



Know-how for Horticulture™

**Scoping the
development needs
for the Northern
Territory Vegetable
Industry**

Lien Truong
Northern Territory
Horticultural Association

Project Number: VG02103

VG02103

This report is published by Horticulture Australia Ltd to pass on information concerning horticultural research and development undertaken for the vegetable industry.

The research contained in this report was funded by Horticulture Australia Ltd with the financial support of the vegetable industry.

All expressions of opinion are not to be regarded as expressing the opinion of Horticulture Australia Ltd or any authority of the Australian Government.

The Company and the Australian Government accept no responsibility for any of the opinions or the accuracy of the information contained in this report and readers should rely upon their own enquiries in making decisions concerning their own interests.

ISBN 0 7341 0811 7

Published and distributed by:
Horticultural Australia Ltd
Level 1
50 Carrington Street
Sydney NSW 2000
Telephone: (02) 8295 2300
Fax: (02) 8295 2399
E-Mail: horticulture@horticulture.com.au

© Copyright 2004



Horticulture Australia



Horticulture Australia

Scoping the development needs for the Northern Territory Vegetable Industry

Project no: VG02103

A report for Horticulture Australia

October 2003

Foreword

Approximately 87 different types of Asian vegetables have been identified in retail outlets in Australia. Approximately approximately 1400 Asian non-English speaking background growers who are mainly located close to the capital cities in all states grow most of these vegetables and increasing amounts of more traditional vegetables.

Appointing a Industry Development Officer, who speaks the same language as the majority of growers in a location were proposed to facilitate two way communication, identify growers' needs and assist them to move towards best management farm practices.

This publication considers the communication and information delivery methods used in this project. It describes communication activities that took place over one year, and how this specific project scoped the development needs for the NT vegetable industry.

This project was funded by HAL. The HAL contribution matched a Voluntary Contribution provided by the NTHA.

Acknowledgments

The author would like to acknowledge a number of people who enthusiastically assisted in the development and delivery of this project. In particular,

The Asian vegetable growers of the NT who we have called NESB growers in the nicest possible meaning of this grouping. Some of you supported the need for a project of this kind and all of you have welcomed us onto your farms.

Other vegetable growers who have supported and participated the activities of the project.

NTAVGA members Lien Truong, Minh Nguyen and Xuan Vo for their support of the project, contribution to team meetings and discussion on the project.

Tom Harris, Jane Hintze – President and Vice president of NTHA, for their positive and monetary support for the project.

Bill Gilbert - Territory Produce Freight Management, Paul Dinh - VN Express, for their support. Since the project commenced they have always been open to discussions with the growers.

Jonathon Eccles, HAL Program Manager for his support of this project.

Matt Darcey, Deputy Director of DBIRD, has continued to actively support this project.

Staff at DBIRD particularly those who were actively involved in the project. Geoff Walduck, Greg Owens for their support to the project with information and ran specific workshops which were aimed at assisting the Asian vegetable growers improve productivity.

Contents

Foreword	2
Acknowledgments	3
Contents	4
Tables and Abbreviations	5
Summary	6
1. Background	8
2. Outcome	8
3. Methodology	9
3.1 The NT Vegetable growers' needs and issues identified	10
3.1.1 Industry communication	10
3.1.2 Market development	10
3.1.3 Pest and disease management	11
3.1.4 Business/financial management and labour	11
3.1.5 Quality and marketing	12
4. Implementation of industry needs and issues	12
4.1 Promotion non-Asian consumers to use Asian vegetables	12
4.2 Business/financial management and labour	12
5. IDO application lodged with HAL	12
6. Information delivery	13
6.1 IDO contact with growers	13
6.2 Information packages	13
6.3 Written information provided to growers	14
6.4 Workshops, seminars, and field days	15
6.5 Shows	16
6.6 Market visit report to all growers	16
6.7 Linkage with Bi\$Link project	16
7. Recommendation	17
8. Evaluation	18
9. Appendices	18
Appendix 1	18
Appendix 2	20

Tables and Abbreviations

Tables

Table 1	IDO contact with growers throughout project
Table 2	Communication and information delivery activities

Abbreviations

NESB	Non English Speaking Background
NTHA	Northern Territory Horticultural Association Inc.
DART	Department of Asian relations and Trade (NT)
DBIRD	Department of Business, Industry and Resource Development (NT)
IDO	Industry Development Officer
QA	Quality Assurance
HACCP	Hazard Analysis of Critical Control points
IDP	Industry Development Plan

Summary

The vegetable industry of the Northern Territory is worth some \$11 million (PrimeStats 2000), 90% of this being Asian vegetables. 95% of the growers of this produce are of Vietnamese origin.

The Asian vegetable growers face significant technology transfer problems resulting in:

- Poor production technology leading to poor yields and soil borne disease problems;
- Environmental conflicts due to poor pest and disease control programs. This has become a major problem as farms are interspersed with rural living areas; and
- Market failure due to poor understanding of the operation of the central markets and quality failures.

A joint HAL and RIRDC pilot project employed a Vietnamese-speaking Communication Officer to facilitate the uptake of existing technology to this group. The language barrier had been identified as a major problem in communication. This project addressed fundamental issues such as how to effectively communicate with the growers, and then focused on basic agronomic information relevant to our region such as the use of fertigation, plastic mulch and hybrid seed, chemical use and insect identification. During this project, major achievements have included the formation of a growers association and increased adoption of production technology.

This project seeks to employ a Vietnamese speaking Industry Development Officer (IDO) for a one-year period. This is to continue the excellent work done in the previous project until the outcomes of the national review on vegetable IDO's are available.

The main role of the IDO will be continuing industry communication and technology transfer program, to identify needs and issues for developing an Industry Development Plan (IDP) for vegetables in the NT and to submit an application for a local IDO to HAL. The presence of a local IDO is vital for the NT growers to link in with the national R&D program, as currently they are not getting full benefit from the program due to language problems, isolation and having no local IDO to facilitate information flow.

