Economic Research Services for the Vegetable Industry

Ian James
Industry Data Economic Analysis

Project Number: VG08040

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Level 7
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Telephone: (02) 8295 2300
Fax: (02) 8295 2399

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June 30, 2012

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Project Leader:

Ian James,
Principal
Industry Data Economic Analysis

Address:

P.O. Box 870
Wonthaggi
Victoria 3995

Phone number:

0439 440023

Facsimile:

(03) 5678 3354

Email:

idea@jiskapark.com.au

The purpose of this final report is to communicate the successful delivery of project VG08040 - Economic Research Services to the Vegetable Industry.

This project was facilitated by Rural Directions in association with Horticulture Australia Limited (HAL).

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Report date: 30 June 2012

Contents

1.0 Summary

The objective of VG08040 "Economic research services for the vegetable industry" was to improve the range of economic data available; research and analyze that data and provide a range of economic information previously denied to the vegetable industry. The project also sought to apply economic expertise on issues relating to the industry and to broaden growers' horizons from farm production issues to post farm gate issues. These economic inputs were seen as essential for industry development and to ensure the long term viability of the vegetable industry.

This project was multi faceted in both areas covered and methods of delivery. Major components of the project were:

- Data collection and analysis
- Research papers
- Weekly economic commentary
- Magazine articles
- Presentations and speeches
- Commodity spotlights
- Support for industry participants
- Work on market access issues
- Industry representation in economic forums
- Input into the industry's development and strategic plan

This project has delivered an expansion in the range of economic data and information available on the vegetable industry as well as rigorous research and analysis of the implications for the industry of trends in that data.

As a result of this project;

- Data on the domestic operations and finances of Australian vegetable growers is publicly available on the AUSVEG website
- Extensive trade data has been collected and analyzed and has played a key role in highlighting the loss of trade competitiveness of the Australian industry
- A number of specialized commodity reports have been produced and published to the website
- Researchers, industry bodies and policy makers have received strong economic support from this project
- Economic rigour has occurred in areas where none was previously available
- Research papers and magazine articles have been written analysing key issues for the industry
- Vegetable growers' horizons have been extended beyond the farm gate
- Emphasis has been placed on rates of return rather than production
- Growers have enhanced economic knowledge and are more aware of the fact that they are businesses rather than growers.

Further development of economics based work is essential for the industry's future well being. Ongoing development work is required on data collection and to utilize more fully information on growers' financial conditions. Further in depth analysis of trends in trade is required as the industry is facing stagnant export markets and increasing import penetration. Benchmarking studies and analysis is required to encourage best practice in the industry and to identify the areas where cost competitiveness and/or quality have been lost. Supply chain issues need economic analysis to enhance the returns to growers and identify areas for cost reduction.

2.0 Introduction

2.1 Historical background

The Australian vegetable industry has historically been poorly serviced through a lack of economic information and analysis. There has been little common purpose and the sense of industry that is so strong in other Australian agriculture industries has been lacking. Some of the reasons for this are rooted in history. The Australian vegetable industry grew out of the need to supply domestic urban markets. As a consequence, the industry has been extremely fragmented. The competitor has been the vegetable grower next door. Little attention has been paid to globalization and the onset of new competitive forces in a freer trade environment. Supplying domestic rather than export markets has been the focus of the industry. Growers prided themselves on supplying good quality product to market but little attention was paid to market conditions and generating sustainable rates of return on capital.

It was largely a sense of looming crisis and inadequate returns to growers in the new millennium that prompted this project as vegetable growers saw the need to act with common purpose. The difficulty for them was that they had little economic data and insufficient economic research to understand what was going on and no way of providing solutions to address the problem. Governments were also at a loss as to how to assist an industry in which there was little industry wide knowledge. Much of the Australian food processing industry was being dismantled and food processors in Australia were under pressure to undertake improved efficiencies in order to survive. Processors and retailers were making increasing demands on growers which were raising costs of production. Growers were responding by lifting productivity and yields but to many growers this was a zero sum game with downward pressure on prices and margins. Lack of adequate data meant that it was difficult to quantify what was happening. There were increasing signs of despair in the industry. Anecdotal evidence suggested that the industry was aging, there were few new entrants and the inter-generational transfer of vegetable farms was in decline with a high percentage of growers leaving the industry.

Things were equally as bad on the trade front. While export markets were relatively small for an Australian agriculture industry, they were nevertheless an important income source. Significant markets had been lost in Asia in the early part of this century, and since then exports, with the noticeable exception of carrots to the Middle East had stagnated. In addition, growers supplying the processing side of the industry were facing significant competition from processed vegetables out of Europe, North America and New Zealand. Moreover, there was an over-riding feeling of inevitability that the Chinese and other low labour cost countries would soon enter the Australian market further eroding Australian growers markets and profitability.

2.2 Why was this project undertaken?

Research and development in the vegetable industry had largely been concerned with production issues, concentrating on pests, diseases, yields and productivity improvements on farm. But the problems facing the vegetable industry and impacting on the long term viability of the industry were largely occurring beyond the farm gate.

Advanced industry data and economic analysis was recognized early on as one of the key requirements of the industry. It was a key pillar of discussions in 2005 and 2006 and formed part of the industry's Vegevision 2020.[1] In 2008 Horticulture Australia Limited asked all member industries to review their industry development needs. The Vegetable Industry Advisory Committee commissioned Inovact Consulting to conduct this review and report back to the industry. This report specified the need for an economics program which will be an integral part of the industry's development needs. To quote "An economic capability has been included as it complements a commerce focused analysis of market and consumer data and information. Economic trends are of strategic significance to vegetable growers as it impacts both their day-to-day operations and the long term ability of their businesses to operate and compete. Understanding the economic attributes of the industry is also relevant for many important industry policy issues."[2]

This project was undertaken to provide and analyse essential data, provide discussion points on industry wide economic developments and educate growers to think beyond the farm gate in planning the development of their businesses.

2.3 What were the aims of the project?

In general the focus of the project was on 5 key activities;

1) Data analysis and research to deliver key economic indicators and insights for industry
2) Research into key economic issues affecting the vegetable industry
3) Communication with industry through published articles, written reports and presentations to industry groups
4) Responding to industry requests for economic data to support policy discussions and negotiations
5) Ad hoc economic service requests from industry and media

This project commenced in 2008. With the establishment of the Vegetable Industry Development Program in 2009 this project was incorporated into that program. An overview of the Vegetable Industry Development Plan is attached at Appendix 1.

[1] Australian Vegetable Industry Development Group – Vegevision 2020, Canberra 2006.

