI/Adelaide and Mount Lofty Ranges NRM Board 2010/2011)

E K V

This fact sheet is part of the 'Implementing Tools for Sustainable Agriculture on the NAP' series. It discusses why planting native vegetation is beneficial for pest management on vegetable farms. The fact sheet covers the steps in establishing native vegetation on-farm: site selection; site preparation; choosing and obtaining plants; planting; and maintenance. English/Khmer and English/Vietnamese translations of the fact sheet are available.

Download English/Khmer version here.

Download English/Vietnamese version here.

Soil Management

Implementing Tools for Sustainable Agriculture on the Northern Adelaide Plains (NAP): Better Growing Toolkit (Soil)

(Adelaide and Mount Lofty Ranges NRM Board 2010/11)

E K V

A series of fact sheets designed to help vegetable growers to understand more about their soil so that they can implement better growing practices and better manage their soil. There are two versions of each fact sheet, with information provided in English/Vietnamese or English/Khmer. Whilst the fact sheets were prepared for training on the NAP, information provided is relevant to most vegetable growers. Topics covered: What is Soil; The Soil Profile; Soil Texture; Soil Structure, Colour & Organic Content; Interpreting Results of Light Soil Analysis; Interpreting Results of Heavy Soil Analysis; Soil Salinity and Sodicity; Soil pH and Plant Nutrition; Soil Water Management; Salinity and Its Measurement.

Download here.

Vegetable Production Fact Sheets

(Compost for Soils 2011)

E V

Information about the use of compost in commercial vegetable production and how it can potentially improve yield and quality, and result in the more efficient management of water and nutrients. Topics covered: Compost and Commercial Vegetable Production; Managing Salinity on the Northern Adelaide Plains; Applying Compost - Planning and Preparation; Compost FAQs.

Download here.

Compost Fact Sheet Series

(NSW Department of Primary Industries 2010)

E A C K V

A series of 4 fact sheets discussing: What is compost; Types of compost; Buying compost; How to make compost; Questions about compost; Why compost; Composting methods; When to use compost.

Download here.

SoilWise: Pocket Guide to Looking After Soils
SoilWise: Managing Soils and Fertilisers DVD

(NSW Department of Primary Industries 2006)

E A C K V

A resource package for farmers and trainers to improve understanding of soil processes, how to conduct simple soil tests, use fertilisers more effectively and how to protect soil from damage. The DVD includes a Trainer Guide and Assessment Guide. The pocket guide is available in individual languages while the DVD includes voice-overs in all available languages.

Download here.

Sustainable Soil, Water and Land Management

(Virginia Horticulture Centre/TAFE SA/Rural Solutions/DFEEST 2002)

E V

An interactive course designed to meet the needs of both broadacre and protected cropping horticultural growers. It has been developed to assist growers from diverse cultural backgrounds to improve soil management and crop production in a sustainable manner. Please contact Grow SA for copies on (08) 8282 9200 or www.growsa.com.au.

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Water Management

Good Practice and Irrigation Systems: An under-valued farm asset

(vegetablesWA 2012)

E V

Appearing in the Autumn 2012 edition of the 'WA Grower' magazine this article discusses how poor irrigation performance and incorrectly designed and installed irrigation systems result in production losses and higher input costs, especially power. It also describes how to test irrigation uniformity.

Download here.

Implementing Tools for Sustainable Agriculture on the Northern Adelaide Plains (NAP): Better Growing Toolkit (Water)

(Adelaide and Mount Lofty Ranges NRM Board 2010/2011)

E K V

A series of fact sheets designed to help vegetable growers to understand more about water quality and management. There are two versions of each fact sheet, with information provided in English/Vietnamese or English/Khmer. Whilst the fact sheets were prepared for training on the NAP, information provided is relevant to most vegetable growers. Topics covered: Salinity and Its Measurement; Salinity of Water Sources on the NAP; Targeting Salinity Management with Crop Root Zones; Using Soil Water Monitoring Data to Identify Salinity Risk and Leaching; Leaching Management With Rainfall; Readily Available Water (RAW) in Soil; Movement of Salt within Crop Root Zones.

Download here.

Irrigation Water Quality

(NSW Department of Primary Industries 2012)

E C K V

Water quality factors that should be considered for water being used for irrigation are outlined in this fact sheet. Topics covered include: knowing your water quality; water quality issues; pH; iron; hardness; salinity.

Download here.

Minimising Water Use

(NSW Department of Primary Industries 2012)

E C K V

This fact sheet provides information about how to improve water use efficiency. Topics covered include: improving irrigation system performance; using improved technologies; efficient water management practices; irrigation scheduling; reducing losses from farm dams; improving soil structure.