Growers of traditional type vegetables in the region would also be contacted and support for their industry included in the new IDO role. The other main tasks will be the continued technology transfer activities.

It was proposed that speaking the same language would eventually lead to two-way communication and improved extension delivery between the growers and the information providers. The aim was to facilitate the smooth integration of the current generation of NESB growers in Darwin, into mainstream growing.

The steps to this were continual communication between the IDO and the growers, identification of the growers' production issues and provision of information that growers wanted and needed. It was proposed that this would lead to the development of a relationship with the growers based on mutual respect and trust and development of this grower group to the stage where they could determine and access what assistance they required.

Chapter 3 describes the methodology used in the project. It itemises activities that were to be undertaken throughout the project in particular the focus on communication, technical transfer and identify needs and issues of the vegetable industry.

There were 80 vegetable growers in Darwin and Katherine when the project started. This did not change significantly during the project and most growers were included in the project activities. Grower skills were assessed and this identified that they needed to improve agronomic practices, pest and disease identification and control methods, chemical use and handling and market understanding.

Growers have had the opportunity to participate in visits to interstate markets to see their produce at arrival and speak to agents, buyers and other growers at each location. On return the IDO presented the groups findings to all growers and a number of checks have been put in place to improve market returns.

Grower issues and needs as communicated individually or as a group to the IDO were recorded, discussed, prioritised and addressed mainly by providing information in a number of ways.

Information delivery undertaken as part of the communication activities are described in detail in Chapter 6. IDO contacts with growers on their farms, by telephone, fax or in her office were continual and increased during the project. Technical information was delivered in "packages" which used all means of communication available. This written information was faxed to growers, articles in grower magazines in both languages and spoken and visual information delivered at farm visits, field days, workshops and meetings.

Government agencies in the Northern Territory in particular the Department of Business, Industry and Resources Development (DBIRD) have reported an improved capacity to work with the vegetable industry and believe this is due primarily to breakdown of the language barrier and a growing feeling of mutual respect and trust.

The project hypothesis was that the benefits of specific communication with the growers and achievement of the project outcomes would lead to: increased adoption of best practice management production leading to meeting QA requirements, safer produce for consumers, increased sales in the domestic and export markets of safe, quality products, growers and suppliers benefiting economically and socially, less isolated communities. All of these measures of achieving the project outcomes have been met and are discussed in some detail.

The project has also shown that by giving growers the opportunity as individuals and as a group to identify and prioritise their production issues they come with issues, which not only solve their immediate problems but deliver environmental, social and economic outcomes that comply with government goals.

1. Background

The NT vegetable industry is worth some \$11m. Currently, \$9.2m of this value is from Asian vegetables. The main crops produced are bitter melon, snake bean and okra, with significant production of other Asian gourds and herbs. The majority of these vegetables are sold in interstate markets. There are 65 growers of Asian vegetables in the Darwin region and 95% of these are Vietnamese speaking. There are approximately another 12 growers of traditional vegetables in the Darwin region, and another 12 in Katherine.

The issues Asian growers face, in addition to the language, social and cultural barriers, are the same as all vegetable growers: productivity, markets, cool chain, food safety (chemical residues and human microbial pathogens), Occupational Health and Safety compliance, lack of communication skills and very labour intense production practices.

This project proposed that the IDO would be identifying needs and issues of the vegetable industry as a whole, identifying the current agronomic skills base including chemical use proficiency, of the growers. In addition the growers' most pressing issues affecting farm practice and profitability were to be identified and prioritised.

2. Outcome

This project would identify the needs and issues of the NT vegetable industry, use the evaluation of the previous Communication Officer project and the outcome of the national IDO review, to develop and submit an application for a vegetable IDO in the NT. Other tasks will include continued contact and technology transfer, including language skills and interpretation locally and with interstate grower networks already established, improved chemical use, strategy developed to improve communication

flow to and from the national R&D program for both Asian vegetable and traditional vegetable growers, and assistance with facility for Asian vegetables packhouse.

3. Methodology

Although this interim project was funded for one year. It would allow the continuation of some activities such as liaison and assistance with the vegetable growers and production of newsletter articles and information summary sheets. The main activity for the new project would be the Industry Development Plan and the vegetable IDO proposal. A strategic plan such as an IDP is the next step in directing the future of the industry as a whole over the next 3 years, and also in assessing the direction for the work of an IDO.

While communication with the Asian vegetable community is established, interaction with growers of traditional vegetables in the Darwin and Katherine regions is needed. The IDO met with these growers to determine their needs and ways that the IDO could assist this industry.

Material developed and translated by the NT IDO would be available to growers throughout Australia through their IDO's. It will be important for the NT IDO to develop stronger links with the national IDO network by attending meetings and also spending time with individual IDO's. This will serve to strengthen relationships and also assist the IDO develop appropriate strategies for interacting with NT growers and national bodies.

The local management team for the project already exists, comprising two members of the Board of the Asian Vegetable Growers' Association, the IDO and members of the Horticulture Division, DBIRD. This group will continue as the management committee for this project.

The IDO and management team: The project aimed to improve communication flow to and from the national R&D program for both Asian vegetable and traditional vegetable growers, information delivery and identification and prioritisation of grower issues and needs to be addressed, improved chemical use, strategically focused IDP for the vegetable industry of the NT with role of IDO defined.

The project was reviewed and managed by a management team. The team was comprised of the project leader and representatives of the: Asian vegetable growers, NT Department of Business, Industry and Resources Development (DBIRD) and Northern Territory Horticulture Association (NTHA).

The IDO attended all project management meetings. The management team met twice during the project.