[2] Inovact Consulting – Vegetable Industry Development Program – Operating Plan 2009-2012, October 2008, p 35.

3.0 Method and Activities

Unlike many research and development projects, providing economic services to the vegetable industry required a multi faceted approach. A wide range of activities were undertaken to deliver the level of economic support required by growers and the vegetable industry.

3.1 Data collection and analysis

The methodology of this part of the project was to:

1. assess the availability of economic data
2. collect data
3. analyze data
4. post results to AUSVEG website for industry participants to use

Data is essential for economic analysis but data collection in the vegetable industry has always proved difficult. The vegetable industry produces a wide variety of product over a geographically diverse area in all the tropical, temperate and cool climate zones of the country. Historically vegetable growing was typically conducted on small farms or as a sideline to some other agricultural pursuit. Marketing boards which recorded data and were prevalent in almost all agriculture industry in Australia were largely absent in the vegetable industry. Hence there has been no history of industry data collection and a reliance on broader agricultural surveys with limited data on the vegetable industry. Clearly the existing level of data was inadequate for economic analysis of the industry.

With limited funds available to spend on data collection a decision was made to collect data from three sources. The Australian Bureau of Statistics (ABS) for production and structural characteristics of the industry, the Global Trade Information Service (GTIS) for export and import information (HAL project MT10022) and the Australian Bureau of Agricultural and Resource Economics and Science (ABARES) for financial information (HAL project VG10047).

With the data from these sources this project delivered an expansion in the range of industry data collected and focused analysis on trends in that data over time. The strategy was to develop comprehensive tables, that provided the key information, in formats that were user friendly.

The method was to divide industry data into three key areas reflecting the different aspects of the vegetable industry from the data sources

1. Production and structure
2. Financial performance
3. Trade

Data was collated and analysed and made accessible through the AUSVEG website.

Production and structure data and analysis covered:

- Number of vegetable growers

- Size distribution of vegetable farms
- State distribution of vegetable farms
- Grower distribution by earnings
- Vegetable plantings
- Volume of vegetable production
- Value of vegetable production
- Aggregate vegetables (where a vegetable was produced for more than one activity)
- Field vegetables
- Processing vegetables
- Undercover vegetables
- Vegetable farm size
- Vegetable diversity

An example of this data is presented at Appendix 2. Alternatively the full range of data can be viewed by clicking control and the symbol below

The Domestic Industry

For economic data on size of holdings, farm distribution, value of operations, volume and value of production, consumption and employment.

MORE

Data on financial performance and commentary covered:

- Financial performance of vegetable farms by State
- Vegetable farms with negative farm cash income
- Farm business profit of vegetable farms
- Rate of return to capital excluding capital appreciation
- Comparison of financial performance and debt characteristics of different vegetable farms
- Components of costs of production for different vegetables
- Cost of production per tonne for different vegetables

An example of this data is presented at Appendix 3. Alternatively the full range of data can be viewed by clicking control and the symbol below

Vegetable Industry Financials

Key financial data on the vegetable industry.

MORE

Data on trade involved an annual report and a six monthly update. The more comprehensive annual report saw the creation of 25 tables covering both imports and

exports of vegetables. Vegetable trade was broken down into five summary tables covering:

Total vegetable imports over a five year period by country
Total vegetable imports over a five year period by product
Total vegetable exports over a five year period by country
Total vegetable exports over a five year period by product
Trade balance over a five year period

More detailed tables were created covering fresh vegetables, frozen vegetables, processed vegetables and other vegetables (e.g. dried vegetables) over the five year period for:

- Country of origin of imports
- Imports by vegetable product
- Country of destination of exports
- Exports by vegetable product

The data in each of the 25 tables was analysed and significant shifts in trade noted.

An example of this data is presented at Appendix 4. Alternatively the full range of data can be viewed by clicking control and the symbol below

Trade in Vegetables

A regular update of trade data with detailed annual import and export tables by product and country.

MORE

3.2 Support for Innoveg and CIO Projects

Collaboration between this program and the Innoveg sub program of the Vegetable Industry Development Program was an important element of the work. The role of the economics sub program was to undertake research and provide material on economic matters of interest to the State collaborative industry organisations (CIO's).

Profiles were produced for each of the States and each state's data was contrasted with the national figures.

Production tables included:

- Production of each vegetable by volume
- Plantings of each vegetable by area
- Number of vegetable growers by vegetable

Financial tables covered:

- A detailed financial table covering revenue, costs, income, profitability, rate of return, farm capital, depreciation and farm debt
- Cost structure of vegetable farms
- Trends in key financial variables over time

An example is included at Appendix 5.

A range of other material was produced including a written contribution to the monthly e-newsletter and a basic fact sheet on economics to assist growers understanding of economic terminology. A copy is attached at appendix 6.

The project also provided support to the CIO's by presentations to local grower groups, attendance at field days, visits to farms packing houses and processing plants and the writing of occasional briefs for their newsletters.

An example of the latter is at appendix 7.

3.3 Magazine articles

Vegetables Australia is a highly respected industry magazine and widely read by growers and other participants in the vegetable industry. Conveying economic messages through this medium was considered an important way for this project to deliver its work to the vegetable industry. In all twenty four articles were researched and written on a range of topics. These revolved around five major themes:

1. Measuring vegetable grower performance against other benchmarks. Examples were:
   - Rates of return on water use in the vegetable industry compared to other agricultural industries.
   - An analysis of data on production, trade and comparative rates of return of vegetable farms as opposed to other agricultural enterprises in the Murray-Darling system.

2. Providing data highlighting industry issues. Examples were:
   - Increasing import penetration.
   - Bio-security threat to trade – carrots to Taiwan

3. Increasing grower awareness of economic policy decisions on their business. Examples were:
   - Carbon pricing
   - Clean energy policy and the carbon farming initiative

4. General interest articles. Examples were:
   - An overview of the vegetable industry
   - Whether it is in growers interests for development of agriculture in northern Australia

5. Articles on economic efficiency
   - The economics of mechanisation in the vegetable industry

An example is included at Appendix 8.

3.4 Weekly economic note.

Any business needs to understand the broader economic environment in which it operates and growers and vegetable industry supply line participants are no exception. Economics can be daunting for many people as sometimes the jargon is difficult to understand. In order to educate growers a weekly note on economic issues was researched and written to raise growers' level of understanding of economic issues that may impact on their business.

The strategy used was to examine data releases on the Australian economy and provide an explanation on the significance of the data to the economic environment in which growers operate. A great deal of thought went into managing this part of the project as it was necessary to convey the information in a way that vegetable growers could understand and avoid economic jargon. By linking the weekly economic note with the AUSVEG Weekly Update the project was effectively able to deliver this activity to a large audience.