Download here.

Water Fact Sheets

(Northern Territory Government NRETAS)

E V

These fact sheets address some of the more complex issues of managing water resources. Topics covered: Looking after your bore; Water allocation planning in the NT; What you can do to prevent groundwater pollution; Chemigation and fertigation and groundwater quality; What is groundwater.

Download here.

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WaterSmart Farms Fact Sheet: Installation of Water Tanks

(NSW Department of Primary Industries 2011)

E A

This guide for farmers covers the: Process of a typical tank installation; Components of a steel tank; Components of a tank installation; Components of a tank in a raw water application. Please contact NSW DPI, Hawkesbury District Office for copies of the fact sheet – Phone (02) 4588 2100 or richmond.office@dpi.nsw.gov.au.

WaterSmart Farms Fact Sheet: Using Rainwater in Hydroponics

(NSW Department of Primary Industries 2011)

E A

This fact sheet discusses the key issues when using rainwater in hydroponics and how to manage raw water sources used in hydroponics to ensure there are no harmful changes in the root zone solution and the nutrient balance remains steady. Topics covered: Potable (town water) compared to rainwater; pH management; Filtration; Disease risk. Please contact NSW DPI, Hawkesbury District Office for copies of the fact sheet – Phone (02) 4588 2100 or richmond.office@dpi.nsw.gov.au.

The Northern Adelaide Plains (NAP) Irrigators Manual

(Northern Adelaide Plains Land Management Group/TAFE SA/Rural Solutions 2002)

E V

The NAP Irrigation Course was adapted from the successful RiverCare Irrigation Management Course. The focus of this course is the soil and crops that are grown in the NAP area. Information is also included on spray and drip irrigation and permanent plantings. Please contact Grow SA for copies of the manual on (08) 8282 9200 or www.growsa.com.au.

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Pesticide Use

Understanding Pesticide Chemical Labels

(APVMA 2011)

E V

This booklet aims to help chemical users identify and understand the warnings and instructions on pesticide chemical labels. It can be used in chemical training courses. Topics covered: Warnings and Product Description; Directions and Use; General Instructions; Precautions; First Aid, Storage and Disposal.

Download here.

Using Chemicals Safely for Market Gardeners

(WELL Program 2011)

E V

Developed by Smith and Georg Pty Ltd and funded under the Workplace English Language and Literacy (WELL) Program by the Australian Government this manual and CD aim to support training in the safe handling and use of agricultural chemicals for market gardeners whose first language is Vietnamese. Topics covered: Integrated Pest Management; Avoiding chemical residues in food; Understanding pesticide chemical labels; Reading and understanding Material Safety Data Sheets; Resistance management; Personal safety; Storing and transporting chemicals safely; Set-up and calibration of a handline sprayer; Handling, mixing and applying chemicals safely; Protecting our environment; Chemical use and the law; Chemical application records; Getting rid of chemical waste.
Copies of the manual and CD can be obtained from Smith and Georg – (08) 8389 1856 or admin@smithandgeorg.com.au.

Safe Use of Pesticides

(NSW Government 2007)

E A C (Cantonese and Mandarin) K V

A DVD and poster providing information to help market gardeners and horticultural workers understand how to use pesticides safely and legally, with specific reference to NSW. General information about using pesticides safely is relevant to all users of chemicals. The video may also be watched online in all available languages.

Download Poster here.

Download Video here.

Spray Application Basics

(Vegetable Industry Development Program – HAL 2011/2012)

E C K V

This fact sheet explains how to get the best results from chemical spray applications. It discusses the principles of spray applications (e.g. droplet size, nozzle selection), spraying equipment, water quality, timing sprays for best results, calibration, storage of chemicals and recording keeping. It includes a case study of the spray application practices of a farmer in Riverina region of NSW.

Download translated versions here.

Download English version here.

Managing Pesticide Resistance

(Vegetable Industry Development Program – HAL 2011)

E V

This fact sheet explains the importance of pesticide resistance management and how vegetable growers can prevent a pest developing resistance to a pesticide. A case study from the Lockyer Valley on managing pesticide resistance in

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DBM populations is included.

Download Vietnamese version here.

Download English version here.

Managing pesticide residues in food crops

(NSW Department of Primary Industries 2007)

E A C V

This poster outlines 5 steps that must be followed (under the NSW Pesticides Act 1999) to make sure pesticide residues on produce are at acceptable levels.

Download here.

Do you have unwanted chemicals on your property?