The IDO worked mainly with the support and guidance of the management team. As well members included the existing NT, DBIRD Asian vegetable R&D team, Asian grower representatives and any relevant members of the current Asian vegetable supply chain. Project delivery and the IDO activities were managed by management team as outlined above.

The IDO activities were undertaken with the support and guidance of the local management team represented by Mr Geoff Walduck who was the Program Manager for DBIRD's Asian vegetable program was the main contact for the project leader and the IDO throughout the project. He provided technical support to the IDO.

The management team role was to support the IDO in terms of discussing work activities, identify sources of relevant information requested by industry and problem solving for issues, which needed immediate attention.

3.1 The NT Vegetable growers' needs and issues identified:

3.1.1 Industry communication

Information provided in the Vegetable Summary Sheet, and Northern Territory Horticulturist was suggested to be the best way to get information to these growers. General feedback about what information growers would like to receive reflected a preference for targeted information that is applicable to their crops and interests.

Establishing an information network that makes the information more readily available to growers so they may not have to ask (e.g. Access to Asian Vegetables, a publication of the Dept Natural Resources & Environment), could make industry adoption and uptake of new technology quicker. Keeping local people in the loop will increase information access.

Growers want to know what new technology is available to assist in decision making for all farm business aspects.

- Increase awareness and skills and pest and disease identification for growers.
- Accessing information on pest and disease management, nutrition management producing new crops.
- On farm visit, one-to-one contacts
- Dissemination of information and industry adoption of new technology.

3.1.2 Market Development

Growers feel that the industry needs help to get into expanding market, to promote non-Asian consumers to use Asian vegetables.

This area seems to be a natural progression many growers are exploring for themselves.

However, it is evident, both from comments and personal impressions, that any assistance to help them do better business and build relationships would be appreciated.

Many growers feel that there is a lot of potential to increase direct market of vegetables to supermarkets, but they need help getting into it.

The area of market development, identification of new markets and developing the skills required, is a personal business decision, but is still considered to be an area that requires raising the level of performance by the whole industry.

3.1.3 Pest and Disease Management

Particular issues raised were:

Chemicals:

- Additional product to control aphids in cucurbits with 1 day with holding period.
- More control and products available for thrips, aphids
- Chemical resistance.
- Alternatives for chemical control.
- Confusion of the active ingredients and the brand names.
- Need a post harvest chemical for fungal diseases in okra.
- Broadleaf herbicide product that does not hinder crop growth.

Production general

- New types of vegetables to grow.
- Research and investigate into rotten taro.
- New varieties, breeding programs for varieties that suit Darwin conditions.
- Transporting cost, packaging cost
- Fertiliser and chemical costs increasing
- Soil health advices are important.

Pests and Diseases

- Thrips control
- Silver leaf Whitefly is the biggest problem.
- Mosaic virus for cucurbits: long melon, cucumber
- Alternatives for chemical control.
- Mosaic virus control and management
- Powdery Mildew in bitter melon
- Aphid control
- Fusarium wilt control and management

Post harvest

The increasing cost of production with no higher return on produce is foremost in the minds of growers. Packaging and cartons are expensive and regularly increasing in cost.

3.1.4 Business/Financial Management and Labour

- Computer courses for MS Word, Excel and there were some who mentioned the Internet.
- Workshops on the Internet and using it to benefit their business and for marketing for growers and younger generation
- Need labour but cannot afford. Backpackers are needed for labour

3.1.5 Quality and Marketing

- Growers need help to market their product better.
- Identification of market opportunities
- Increase grower awareness and knowledge of supply chain.
- How much is the agents' commission?
- How does the market work – agent/merchant?
- Quality management and food safety is needed through the whole chain.
- The margin between what growers receive and what the supermarkets charge is one of the industry concerns.

4. Implementation of industry needs and issues:

To deliver on grower and government priority issues a series of information packages were developed over the life of the project, which included many different ways of presenting the same information (See chapter 6).

4.1 Promotion non-Asian consumers to use Asian vegetables: vegetables displayed and cooking demonstration at Tropical Garden Spectacular, vegetables displayed and provided information at Fred Pass Show. Consumer guide to vegetables of the NT were given to the visitors.

4.2 Business/financial management and labour: Manual bookkeeping training course has been carried out in Darwin (two hours by six sessions). Eight growers attended this course. A computer base bookkeeping course will take place in February 2004 (two hours by twelve sessions). This will be a two section-training course: basic computer and basic MYOB. Both courses were funded by Bi\$Link project.

Information on getting assistance with labour requirements was provided to all vegetable growers in the Summary Sheet, phone calls, faxes.

All growers were aware of Oz-job, a new labour office opened in Darwin. Oz-Jobs assists growers to meet their peak harvest labour needs by providing a single point of contact for growers and job seekers. The IDO assisted Oz-job by being first point of contact for labour requirements.

5. IDO application lodged with HAL

Application for funding to Horticulture Australia for a Northern Territory vegetable Industry Development Officer has been submitted in December 2003.

6. **Information delivery**

6.1 **IDO contact with growers**

The project hypothesised that regular contact with growers on a one to one basis was critical to improving communication and developing a relationship based on trust. This was achieved by face- to-face contact (on farms or in the NTHA office), telephone and fax (Table 1). Telephone contacts include both incoming and outgoing calls. Fax contact was all outgoing to farmers. This contact resulted in

- Growers problems and issues being identified
- IDO advising growers of best contact to assist with problem
- Problems solved immediately when possible or, after the IDO did some chasing for the right information
- Delivery of prepared information
- Identifying grower's opinions
- Keeping growers up with important issues and events

With each contact the relationship between the IDO and the industry was developing. Telephone and in-office contact increased in the second year as growers realised the IDO would provide help when needed.

Table 1. IDO contact with growers throughout project.