An example is attached at Appendix 9.

3.5 Research papers

The project delivered a number of research papers on data and economic issues. Some of these were confidential to industry decision makers while others were of a more general nature. Research was also undertaken to support the development of the industry's new Strategic Investment Plan and a review undertaken on the adequacy of existing data collections. Examples of the public papers were:

- Comparisons of rates of return to Australian growers compared to USA vegetable growers
- Management practices on Australian vegetable farms
- State variations in prices received, costs of production and rates of return
- The impact of currency changes on the level of imports
- Export development opportunities in key Asian markets.

An example is attached at Appendix 10.

3.6 Support for researchers and others

This project had access to a wider range of data than that delivered to the AUSVEG website and research was undertaken into a number of economic matters that were not published. It was not an efficient use of limited resources to put together information and data on all aspects of the vegetable industry. Researchers often have specific requests that involve manipulation of data to suit their particular needs. Often they require data presented in a different format to that in place. As an example some researchers require data on vegetables by geographic location while others require it by vegetable product. These variances can be accommodated but providing them upfront is a waste of resources

for the size of the request. The strategy in providing support to others in the vegetable industry was to respond to their specific requests.

Support was given to requests for data and economic information from researchers contracted to Horticulture Australia Limited, AUSVEG, State Associations, regional vegetable industry groups, Federal and State Government departments, the Minister for Agriculture, Forestry and Fisheries and other politicians as well as individual vegetable growers. These requests were broad covering the full range of industry information.

Some examples of the requests were data and information on:

- movement in vegetable retail prices
- Chinese imports
- lettuce production
- data on undercover production
- regional data information for Queensland
- beetroot production
- per capita consumption of specific vegetables
- Northern Territory vegetable production
- frozen vegetable imports
- beans, cabbage and broccoli production
- vegetable growers rate of return by capital
- grower distribution by size and area
- Indian imports
- Vietnam trade
- historical farm gate prices
- data to assist the vegetable bio-security plan

3.7 Presentations

The project sought to deliver information to vegetable growers through presentations on economic matters impacting on the vegetable industry. A large number of power point presentations were made in all states and a special effort was made to address regional forums of growers outside the capital cities such as Lindenow in Victoria, Bundaberg in Queensland, and Devonport in Tasmania as well as webinar presentations to development courses for Women in Horticulture.

A presentation was given to the Vegetable Industry Advisory Committee (IAC) on economic developments in the vegetable industry as well as a presentation explaining the economic sub- program of the Vegetable Industry Development Program. An address was also given to industry researchers as well as the heads of the State Collaborative Industry Organisations.

Support was given for other Horticulture Australia Limited funded projects through presentations and as a facilitator in forums such as the Root Vegetables Think Tank and Leafy Vegetables Think Tank conducted in Adelaide and the annual programs for the Vegetable Industry Leadership Development Course conducted across three States

The principal of this project gave a presentation to the Agri Pro conference in Hong Kong. The principal also gave presentations at the Vegetable Industry National Conference and to the annual meeting of the horticulture division of the NSW Farmers Federation in Sydney.

The project also sought to promote the vegetable industry in agribusiness forums and to the general public. Presentations were given to agribusiness summits in regional Victoria and NSW and to the Agribusiness Association in Melbourne.

Appearances before a number of parliamentary committees occurred to explain the economic arguments in support of issues facing the industry. These included the issue of country of origin labelling before the Senate Economics Committee and the ASEAN Australia New Zealand Free Trade Agreement before the Joint Standing Committee on Treaties of the Australian Parliament to argue the vegetable industry's case for better outcomes.

Some examples of presentations are presented at Appendix 11.

3.8 Work on market access issues

The principal of this project has a sound knowledge of trade and bio-security issues and their impact on the vegetable industry. A strategy was put in place to use this expertise to vegetable growers' advantage. The principal sought and won industry endorsement to sit as the vegetable industry nominee and director of the Horticulture Market Access Committee which was subsequently replaced by the Office of Horticulture Market Access. This body deals with trade related issues, reviews requests for market access by industries and private firms and advises Bio-Security Australia on work priorities.

A great deal of activity was associated with this aspect of the project. Meetings were held in Canberra and Sydney to discuss a wide range of issues in regard to market access. Numerous teleconferences were conducted involving Bio-security Australia and export protocols for access into a range of markets including New Zealand, Japan, Korea, Thailand, USA, Malaysia and Taiwan. Applications for market access were assessed.

Teleconferences and discussions were held covering free trade negotiations and review of existing agreements on a bi-lateral basis with ASEAN, Japan, Korea, Malaysia, Thailand, Gulf States and the USA. The project helped put together briefing papers on vegetables for negotiations of a free trade agreement with Japan. It also provided vegetable industry input into the ongoing multilateral Doha Round negotiations conducted in Dubai.

Work on restoring the carrot trade to Taiwan and the implication for trade in vegetables of the banning of the use of dimethoate and fenthion as a control measure for fruit fly was a constant part of the agenda.

Several forums were attended as part of this role, including;

- a discussion forum in Melbourne on the outcomes and impact on Australian industries of the Australia New Zealand ASEAN FTA
- a forum of the Australia/Indonesia Working Group on Agriculture Forestry and Fisheries sponsored by the Department of Agriculture, Forestry and Fisheries in Darwin to discuss better access for Australian vegetable exports into Indonesia.

3.9 Vegetable spotlights

While vegetable growers know a great deal about the daily market prices for the vegetables they grow some vegetable growers have a limited industry perspective. This project sought to overcome this problem by the production of a number of vegetable specific research papers where all the data on a specific vegetable was gathered together and analysed. The strategy involved simple tables and graphs and streamlined commentary in an easy to read format.

These spotlights analysed current and long term trends in:

- Production
- Yields
- Value
- State production
- Consumption
- Number of growers
- Exports
- Destination of exports
- Imports
- Market segments
- Market access

These vegetable spotlights were uploaded to the AUSVEG website and printed in hard copy for distribution at grower gatherings.

An example spotlight is at appendix 12.