(ChemClear)

E A C K V (and other languages)

ChemClear provides a safe collection and disposal service for unwanted chemicals. This poster outlines how to register for the next collection of unwanted chemicals in a specific area. The ChemClear website also provides a contact phone number for the Telephone Interpreting Service (TIS).

Download here.

Keeping Records of Pesticide Use

(NSW Government 2010)

E A C K V (and other languages)

This fact sheet provides information about pesticide record keeping, a sample record keeping form and classifying wind using the Beaufort scale. Whilst specific to meeting the requirements of the NSW Pesticides Regulation, information included in the fact sheet is relevant to anyone that uses chemicals and keeps pesticide records.

Download here.

Water Quality for Chemical Spraying

(NSW Department of Primary Industries 2012)

E C K V

The impact of poor water quality on the effectiveness of chemical applications is discussed in this fact sheet. Topic covered include: turbidity; hardness; pH; organic matter; iron; salinity; temperature; monitoring water quality.

Download here.

Chemical Industry News

(Department of Primary Industries, Victoria 2012)

E V

Two articles from the Summer-Autumn 2012 edition of Chemical Industry News have been translated into Vietnamese. These are ‘Water quality is critical for spraying’ and ‘Chemical use in protected cropping situations’. For copies of the translated articles please contact DPI Vic on (03) 9210 9297.

Download here.

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Food and Worker Safety

Freshwise: Food safety from training to audit

(NSW Department of Primary Industries 2007)

E A C K V

A DVD to help growers develop food safety plans. An insight into food safety is provided, from doing the training course through to getting an audit of your farm.

Download here.

Freshcare Food Safety & Quality Code of Practice

(Freshcare)

E A C K V

Translated versions of the 2nd edition of the Freshcare Food Safety & Quality Code of Practice and resource materials are available. The current (3rd) edition of the Food Safety and Quality Code and the Environmental Code are yet to be translated. Please contact Freshcare for more information – Phone: 1300 853 508 or info@freshcare.com.au or www.freshcare.com.au.

Wash Water Safety

(NSW Department of Primary Industries 2012)

E C K V

This fact sheet discusses that factors that need to be considered when using water in farm operations such as washing produce. Topics covered include: source of the water; reclaimed water; type of produce; use of water; testing water; treating water; assessing the risk of microbiological contamination from water.

Download here.

Safety in Horticulture: An OHS&W Resource Kit for Employees
Safety in Horticulture: An OHS&W Learners Guide
Safety in Horticulture: Stickers and Posters

(2002)

E V

This group of resources has been put together to inform growers and their workers about a range of important topics that will help them improve the Occupational Health, Safety & Welfare (OHS&W) of the horticulture industry. Information provided will assist in identifying hazards and risks to health and safety using the S.A.F.E. Method. For copies of these resources please contact Grow SA on (08) 8282 9200 or www.growsa.com.au.

Marketing

Product Description Language

(NT Government 2010)

E V K

Product Description Language (PDL) fact sheets are available for Snake Bean, Okra and Lebanese Cucumbers. They cover packaging (e.g. box size), identification required on packaging, how to pack produce and harvest/storage information. Photos of common defects and packed product are also included.

Download here.

Business Management

Business Decision Making

(Vegetable Industry Development Program – HAL 2011)

E V

This fact sheet describes the key factors that need to be considered when making good business decisions: risk and uncertainty; people issues; access to information.

Download Vietnamese version here.

Download English version here.

Business Management: Thinking Through the Numbers

(Vegetable Industry Development Program – HAL 2011)

E V

This fact sheet provides some simple tools and methods to help vegetable growers to make better business decisions.

Download Vietnamese version here.

Download English version here.

A Smooth Transition – Navigating Your Way Through the Family Business

(Vegetable Industry Development Program – HAL 2011)

E V

This fact sheet describes the processes and structures required to facilitate succession planning and a smooth transition.

Download Vietnamese version here.

Download English version here.

Better Business, Optimising your Potential as a Grower

(Virginia Horticulture Centre/TAFE SA 2002)

E V

Better Business will aid growers to review their business, set their future direction, and then assess what management skills they need. Information is recorded on checklists which can then be used to assist in deciding if they have the skills needed to optimise the performance of their business. Better Business is there to explore possibilities, not highlight weaknesses. It does this through a series of questions designed to let growers take a fresh look at themselves, so that they can plan to introduce improved practices, where necessary, to meet their business goals. Please contact Grow SA for copies on (08) 8282 9200 or www.growsa.com.au.

Acknowledgement:

RMCG thanks the members of the VIDP LOTE Community of Practice steering committee for their assistance in preparing these guidelines.

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