Grower contacts	November 2002 – October 2003
Grower monthly meeting facilitated	12
Farm visits	126
Growers come into office	31
Fax – group broadcasts	25
Fax – individual broadcasts	50
Others:	
Markets/interstate visits	1
Workshops/ Field Days/Demos/training course	8
Shows	2

As well, contact occurred with grower groups through workshops, field days, interstate visits.

6.2 **Information packages**

It has been suggested that individual information processing systems are culturally unique (Shade 1994). Hence growers may access information by talking, seeing a result in the field, listening to others and by reading. The farmers then process the information and interpret it in their own personal way.

An information “package” approach was used to communicate (rather than provide) information on a particular topic in a number of ways. These packages would use all means of communication. Written information was provided in “Summary Sheets” which addressed a particular topic, existing relevant information on the same topic was translated and articles were produced for the NTHA Horticulturalist magazine.

All written information was provided in Vietnamese and English and was hand delivered or faxed to growers.

Spoken information was provided at on farm visits (this was usually two way communication) and at meetings, workshops and field days. Often a reminder of relevant written information was given at these occasions.

An example of an information package is the Pest and Disease Package. These activities were carried out over the 12 months of the project.

- Pest and Disease workshop on a grower's property. Covered understanding of fungicide and insecticide activity group list, registered chemicals in the NT, control options, fertigation.
- Spray demonstration – Covered chemical compatible, effect of wetting agents, using soft options (25 Sep 2003)
- Summary sheets, translated information on specific problems: Japanese taro, fertiliser freight assistance scheme, assistance with labour requirements, fuel rebate scheme.
- Production of posters on NT Asian vegetable diseases
- Production of posters on NT Asian vegetable pest
- Specific advice for growers who have contacted her by phone with other pest or disease issues
- Discussions on control at vegetable grower meetings

Information package details are covered in Appendix 1.

6.3 Written information provided to growers

Written information was provided on topics that growers had prioritised as important to them and in some instances in an attempt to interest growers in some topic which may be of use to them in their business. Information was provided in English and Vietnamese as it was felt that in many instances the growers need the English words to communicate with suppliers and agents.

A range of written information was produced during the project. All technical information produced by the IDO was checked for accuracy by a DBIRD "expert" on that topic before translating. In some instances existing information was translated.

Summary Sheets:

1. Japanese taro,
2. Vegetable IDO role
3. Fertiliser freight assistance scheme
4. Assistance with labour requirements
5. Fuel rebate scheme

Articles in NTHA Horticulturist magazine:

1. Farm hygiene
2. Tensiometers
3. Taro

4. Supply chain study tour
5. Value adding to AV
6. Farm Management Deposit Scheme

Summary Sheets and articles in NTHA Newsletters are covered in Appendix 2.

6.4 Workshops, seminars and Field Days

The information needs of growers were often required to solve a current problem or improve productivity. This information was best provided at workshops, seminars and/ or Field Days where practical methods could be demonstrated and results of trials observed. These activities also allow time for face-to-face discussion and interaction between growers. Usually this was complimented with written material. Six workshops, two field days/demonstrations, and one seminar were organised (Table 2). Attendance was more than ten growers or more than 16% participation at each event. This is a good participation rate for extension activities.

Table 2. Communication and information delivery activities

Activity	Date	Place	Number participants	Topics
Workshops:				
1. Plant nutrition – Questions & Answers	11/8/02	NTHA	9	Plant nutrition
2. Chemical	7/7/03	NTHA	9	Registered fungicides
3. Bi\$Link: Manual book keeping training course	Started: 24/2/02 Finished: 28/4/03	Howard Spring Hall	8	Business skill training: Manual bookkeeping
4. Chemical	2/6/03	NTHA	10	Registered Insecticides
5. Use of chemical	31/3/03	NTHA	12	Chemicals use and handling
6. Grape vine disease	20/3/03	NTHA	8	Grape vine disease awareness.
Demos:				
1. Spray demo	25/9/03	Growers' properties	6	Chemical compatible, effect of wetting agents, using soft options
2. Sweet potato field day	6/11/03	Coastal Plains Horticulture Research Farm	8	Sweet potato varieties, digging and cleaning mechanised equipment demonstration
Shows:				
1. Tropical Garden Spectacular	9 & 10/8/03	Botanic Garden	250	Asian vegetable cooking demo, general information.
2. Fred's Pass Show	23 & 24/5/03	Darwin		Vegetables display, general vegetable

				growing information, promotions.
Seminars:				
1. Taxation for Primary Producers	12/11/02	Howard Springs Tavern	12	Taxation aspects that primary producers need to know, tax issues
Visitors:				
1. Bi\$Link National Consultative Group	28 & 29/7/03	Darwin	10	Growers working together.
2. RIRDC National Board	3/60 & 1/7/03	Darwin	5	Visit growers. Get feedback from CO Project
Interstate trips:				
1. Brisbane and Sydney	3/3/03	Brisbane market, Gatton Horticultural Research Station, Flemington market, vegetable farms.	6	Vegetables handling in the markets, growing sweat tomatoes, growing knowledge exchange among farmers. Visit other vegetable associations.

6.5 Horticultural Shows:

Vegetables displayed, Asian vegetable cooking demonstration, general information, promotions. These two shows gained great interest from many not only housewives, but also other non-Asian background people.

6.6 Market Visit report for all growers

The aim of market visits is to give growers the opportunity of participatory learning or discovering for themselves.

The success of this visit was due to growers seeing their own produce in the market place, seeing their produce quality at market and in retail stores, and to face-to-face communication with their own agents and other agents, market inspectors and other growers in the market. They then discussed what they had seen and heard amongst themselves and drew their own conclusions.

The IDO facilitated a meeting after the trip for growers to discuss the issue of produce quality, during phone contacts and on farm visits. This led to the IDO organising an improved process for growers to receive quality outturn reports direct from the quality inspectors.