3.10 Other economic inputs

The project also carried out a range of other activities to assist the vegetable industry development strategy. These included:

- Member of the information and technology dissemination group of the Industry Advisory Committee involving review of projects and advice on information needs
- Member of the bio-security working group for the vegetable industry
- Liaison with providers of key data – Australian Bureau of Statistics (ABS), Australian Bureau of Agricultural and Resource Economics and Science (ABARES) and the Global Trade Information Service (GTIS)

- Development of supplementary questions on vegetable growers attitudes to management practices and views on challenges and impediments to industry development for inclusion in the annual survey of vegetable farms
- Attendance at key industry conferences including the annual Vegetable Industry Conference, the annual Economic Outlook Conference conducted by ABARES, the Australian Agriculture and Resource Economics Society conference in Adelaide, the annual Industry Roundtable and other conferences of the Australian Farm Institute, the Market Produce Conference and the annual Statistics Conference conducted by the ABS
- Participation in Vegetable Industry Development Program workshops and teleconferences
- Participation and liaison with the Annual Symposium on Precision Agriculture Research and Application in Australasia
- Research and support for Protected Cropping Australia (formerly Australian Protected Cropping Association) and Hydroponic Farmers Federation including presentations and attendance at field days
- Research on Asian vegetables to support an ongoing program within Vegetables Australia and to assist the Rural Industry Research and Development Corporation (RIRDC) report on Asian vegetables
- Research and the provision of detailed data on herbs and spices as part of a project being undertaken by growers in conjunction with Bundaberg Fruit and Vegetable Growers Association
- Contribution to the Vegetable Industry Bio-Security Plan written in conjunction with Plant Health Australia

4.0 Evaluation

4.1 Overview

The breadth of domestic production data developed by this project is a significant advancement for the vegetable industry. The vegetable industry has available to it a range of data which enables it to explain its relevance to the Australian economy. The data also enables ready access for researchers and other interested parties either seeking industry wide data or specific vegetable information.

The financial performance data reveals information about the strengths and weaknesses of the vegetable industry and provides revenue and cost data that can be used for benchmarking purposes. It also provides information on differences in grower returns between the States.

The detailed analysis of trade data undertaken by this project has enabled the industry to put hard data behind arguments for improved market access for exports and to enable the industry to highlight increased import penetration and argue for measures such as country of origin labelling to assist in meeting the threat of imports.

The project has delivered the required inputs for the Innoveg Sub-program for distribution to the Collaborative Industry Organisations (CIO's). This research and the consequent reports have been well received and a number of the CIO's have used these in their own publications.

The researched and contributed articles for Vegetables Australia have been well received with little or no editing required and the fact that the editor continued to request articles over the life of the project is testimony to the high respect that is held for the relevance and quality of the written work.

The weekly economic note was highly regarded by growers and other readers. Feedback reveals that growers found the explanations easy to understand as well as entertaining. It formed a key part of broadening grower horizons and encouraged them to think laterally while providing a knowledge base that enabled them to adjust their business model in the light of changing economic circumstances.

Presentations were warmly received and recipients were impressed by the content and the delivery method. The invites for economic presentations over the life of the project is evidence that these are highly regarded by industry participants.

Over the life of this project the principal of this project was renominated by the industry to represent it on market access matters and indicates that the industry values the contribution from this project.

Commodity spotlights were popular and over the period of the project there was positive feedback and requests for the production of further spotlights. They provided a good

analytical snapshot of all data available on the particular vegetable in an easy to read format that could be easily accessed on the industry website.

4.2 What the project has delivered

The provision and analysis of industry data is a significant advancement for the vegetable industry as this level of data and its presentation has not previously been available.

The domestic production data reveals a much larger industry than previous data had recorded and much more detail on the structure of the industry. The provision of data on each vegetable in summary format enables quick and easy access to growers and researchers seeking information on a specific vegetable.

The diversity of the industry has been highlighted with data expanded to include the full range of vegetables available, such as leafy Asian vegetables, okra, fennel etc. Some analysis of the sub sectors of the industry is now possible e.g. field growers vis-a-vis undercover growers, the latter comprising 20% of the industry but with higher concentrations in areas like the Adelaide Plains.

This project has delivered comprehensive data and analysis on the financial performance of the industry and extensive data and research into trade issues. Data and economic input provided by this project proved crucial to the review of the industry's strategic investment plan (SIP) with acknowledgement by the consultants in an address to the National Convention.

Data collection is one thing, analysis another. This project has delivered the research and development which the industry sorely lacked and offers the prospect going forward of playing a key role in ensuring the economic viability of the industry. The analysis of economic issues provided by this project has been significant in identifying key problems facing the industry.

This project has not only been about economic data and research. The pressures on growers have in most cases been industry related. The project has encouraged vegetable growers to think as an industry. With economic expertise to apply to the substantial issues confronting the industry, growers have been empowered to believe that they can more effectively communicate with trained economic personnel in the supply chain and in government policy making bodies.

5.0 Implications

5.1 Strengths of the vegetable industry

Highly efficient in production of vegetables
Use of sophisticated production techniques
Innovative in production e.g. precision agriculture and willing to experiment
Innovative in product development e.g. mixed salads
Use of chemicals in an environmentally friendly manner
Socially responsible e.g. donating seconds to food banks
Broadening horizons

5.2 Weaknesses of the vegetable industry

Over supply of vegetables
Lack of market power
High cost structure
Poor approach to export markets
Globalisation leading to rationalisation of vegetable processing industry
Ad hoc responses to market conditions rather than a strategic approach
Insufficient data

5.3 Key messages for the vegetable industry

Scale is important in improving returns but small scale vegetable farms can still be profitable by developing niche products or supplying niche markets. The research from this project shows there is no conclusive relationship between scale, prices received, costs of production and profitability.

The industry has a low propensity to export and when it occurs it is often opportunistic. There has been little to no growth in exports in recent years. The success stories in export markets suggest a strategic approach is required with a long term commitment to supply overseas markets regardless of domestic prices.

Increased import penetration in frozen and processed vegetables suggests a lack of cost competitiveness that needs to be addressed. Producing for the processing sector needs to be re-examined in the light of domestic industry rationalization and the sourcing of product from overseas.

Over the period of this project between 12% and 25% of vegetable growers had negative cash flow and around 60% failed to generate an economic rate of return. Growers may move in and out of these categories but the industry figures suggest that there is a problem. These growers would be better off from a strictly economic view of moving their capital and labour out of the industry. By remaining in the industry they impact on other growers as they increase supply and force lower prices on all growers. There may be valid reasons why they remain in the industry such as lifestyle reasons or capital gains but it is an issue that the industry should investigate further.

There are significant productivity gains to be had through adoption of precision agriculture and greater mechanisation but often the investment required does not justify the cost. Nonetheless continued monitoring is required as investment in productivity enhancements remain the key to a viable competitive Australian vegetable industry.

Historically Australia's isolation has assisted in excluding many exotic pests and diseases. In a globalised economy bio-security risks are enhanced. The long battle that this project assisted with in getting the carrot trade to Taiwan restored, after the Taiwanese banned exports for fear of burrowing nematode, indicates how important data is. The industry needs comprehensive data on a consistent time series basis both on farm and industry wide. This is becoming increasingly important as neighbouring countries lessen tariff barriers but tighten up on phyto-sanitary issues.