6.7 Linkage with Bi\$Link project

Sally Richards, project officer for the funded Bi\$Link project was pilot one of her units with the Darwin growers. They have agreed to trial an introduction to bookkeeping. This led to further computer base bookkeeping training course, which will take place in February 2004. Both will be very useful for the group.

7. Recommendations

This project has led to an improved capacity of government agencies to work with the vegetable industry in the NT. In the past agencies had found it difficult to get the growers to identify and prioritise their problems.

This project saw that identifying grower issues and information requirements were the best way to achieve improved farming practice. Identifying the needs and issues of the growers helped to outline the strategic directions. In other words, grower's can identify what needs to improve but do not always know how.

This project has also shown that by asking the growers to articulate the main issues they face they come up with issues, which not only solve their immediate problems but deliver environmental and economic outcomes that also comply with government policy and goals.

The vegetable grower community skills have improved with participation in local agricultural shows and their increasing confidence to work together, to negotiate as a group to improve their own, and the industries business practices.

The growers especially appreciated the fact that the IDO came to their farm and could see their problems first hand. This farm visit appreciation has been reported before with NESB growers. Growers clearly prefer farm visits and believe that an advisor needs to see the problem to understand it and offer a solution.

The presence of a local IDO is vital for the NT growers to link in with the national R&D program.

The language barrier had been identified as a major problem in communication. The IDO, who speaks the same language as the majority of growers is recommended for the vegetable industry in NT.

It is recommended that governments trying to achieve an aim important to them and the greater community should consider allowing growers to identify this need themselves through similar bottom up processes as those used in this project.

The problem with fixed-term funded projects is that a strong relationship takes time to develop and by the time it has fully developed the funds have finished, leaving growers almost back where they started.

This project had an aim from the outset to obtain further funds for the continuation of improved communication and increased vegetable industry development in the NT. This has been successful and a Vegetable Industry Development Officer will be appointed in the NT. In addition the project has been aligned with the new Farmbis

funded project, Bi\$Link which has been providing some basic business training for growers in the NT. One of the first tasks for the new NT vegetable IDO would be to offer some farm business management training and it is hoped that growers will be in a better position to assess their economic issues, particularly production and marketing costs.

It is recommended that when projects dealing with industry development, communication or information provision to growers are funded, that consideration is given to ensuring a mechanism for continuation of relationships and communication after the project is completed.

8. Evaluation

The NT vegetable IDO proposal was submitted in late 2003.
The NT Vegetable growers' needs and issues identified and prioritised.
The IDO continuing to work with the Asian Vegetable Grower's Association.

One measurement and example of sustainability is safer chemical use. This project has been successful in identifying more sustainable approaches for pest control. The promotion and acceptance of the use of a soft chemical (oil).

The use of DBIRD recommended agronomic practices has increased, more growers have attended Freshcare training and Chemcert courses and have safer chemical use procedures in place. Awareness of the need for produce post harvest cooling and correct packing has increased. The growers themselves claim that they have changed practices due to information that the IDO has produced.

Socially, the growers community will be less isolated in terms of accessing information.

It has been shown that the growers believe that information provided by this project has resulted in changed practices and that the IDO has helped the vegetable industry and linked it to the outside world.

This project has achieved its aim of scoping the development needs for the NT vegetable industry, improving information communication to vegetable growers to facilitate adoption of best practice-profitability and much more.

9. Appendices

Appendix 1: Information packages produced and delivered to growers during the project:

Pest and Disease package

- A series of posters covering major pests and diseases were produced with technical advice and photos from DBIRD, and available for growers.
- Pest and disease workshops were delivered by Geoff Walduck, Brian Thistleton, Greg Owens, DBIRD, Darwin and facilitated by Kim.

Poster/wall chart

- Disease of Asian Vegetables in Northern Australia
- Pest of Asian Vegetables in Northern Australia
- Pest and disease workshops, understanding of fungicide and insecticide activity group list, registered chemicals in NT with 25 growers attended.

Chemical package:

- Registered insecticides and fungicides workshop was delivered by Brian Thistleton, Geoff Walduck, John Alcock, DBIRD, Darwin and facilitated by Kim.

Calibration package (in collaboration with NT University)

- Chemcert training courses are ongoing, Kim translates and has marked tests given as part of Chemcert accreditation.
- ICA training and translating for Vietnamese growers
- Helped a grower apply for Chemcert training
- Vietnamese and English versions of Chemcert information package obtained for growers.
- Assisted growers to catch up with their Chemcert workplace assessment.

Nutrition and Irrigation Workshop Package

- Plant and soil nutrition workshop was delivered by Geoff Walduck, Greg Owens, DBIRD, Darwin and facilitated by Kim.
- Follow up visit to grower's properties for soil testing and advice.
- Summary Sheets on Tensiometers is an essential component of this package.

Summary Sheets Package

- Five new summary sheets have been produced (making a total of seven summary sheets) and some of these make up components of other packages.
 - * Japanese Taro
 - * Vegetable Industry Development roles
 - * Fuel Rebate Scheme
 - * Fertiliser Freight Assistance Scheme
 - * Assistance with labour requirements
- The SS are faxed to growers and all growers report that they read them because they are one page and easy to understand.
- In addition and complimentary to the SS are the NTHA newsletter articles which are often responding to an immediate issue:
 - * Farm hygiene
 - * Tensiometer
 - * Taro
 - * Supply chain study tour
 - * Value-adding to Asian vegetables
 - * Farm Management Deposit Scheme

Agronomic Demonstration Package

- Talking about new agronomic practices raises awareness but does not always bring about change, which often requires capital outlay. If it is supported with visual evidence the grower can make a more informed decision.
- These demonstration plots were carried out by DBIRD, Asian vegetable team and Kim assisted by inviting and encouraging growers to attend the Demo Days.
- The principles demonstrated included soil preparation, growing green manure, and irrigation system set up.