Research into pricing suggests that there was a premium on prices for vegetables out of Queensland. This could reflect the ability of that state to supply counter seasonal vegetables to southern markets as well as New Zealand. Prices for vegetables out of Tasmania where vegetable growing is largely for the processing sector are generally lower indicating poorer rates of return for processing vegetables. There is a premium on vegetables produced undercover reflecting the niche markets developed especially for tomatoes and cucumbers.

Prices for vegetables have not kept up with prices generally, as measured in the consumer price index, with other food industries. With rising input costs the margin squeeze on vegetable growers over the longer term has probably been more severe than in other agriculture industries.

Research on exchange rates came to the conclusion that the strong rise in the Australian dollar associated with the mining boom was only one factor contributing to the import pressures being felt by the industry. A holistic approach needs to be taken on the issue of import penetration rather than look at a single factor.

Research into imports into two key Asian markets, Singapore and Japan, shows that high priced vegetables from other countries have been successful in procuring a market. This suggests that there may be opportunities for Australian vegetable growers, despite relative high costs, to export to these and other markets.

Overall the data and analysis provided by this project shows that the objectives of Vegevision 2020 were not being achieved. In addition the emphasis on production outcomes in Vegevision 2020 was not enhancing industry profitability or enabling the industry to compete internationally. This point was taken up by the consultants that developed the new Strategic Investment Plan released in 2012.

Attention to what is happening up the supply line is essential if growers are to prosper in the future. The vegetable growers' world no longer ends at the farm-gate. While the production of high quality produce remains a given, merely taking the attitude that this is all that is required will lock in low rates of return and threaten the long term viability of the vegetable industry under the weight of competitive forces.

5.4 How can the vegetable industry use this information?

This project delivers the initial groundings for further development of the industry. It provides the building blocks on which the industry must rest its foundation for its long term survival. Expanded and more accurate data has been provided to enable the industry to achieve its goals and develop appropriate policy responses to the trends revealed by that data. Growers now have enhanced knowledge of factors impacting on their business beyond the farm gate.

Continuing collection of data and ongoing analysis is required in the future to achieve the full benefits of this project. Ongoing research into economic issues will lead to a more dynamic industry, focused on its markets (both domestic and export), with enhanced ability to cope with the globalization of the Australian vegetable industry.

There are limitations on the contribution that this project can make to the industry. As the old saying goes, "you can lead a horse to the trough but you can't make it drink the water." Economic research and development is like the trough. It provides the essential ingredient for survival and revitalization. Without it the industry has no knowledge as to where it is at and where it is heading. But in the end, it is the take up of the messages and course of action by participants in the industry that will deliver the benefits.

6.0 Recommendations

6.1 Provision of economic services to the vegetable industry

The industry should give further consideration to continuing this project in some form. There is a need for ongoing research and development into economic issues confronting the industry. The conclusions of the research conducted for the Industry Advisory Committee in 2008 that led to the setting up of the vegetable Industry Development Program is as true today as it was then. To requote "An economic capability has been included as it complements a commerce focused analysis of market and consumer data and information. Economic trends are of strategic significance to vegetable growers as it impacts both their day-to-day operations and the long term ability of their businesses to operate and compete. Understanding the economic attributes of the industry is also relevant for many important industry policy issues."[3]

6.2 Data collection

Industry data is of critical importance for the vegetable industry. At present the industry funds an annual survey of vegetable growers which concentrates on financial performance and vegetable growers' views on management practices in the industry. It also makes a cross industry contribution to a subscription to the Global Trade Information Service which provides detailed data on exports and imports for Australia and other countries. Funding should be maintained as the information is invaluable.

For four years the industry funded a supplementary survey on vegetables that was attached to the annual agricultural census or survey conducted by the Australian Bureau of Statistics (ABS). This no longer occurs and the industry has lost important time series on vegetable production and structural features. Data from these surveys will now be sporadic with carrots the only levied vegetable that will have a consistent time series. The industry will not be able to update many of the products developed under the Vegetable Industry Development Program and these products will become increasingly obsolete.

There has been a great deal of criticism that the ABS data substantially underestimates the value of vegetable production and inaccurately records key components of the vegetable industry's structural features. Much of the criticism relates to the perceived under reporting by the ABS of small scale vegetable operations in peri-urban areas.

The evidence is to the contrary.

The vegetable levy money collected by the Department of Agriculture, Forestry and Fisheries confirms the veracity of ABS data. The two figures are not too dissimilar. In fact ABS estimates of value of production consistently exceed that which is derived from the levy collections data although the gap has lessened in recent years.

[3] Inovact Consulting – op. cit. p35.

The Sydney basins vegetable farms in particular have consistently featured as a point of reference in claims to the inaccuracy of ABS agricultural statistics in general. In response to ongoing criticism from industry sources Horticulture Australia Limited approved a vegetable levy funded study to ground truth vegetable industry statistics collected by the ABS. In the study**,** *'Ground Truthing of the Sydney Vegetable Industry in 2008'*,(HAL Project VG07073 June 2009,) Peter Malcolm and Riad Fahd sought to test the assertion from 'many people closely associated with the NSW vegetable industry'[4] that ABS data seriously understated the number of vegetable growers and the size of vegetable production. To quote 'Based on anecdotal evidence there have been opinions expressed that the number of Sydney vegetable farms could be more than 3000.' [5]

Using a combination of wireless technologies, GPS, satellite imagery and cadastral mapping accompanied by on-ground verification, the study verified that there were 1052 properties growing vegetables in the Sydney region in 2008. This compares with ABS data which suggested that there were 852 vegetable growers in the Sydney region. However the study's figure included 217 field growers who had less than one hectare planted to vegetables. The researchers conceded that it is possible that many of these operations fell below the ABS income threshold to be classified as a vegetable grower. If these are excluded the 'number of vegetable growers is reduced to about 835; a number very similar to that of 852 suggested by ABS sources.'[6]

In conclusion the authors of this study suggested that rather than use other sources of data, that estimates for the value of the Sydney vegetable industry should be based on ABS data, which is at least based on objective methodology and standards and "that it may be wise to consider universally adopting ABS estimates when placing a value on the Sydney vegetable industry in the future.?"[7] A subsequent study *Sydney's Agricultural Lands an Analysis*, James et al 2010, concurred. 'Our report confirms current ABS data as the most consistent and comprehensive data set on agriculture in the Sydney Basin.' [8]

Data collected by the ABS is recognised by governments and international bodies as 'official data'. The alternatives for collection of data for such a diverse industry, both product and geographically, are hideously expensive. In the absence of the introduction of detailed forms on individual vegetable intake at the first point of sale by the levy collection service of the Department of Agriculture Forestry and Fisheries (DAFF) it is recommended that the industry enter into discussions with the ABS to restore the previous collection..

[4] Peter Malcolm and Riad Fahd *'Ground Truthing of the Sydney Vegetable Industry in 2008'*, (HAL Project VG07073 June 2009), p 17
[5] Ibid, p 14
[6] Ibid, p 38
[7] Ibid, p 72
[8] James et al 2010, *Sydney's Agricultural Lands an Analysis*, Urban Research Centre, University of Western Sydney, 2010, p 6

6.3 Import monitoring

Import penetration is growing and the industry needs to monitor this and employ economic expertise to monitor and provide some economic analysis on trends in the data. This background work is necessary to understand the competitive pressure points that are adversely impacting on the industry and to develop strategies to respond.

6.4 Export development

The industry has long cherished the thought of developing export markets but unlike most other agricultural industries the level of exports as a proportion of production is pitifully low. Economic studies need to be undertaken on the potential for export expansion in overseas markets including seasonal windows of opportunity and niche products and what inhibits the development of export markets. The recently released Strategic Investment Plan (SIP) recognised this need.

6.5 Supply chain issues

This project supports the thrust of the SIP in that research and development projects should be weighted to industry issues away from production. The industry should spend some money on research into ways to improve efficiency in logistics and reduce costs along the supply line from farm to consumer. Further research and interlinkages along the supply line remain an essential and urgent need.

6.6 Cost control

Despite the former statement there is still room for devoting resources to research means of lowering costs of production and improving the return from existing levels of inputs. Labour costs are still the major cost faced by growers so efforts need to be made to reduce its use or increase its productivity. Mechanisation, precision agriculture and the broader use of information technology as well as investment in improving labour skills should be a priority for on farm research projects.

6.7 Markets

Understanding markets and consumer shopping habits and changes in demographic structure are all important for the vegetable industry. In parts of the market this information is collected by retailers who then relay the information back to growers. But there are times when this information can benefit vegetable growers especially those supplying to the central markets, restaurants and other food outlets.

7.0 Acknowledgements

This project would have been impossible to complete without the support of all participants in the industry. It was gratifying that they were willing to assist the delivery of this project and to listen to the messages that it was delivering. In many cases the message was not comforting.

Collecting data and economic information can be a pain to many people as it involves time and effort and there are often doubts as to what the information will be used for. Nonetheless, the support of growers for this project has been nothing short of sensational and I have been greatly impressed by their vision.

I have also drawn much inspiration from others in the vegetable supply chain outside the grower sector. While more work needs to done on this score the willingness to openly discuss economic issues, provide information when requested and look at ways to progress the industry forward is commendable.

Ravi Hedge the economist at Horticulture Australia Limited, Lucy Keatinge (former), Will Gordon and Kathryn Lee vegetable industry services managers at Horticulture Australia Limited, have been a source of inspiration and provided invaluable assistance throughout the life of the project.

The Vegetable Industry Advisory Committee has provided strong support for this project and I thank them for their support. The success of this project required the support of AUSVEG. All the AUSVEG staff assisted this project in every way possible. In particular thanks to Andrew White and the AUSVEG CEO, Richard Mulcahy.

Finally, but not least, without a team environment the work situation is very difficult. This project was one of a number of sub programs of the Vegetable Industry Development Program. My work colleagues on this Program have given me unquestioned support and have often assisted me outside their normal duties when the pressure was greatest. At the risk of failing to give due recognition to some deserving people, a special vote of thanks for support goes to the Vegetable Industry Development Program national co-coordinating team of David Heinjus, Dee Heinjus, Barry Philp and Lucinda Hogan. Also to Martin Kneebone, Steve Spencer, Anne-Maree Boland, Stephanie Drum, Kristen Stirling, Richard Mulcahy, Andrew White, Dianne Fullelove, Lauren Thompson, Gerard McEvilly and Sandra McDougall - **THANKS.**

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9.0 Appendices

9.1 Overview of the Vegetable Industry Development Program

This final report focuses on the role and activities of an individual subprogram of the Vegetable Industry Development Program (VIDP). However, it is important to understand that each individual subprogram and activities occurring collaboratively between subprograms made a significant contribution to achieving the broader VIDP goal and objectives.

Program goals and objectives

The Vegetable Industry Development Program goal 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"

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 1 below.

Table 1: Vegetable Industry Development Program Subprograms

Project number	**Project title**	**Organisation**	**Subprogram leader**
VG08040	Economic Research Services for the Vegetable	Industry Data Economic Analysis	Ian James

	Industry		
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
VG09167	National Vegetable IPM Coordinator	Schofield Robinson Horticultural Services	Lauren Thompson

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

Table 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 provided a delivery mechanism to industry for VIDP.

9.2 Volume of vegetable production – sample year

Volume of Vegetable Production

* N/A = Data not available

Vegetable	2005/06 tonnes	2006/07 tonnes	2007/08 tonnes	2008/09 tonnes
Artichokes	359	199	328	277
Asian gourds	50	190	N/A	134
Asian vegetables	17,046	18,017	23,419	20,209
Asparagus	9,737	5,609	9,779	6,981
Beans - Butter	7,474	4,703	3,538	2,256
Beans - French & runner	37,878	28,844	26,917	27,779
Beans - Snake	35	87	N/A	73
Beetroot	36,425	40,765	43,331	43,268
Broccoli	48,938	46,031	46,125	44,420
Brussels sprouts	8,438	5,849	6,359	3,634
Cabbages	78,518	81,563	71,540	78,075
Capsicum, Chillies & Peppers	63,662	58,271	59,223	49,315
Carrots	264,961	271,464	272,601	263,527
Cauliflowers	76,568	69,793	64,294	70,286
Celery	50,938	48,542	55,577	57,804
Cucumbers	23,271	41,931	15,927	11,943
Eggplants	8,841	9,016	5,289	7,258
Fennel bulb	1,269	2,730	2,091	2,940
Garlic	706	813	773	811
Ginger	7,576	8,044	8,526	8,066
Herbs – Coriander	N/A	N/A	N/A	987
Herbs – Parsley	2,148	3,745	2,904	2,033
Herbs – Other	2,799	6,272	4,458	2,430
Leeks	8,307	7,313	6,337	7,019
Lettuce	162,832	271,251	168,707	164,543
Melons – Bitter	246	205	N/A	258