Adoption of new growing methods:

- Green manure use over the wet season is being encouraged to improve soil structure and nutrition.
- Plastic mulch and improved irrigation
- These are closely linked to the Demonstration Package

QA Awareness Package

- Most of the growers are aware of QA but required further information and a chance to ask questions about their concerns
- Determined wholesale markets agent's QA requirements.

Choosing the right pest and disease management approach.

- Importance of pest and disease identification
- Contact for expert DBIRD person
- Choosing correct chemical
- Chemical resistance and importance of chemical rotation.

Quality Assurance

- Awareness raising of concept food safety and HACCP plans
- Continue to assist Annie Do with SQF.

Tentimeter:

- Continue promotion of benefits
- Look at use for all vegetable.

Plastic mulch

- Continue promotion of benefits

Appendix 2: Summary Sheets and articles in NTHA newsletters

Summary Sheets:

Asian Vegetable Summary Sheet

Vegetable IDO role

It is important that growers who have not been able to attend meetings are still aware of the role that the Vegetable Industry Development Officer (VIDO) can play, and how you can benefit from such positions working within your industry.

The main roles Kim undertakes for vegetable around the Territory include:

- Facilitating communication between state vegetable programs and vegetable growers
- Industry communication. Facilitating growers meeting
- Participation technology transfers programs. Delivery of prepared information
- Being the first point to contact for growers with NTHA and NT vegetable grower group
- Identifying training needs and providing input into training programs
- Working together with growers to identify their needs and develop programs to meet these needs
- Identifying growers' problems and issues. Advising growers of best contact to assist with problem
- Keeping growers up with important issues and events.

If you have an issue within your business, or are having difficulty finding answers to problems that you may have, it is important to contact Kim and speak to her about this.

It could be that there is research being undertaken in another part of the country that could be useful, it could be that there are a network of other growers, that you can network with, or it could be that we need to address this issue to benefit all growers.

Kim Bui's contact details:

Office: Northern Territory Horticultural Association

15A Coolalinga Village, Stuart Hwy.

Phone: 08 89833 233

Fax: 08 8983 3244

Mobile: 0419 901 554.



Northern Territory Government
Department of Business, Industry & Resource Development



Horticulture Australia



Asian Vegetable Summary Sheet

Fertiliser Freight Assistance Scheme

The Northern Territory Fertiliser Freight Assistance Scheme is designed to alleviate the high freight costs of fertilisers in the Territory.

The assistance is available on eligible fertilisers transported from interstate, overseas or to the Top End from the far southern region of the Territory.

Eligibility: Assistance is only available for fertilisers used in production of pastures, crops, fruit and vegetables for commercial purposes. It is not available for fertilisers used for private, recreational or resale purposes.

Assistance is available for a minimum total claim of two (2) tonne for purchases made during the period 1 July 2002 to 30 June 2003. Claims for lesser quantities will not be accepted.

Quantities may be accumulated until total tonnage is equal to or greater than two (2) tonne, over one financial year only.

Assistance will be paid on Australian or overseas inorganic or organic fertilisers.

A maximum support limit of three hundred (300) tonne per producer per year applies.

Claims must be supported by proof of purchase documents. Final date for submission of claims for 2002/2003 is 31 August 2003.

Growers need to fill the attached application form and sent it back to:

Enterprise Development
Department of Business, Industry & Resource Development
Development House
76 The Esplanade, or
GPO Box 3000
Darwin NT 0801

For all inquiries please contact Pam Carter, phone 89996794 - Department of Business, Industry & Resource Development

Or contact Kim Bui
Office: Northern Territory Horticultural Association
15A Coolalinga Village, Stuart Hwy.
Phone: 08 89833 233
Mobile: 0419 901 554.

Asian Vegetable Summary Sheet

Assistance with labour requirements

New labour office opens in Darwin. Oz-Jobs will assist growers to meet their peak harvest labour needs by providing a single point of contact for growers and job seekers.

This free service enables growers to register their vacancies on a daily basis with our experienced staff who then match and refer only suitable candidates.

Oz-Jobs has a national network of offices and an exclusive national Go Harvest hotline number. This hotline keeps job seekers up to date with the latest need for labour in any of our Go Harvest areas across Australia.

The Darwin office opened last month and will complement the Oz-Jobs network. Any employers who would like to discuss their employment requirements are invited to contact Oz-Jobs staff on 08 8941 5477 or 08 9841 9026, office: 1st floor 82 Smith St, Darwin.

For growers who employ employment

NTMIA and NTHA in conjunction with Small Business Answers present a free information seminar with guest speakers from employment related organisations to advise growers of their obligations and requirements for recruiting harvest.

Topic will be covered include:

- Work Health and Safety
 - Work visa
- Compensation, superannuation, PAYO
 - Accommodation

**Date: Tuesday 2/9/03 at Taminmin High School Gym,
From 7:30 to 9:30pm**

Please contact Kim Bui on details below for further information.

Office: Northern Territory Horticultural Association

15A Coolalinga Village, Stuart Hwy.

Phone: 08 89833 233

Mobile: 0419 901 554.



Northern Territory Government
Department of Business, Industry & Resource Development



Horticulture Australia



Japanese Taro and Taro Growers Australia

50 corms should be planted in a nursery bed to bulk up material needed for a large planting. Each plant should produce about 40 mediums to large corms. This will supply approximately 2000 corms or enough to plant about 600 metres of bed. While this material is believed free of disease and virus, no guarantee is given to its health status.

Make a raised bed about 50 cm high and 30 cm wide and 20 metres long. Apply the following basal fertiliser: CK55: 100grs/m of row,

Supper: 100grs/m of row,

Gypsum: 200grs/m of row.

Plant corms 10 - 20 cm into the top of beds and 0.3 metre between plants. Lay irrigation and wet up bed. Keep bed moist but not too wet. Germination of corms will take a couple of weeks then start fertilising. Apply NKP fertiliser with trace elements at 20grs per plant every week. More fertiliser may be required as the plants will be ready for harvest about 6 months from planting.

More detailed fertiliser and irrigation schedules will be supplied for the larger commercial planting in 2003 and they will be monitored from planting through to harvest.

North Queensland taro growers established the Taro Growers Australia (TGA) association in January 2002 and their aim is to become a national organisation to foster co-operation and co-ordination between member producers in all taro-producing regions throughout Australia. TGA are involved in research, development and information flow regarding all aspects of taro production and marketing for the benefit of producers and consumers. Joining TGA gives local growers the chance to network with interstate growers and regular newsletters sent to members contain information on growing techniques, mechanisation, market trends and the development of processing opportunities like taro chips.

Taro growers in South Queensland and New South Wales can only produce in the summer months. Because the crop grows well in our dry season, local growers can target periods of lower throughputs and higher prices.

The demand for Bun Long taro in Australia still far exceeds our production and we import several thousand tonnes from Pacific Island countries each year. The new small corm Japanese taro has a potentially large market in southern capitals and export opportunities into Japanese markets are currently

Energy Grants Credits Scheme

This new scheme replaced the off-road and on-road diesel fuel rebate scheme. Some of you may have acknowledged this scheme. The energy grants credits scheme helps cut fuel cost for business. Particularly in regional and rural Australia, by providing a rebate fuel used for specified activity.

If you want to claim a fuel grant you will need to register for the scheme by phoning **1300 657 162**.

To claim a fuel grant you need to purchase the fuel and used it, or intent to use it in an eligible activity. You can also claim for fuel eligible purchases that you made before you registered, providing it is within 3 years of purchase.

If the purpose of your business is to produce agricultural goods for sale, your eligible activities are:

- cultivating or gathering in crops;
- cultivating the soil
- horticulture, pasturage

Methods of claiming: you can choose any of the following methods to claim your fuel grant:

- a paper claim form: After you register for the scheme you will receive a claim form, you can claim your form whenever you like provided that it is within 3 years of purchase;
- the Internet: you can also claim your grant using an electronic claim form on the Internet. This is the same method you would use if you lodge your business activity statement electronically using eBAS;
- claiming using eGrant – through your fuel supplier or fuel card provider
- have your claim submitted for you by your tax agent: your tax agent may submit a paper claim form for you or lodge your claim on the internet using the electronic lodgment system currently used by most tax agents to lodge business activity statements and tax returns.

Keeping records is very important: to support your claim, you must keep records that show you purchased the fuel and used it in an eligible activity. These are the records you need to keep – for 5 years:

- records of fuel purchase: invoice or receipt number, type of product, price paid per liter, quantity, supplier's name and phone number, proof of payment;
- use of fuel in an eligible activity;
- calculation of the quantity of eligible fuel: if you claim under multiple activities (e.g. road transport and agriculture) you need to calculate eligible fuel separately for each type of fuel and each activity as different rates may apply;
- details of any fuel that was sold, lost, or otherwise disposed of

If you need more information on this topic please contact Kim Bui on 89 833 233, or the Diesel Fuel Info line 1300 657 162.



Articles in NTHA Newsletter:

1. Farm hygiene:

There are many pests that may be inadvertently to your property or spread between fields. Diseases, insects, nematodes, weeds are all organisms which can be easily transferred. Soil clinging to machinery, vehicles or boots, and plant material such as seeds, seedlings or mulches are the most common transfer agents. Some organisms can survive dormant, undetected for year, then begin to flourish when a suitable host is present.

There are numerous actions you can take to reduce the risks on your farm of both introducing new pests and spreading those currently present. Restrict movement of machinery, vehicles, equipment and people both onto your property and within your fields. Organise a standard delivery point for all deliveries, preferably as close to your farm gate or main access road as possible. Keep machinery, vehicles and clothing/footwear clean. Provide footbaths or boot covers for workers and visitors. There are many different disinfectants available. Discuss the best choice for your situation with your local horticulture department or consultant. Check any plant material used. Buy certified seed, and ensure seedlings are disease free. Be aware of potential disease problems when purchasing mulch. When working in the field, begin at the youngest and work through to the oldest crops, as younger crops are less likely to have pests present. Cover crops can be also planted, they help to reduce nematode populations, reduce pest and disease build up by breaking the cycle of host plants, smother the soil to prevent weed growth. Jumbo hybrid forage sorghum grows fast and competes well, gives high yields of dry matter, and being highly nematode resistant so where nematodes are a problem, this type is highly recommended. Learn as much as possible about the pests on your farm and the surrounding properties, as well as any new pests in your region. The ability to correctly identify pests and a thorough knowledge of their lifecycle are very useful skill when planning a hygiene program for your farm.

2. “Taro Growers Australia” (TGA):

This association was established in January 2002 by North Queensland taro growers, and their aim is to become a member producers national organisation to foster co-operation and co-ordination between in all taro producing regions throughout Australia. TGA are involved in research, development and information flow regarding all aspects of taro production and marketing for the benefit of producers and consumers. Joining TGA gives local growers the chance to network with interstate growers and regular newsletters sent to members contain information on growing techniques, mechanisation, market trends and the development of processing opportunities like taro chips.

Taro growers in South Queensland and New South Wales can only produce in the summer months. Because the crop grows well in our dry season, local growers can target periods of lower throughputs and higher prices.

The demand for ‘Bun Long’ taro in Australia still far exceeds our production and we import several thousand tonnes from Pacific Island countries each year. The new small corm ‘Jap taro’ has a potentially large market in southern capitals and export opportunities into Japanese markets are currently being investigated. The Horticulture Division of DBIRD is planning a research trial in 2003 to determine the fertilizer inputs and scheduleing required to maximise the yield and quality of dry season taro.