Melons – Honeydews	13,114	10,445	7,115	8,861
Melons – Rock & Cantaloupe	85,020	68,105	58,915	60,510
Melons – Watermelons	133,779	136,861	152,141	131,112
Melons – Other	903	28,518	891	5,990
Mushrooms	43,641	42,739	47,102	43,416
Okra	317	158	N/A	242
Onions	221,923	212,487	254,362	283,819
Parsnips	10,765	10,715	11,568	10,146
Peas – Green	37,942	34,042	39,300	19,179
Peas – Snow & Sugarsnap	5,621	3,490	4,835	3,137
Potatoes	1,249,605	1,211,988	1,400,206	1,178,534
Pumpkins	110,906	102,505	114,418	103,729
Radish	1,301	4,729	2,588	1,876
Silverbeet & Spinach	8,021	9,044	10,013	8,638
Spring onions & Shallots	7,699	7,655	7,820	6,820
Swedes & Turnips	5,643	9,110	6,016	4,470
Sweet corn	63,695	62,575	54,138	51,609
Sweet potatoes	44,293	49,131	38,407	42,460
Tomatoes	450,459	296,035	381,824	440,093
Zucchini & Butter squash	22,761	23,704	20,382	23,989
TOTAL	3,436,430	3,355,283	3,510,094	3,304,956

Source: **Australian Bureau of Statistics**

9.3 Vegetable industry profitability – sample year

Farm business profit of vegetable farms

Farm business profit reflects the business return to vegetable growers and takes account of all costs including depreciation, changes in stocks, and an imputed cost for own and family labour. In economic terms it reflects the full cost of investing labour and capital in vegetable growing.

Farm business profit averaged $41,900 in Australia in 2009-10, a fall of almost 30% from $59,350 in 2008-09. There were sharp deteriorations in Western Australia, with average profit in 2009-10 down by approximately 68% from the previous year, and Victoria with a fall of 52.3% over the same period. In New South Wales an average loss of $2,300 in 2008-09 jumped to an average loss of $22,000 in 2009-10. There was a small 3% decline in profits in Tasmania and a 3% improvement in South Australia. The biggest improvement was in Queensland where an average loss of almost $5,000 in 2008-09 was succeeded by an average profit of $19,600 in 2009-10.

The biggest average profits in 2009-10 were in South Australia, an average of $102,500, followed by Victoria ($80,500) and Western Australia ($57,100).

Farm business profit of vegetable farms
2005-06 to 2009-10

Average per farm

	Farm business profit				
	2005-06	**2006-07**	**2007-08**	**2008-09**	**2009-10**
New South Wales	24 010	33 810	29 150	-2 300	-22 000
Victoria	73 170	49 530	79 610	168 640	80 500
Queensland	42 170	176 080	109 680	-4 860	19 600
South Australia	49 130	91 060	67 310	99 600	102 500
Western Australia	143 150	98 640	122 680	177 300	57 100
Tasmania	-53 620	-52 880	31 960	39 730	38 500
Northern Territory	-16 620	115 405	94 654	44 835	N/A
Australia	**43 020**	**79 940**	**74 890**	**59 350**	**41 900**

Source: ABARE Vegetable Farm Surveys 2005-06 to 2009-10

9.4 Vegetable industry trade – sample year

Country of origin by category

Imports of ***fresh*** vegetables grew faster than the three other import classifications in 2010-11, but remain relatively small proportionately accounting for just 12.5% of total vegetable imports in the latest reporting period. China has been the major source country for fresh vegetables since 2008-09, with New Zealand in second place.

Fresh vegetable imports from particular countries tend to be vegetable specific with garlic from China, capsicums and tomatoes from New Zealand, onions from the USA, garlic and asparagus from Mexico, and asparagus from Peru. The value of fresh vegetable imports from China rose by 36% in 2010-11, due to increased garlic imports. Imports from New Zealand rose by 67%, mainly due to strong increases in imports of tomatoes and capsicums.

The value of ***frozen*** vegetable imports rose by 7% to $197 million in 2010-11 following a decline of 21% to $184 million in the previous year.

New Zealand is the principal source of ***frozen*** vegetable imports, with an increase of 11% in 2010-11 raising its share of total imports to approximately 50%. Imports of frozen vegetables from China fell by almost 9% in 2010-11, but China remained in second position ahead of the Netherlands and USA. Imports from the Netherlands rose by 8% in 2010-11, while those from the USA were up by 48%, moving it into fourth position, as a result of a strong increase in imports of frozen potatoes.

Processed vegetable import values rose by 6.4% to $222 million in 2010-11, a partial recovery from the previous year's decline of 16% to $208 million. Italy, China, and the USA remained the leading sources of processed vegetable imports in 2010-11 with the same ranking as in the previous year. Imports from Italy fell by almost 12% to $76 million, imports from China were up by 9% and those from the USA increased by 87% reflecting strong increases in imports of canned potatoes, canned tomatoes, and tomato sauces. Thailand moved up to fourth position, ahead of Turkey, and a 60% increase in imports from New Zealand put it in sixth place.

The value of ***other*** vegetable imports rose by 8.5% to a record $114 million in 2010-11. This increase followed a small decline in 2009-10 and represented a resumption of the upward trend evident over recent years. China remained the principal source country with an increase of 34% in 2010-11 raising its share of the total to almost 21% from 17% in the previous year. Imports from the USA, in second position, rose by 12% in 2010-11, imports from the Netherlands declined slightly, with imports from Thailand down by 5.4%.

In ***summary***, the upward trend in vegetable imports resumed in 2010-11 after briefly being interrupted in 2009-10. New Zealand and China remain the leading sources of Australia's vegetable imports, accounting for 40% of total imports in 2010-11. Although these countries retain their leading positions, greater diversity of sourcing has been a feature of the last five years.

Frozen Vegetable Imports country of origin

Top twelve
Millions of Australian Dollars

Rank	Country	Jul 06-Jun 07	Jul 07-Jun 08	Jul 08-Jun 09	Jul 09-Jun 10	Jul 10-Jun 11
	Total	**142.822**	**203.507**	**234.022**	**184.243**	**196.952**
1	New Zealand	96.032	115.270	106.581	89.473	99.362
2	China	23.112	35.083	38.041	31.016	28.338
3	Netherlands	9.003	14.412	20.866	18.501	19.961
4	United States	3.137	8.089	5.982	10.846	15.971
5	Belgium	4.017	8.165	10.243	11.173	11.543
6	Canada	0.923	11.166	28.183	12.352	8.340
7	United Kingdom	0.000	1.622	1.041	1.660	2.563
8	India	0.775	1.100	1.563	1.951	2.065
9	Thailand	0.690	2.605	3.889	1.942	1.799
10	Germany	0.249	0.085	10.867	0.360	1.168
11	South Africa	1.368	2.087	0.139	0.004	1.147
12	Turkey	0.489	0.412	0.483	1.113	0.775

Source of Data: Australian Bureau of Statistics/World Trade Atlas

9.5 Data provided for production of State profiles – example Western Australia

Western Australia Area Planted 2008/09

Square metres converted to hectares for undercover vegetables.