Application forms to become a TGA member are available from Kim Bui at the NTHA office.

3. Tensiometer:

Tensiometer is the useful gear to measure the soil moisture in a plant's root zone. It measures soil suction, which is the vacuum created when water flows from the sealed tube via the ceramic tip into the surrounding soil and reaches equilibrium with the soil moisture.

Tensiometer tube can be purchased as a whole set or made up from getting the parts from the various suppliers. If you are thinking of getting the parts and make your own, here are the components of the tensiometer:

1. Ceramic Tips: there are a number of tip sizes available. The size 1 tip (50 x 20 mm) is cost effective and suitable.
2. Electrical Conduit: 15 mm ID Electrical Conduit (orange) cut to lengths. Three basic lengths at 20, 40 and 80 cm depths (for most cucurbit) plus approximately 20 cm of conduit and site glass above ground.
3. Site Glass: the site glass situated at the top of the tensiometer tube holds the rubber bung, which creates the seal so a vacuum can develop and allows the person who services the tensiometer to see if the water level in the tube has dropped. The site glass can be purchased from local plastic firms.
4. Rubber Bung: the rubber bungs can be the bungs of the Vacutainer blood tubes used by the vet health labs. i Gauge for measuring the vacuum.

Installation: Tensiometers are usually used in pairs or set of three; the shallowest one should be placed in the upper part of the root zone (20 cm), the deepest one should be placed below the active root zone (80 cm), and the third one should be placed between these two zone. These recommended depths are the guides. Dig a hole near your plants to determine the best depths for your situation. Tensiometers should be placed within the wetting pattern, which created by sprinkler or dripper, and insure that there is a good seal between the top of the tube and soil surface to prevent water running directly down the tube. Following installation, fill the tubes with water up to the bung and allow the tensiometer to settle in for a day or so before reading it.

If the soil is wet and there is no water visible in the site glass then there may be a leak in the system. Refill the tube and give it one more chance.

For further information please ring Greg Owens on (08) 8999 2220, or Kim Bui on (08) 8983 3233.

Best of luck
Kim Bui.

4. Supply chain study tour:

In the first week of March a group of growers went to Sydney and Brisbane on a supply chain study tour. They focussed on some activities such as merchant marketing strategies; vegetable storage and handling on the market floor; visiting growers and discussing about growing techniques and growing cucumber in net house; visiting

Asian vegetable retail outlets for consumer responses on their products. At Flemington market, Chris Cope, quality surveyor/consultant, gave them a presentation on vegetable quality control and quality outturn reporting procedures.

The purpose of the study tour is to increase knowledge of the linkage in the supply chain; understand of the cool chain and how to handle the vegetable to get best quality; understand of the linkage between pre-harvest practices and the final product; experienced on growing techniques: sweet potatoes, cucumbers in shade house, and similar crops; create grower network and marketing network.

5. Value adding to Asian vegetables:

Vegetables are alive, many Asian vegetables are leafy and fragile, and therefore require careful handling and transport to ensure that consumers have access to a product in top condition.

Good postharvest management delivers horticultural produce to the end consumer in a condition, which is virtually unchanged from harvest time. Handling should avoid mechanical injuries, preserve the product's food reserves and storage life, restrict water loss and avoid proliferation of micro-organisms. The future should see improved vegetable quality as a consequence of correct handling awareness, and investment in equipment

Minimal processing is an innovative way of adding value to fruit and vegetables. The perception by consumers of fresh, nutritious, convenient, ready to use products is making these commodities increasingly popular.

There are many different types of fruit and vegetable preparations available in the market place. These include freshly squeezed fruit juices, frozen products, lettuce and mixed vegetable salads, fruit slices and salads, peeled products and ready to cook vegetable mixes. This last group includes stir-fry mixes, which generally contain cabbage, carrot, broccoli and cauliflower florets and snow peas. To date none have contained any traditional Asian vegetables.

There is very little information available on the response of Asian vegetables to minimal processing and how they should be packaged and handled. Food safety has been the subject of several of the growers and processors.

A Big Challenge Ahead! Australia needs to focus on higher product technology and lower costs policies. Australian manufacturers are also an advantage to Australia in the development of a processing Asian vegetables industry.

6. Farm Management Deposit Scheme:

Financial risk management can help with the profitability of your primary production business. Variable income streams are a fact of life; however, many primary producers get caught out badly when commodity prices drop or when bad weather

batters a bumper crop. The key is to find the right mix of risk management tools to suit your particular circumstances and provide an adequate safety net during hard times.

Farm Management Deposits are a cash flow management tool that complement other risk management options by allowing you to set aside pre-tax primary production income in profitable years to help balance your income between good and bad times. They also provide tax benefits if kept for a minimum of twelve months (FMD holders in [Exceptional Circumstance declared areas](#) exempt). Interest is earned on the full amount of the deposit at market interest rates. The money deposited can be withdrawn in later years when you need it, often in a lower income, lower tax year. Farm Management Deposits are offered through financial institutions (that is, banks, building societies and credit unions) as a tax-linked risk management tool for eligible primary producers. You can choose the financial product and institution that best meets your needs. Please check with the Australian Taxation Office if you are unsure about Farm Management and your status as a 'primary producer' on 13 28 66.

To be eligible for Farm Management Deposits you need to:

- be an individual primary producer with an off-farm taxable income of no more than \$50,000 when the farm management deposit is made;
- make a farm management deposit of \$1,000 or more;
- have a sum total of all farm management deposits not exceeding \$300,000 at any time in any year of income;
- if you are using more than one farm management deposit, they must all be with the same financial institution;
- hold the farm management deposit for a minimum period of 12 months in order to gain the taxation benefits of the scheme