Vegetable	Hectares
Artichokes	1
Asian gourds	-
Asian vegetables	19
Asparagus	19
Beans – Butter	18
Beans - French & runner	393
Beans – Snake	1
Beetroot	22
Broccoli	696
Brussels sprouts	-
Cabbages	183
Capsicum, Chillies & Peppers	187
Carrots	1,229
Cauliflowers	415
Celery	235
Cucumbers	57
Eggplants	25
Fennel bulb	-
Garlic	10
Ginger	-
Herbs – Coriander	21
Herbs – Parsley	4
Herbs – Other	2
Leeks	7
Lettuce	594
Melons – Bitter	60
Melons – Honeydews	141

Melons – Rock & Cantaloupe	487
Melons – Watermelons	572
Melons – Other	20
Mushrooms	Np
Okra	-
Onions	362
Parsnips	15
Peas – Green	7
Peas – Snow & Sugarsnap	15
Potatoes	1,801
Pumpkins	778
Radish	7
Silver beet & Spinach	99
Spring onions & Shallots	31
Swedes & Turnips	15
Sweet corn	299
Sweet potatoes	1
Tomatoes	393
Zucchini & Butter squash	103

Source: **Australian Bureau of Statistics**

Western Australia Growers per Vegetable 2008/09

Vegetable	Number
Artichokes	6
Asian gourds	5
Asian vegetables	15
Asparagus	7
Beans – Butter	25
Beans - French & runner	48
Beans – Snake	1
Beetroot	18

Broccoli	53
Brussels sprouts	1
Cabbages	36
Capsicum, Chillies & Peppers	98
Carrots	34
Cauliflowers	39
Celery	15
Cucumbers	47
Eggplants	44
Fennel bulb	2
Garlic	29
Ginger	-
Herbs – Coriander	12
Herbs – Parsley	15
Herbs – Other	11
Leeks	25
Lettuce	40
Melons – Bitter	4
Melons – Honeydews	20
Melons – Rock & Cantaloupe	49
Melons – Watermelons	91
Melons – Other	1
Mushrooms	2
Okra	-
Onions	28
Parsnips	18
Peas – Green	9
Peas – Snow & Sugarsnap	9
Potatoes	88
Pumpkins	148
Radish	7
Silver beet & Spinach	27

Spring onions & Shallots	24
Swedes & Turnips	7
Sweet corn	19
Sweet potatoes	7
Tomatoes	114
Zucchini & Butter squash	63

Source: **Australian Bureau of Statistics**

Western Australia Volume of Vegetable Production 2008/09

Data in kilograms converted to tonnes. *np not available for publication

Vegetable	Tonnes
Artichokes	0
Asian gourds	0
Asian vegetables	108
Asparagus	42
Beans – Butter	7
Beans - French & runner	1,642
Beans – Snake	1.466
Beetroot	147
Broccoli	5,850
Brussels sprouts	0.1
Cabbages	7,183
Capsicum, Chillies & Peppers	3,029
Carrots	80,953
Cauliflowers	6,843
Celery	11,116
Cucumbers	1,297
Eggplants	254
Fennel bulb	0.2
Garlic	29
Ginger	-

Herbs – Coriander	329
Herbs – Parsley	72
Herbs – Other	12
Leeks	61
Lettuce	14,401
Melons – Bitter	57
Melons – Honeydews	3,129
Melons – Rock & Cantaloupe	10,105
Melons – Watermelons	17,274
Melons – Other	376
Mushrooms	Np
Okra	-
Onions	21,831
Parsnips	220
Peas – Green	11
Peas – Snow & Sugarsnap	50
Potatoes	88,504
Pumpkins	18,527
Radish	1
Silver beet & Spinach	463
Spring onions & Shallots	470
Swedes & Turnips	299
Sweet corn	7,800
Sweet potatoes	22
Tomatoes	19,540
Zucchini & Butter squash	1,538

Source: **Australian Bureau of Statistics**

Western Australian vegetable farms financials 2008/09

Average per farm	W.A.	Australia
Total cash receipts $	882950	682683
Total cash costs $	566114	478449
Farm cash income $	316836	204235
% farms negative farm cash income	8	10
Build up in trading stocks $	-13999	452
Depreciation $	49222	38282
Inputed labour $	59065	55756
Farm business profit $	194549	110649
% farms negative farm business profit	34	55
Rate of return %	4.5	5.3
Change in farm debt during year %	22	13
Total farm debt $	414043	430764
Total farm capital $	3840782	2876675
Farm equity ratio $	89	85

Farm cash costs 2008/09

Average per farm % of total	W.A.	Australia
Hired labour	19.4	18.3
Fertiliser	10.8	11.3
Contracts paid	3.0	10.2
Seed	10.9	8.3
Fuel, oil, grease	6.1	6.4
Crop & pasture chemicals	5.8	5.5
Repairs – motor vehicles & paint	7.9	5.7
Interest	5.0	6.4
Repairs-buildings & structures	2.1	3.0
Packing materials	5.8	2.7
Packing Charges	2.8	2.7
Total above	79.6	80.5
Total cash costs	**100**	**100**

Key financial variables over time

	2005-06		2006-07		2007-08		2008-09	
	WA	AUST	WA	AUST	WA	AUST	WA	AUST
Cash receipts	479077	441933	554052	583817	660807	587762	882950	682683
Cash costs	240406	310677	350709	407515	437455	416515	566114	478449
Cash income	238671	131256	203343	176302	223353	171426	316836	204235
Business profit	157032	47197	105155	84353	126488	77211	194549	110649

Source: data provided by ABARE and reproduced in Australian vegetable growing farms: an economic survey 2008-09

9.6 Economic fact sheets for growers

Economic Variables

Vegetable Industry Development Program

Introduction

This fact sheet provides a brief explanation of four key economic variables, how these variables interact and what you may need to consider in assessing the impact that they can have on your vegetable growing business.

The key variables that are considered are:

- Inflation
- Interest rates and monetary policy
- Exchange rates
- Fiscal policy.

Inflation

What is inflation?

Inflation is a rise in the general level of prices of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation also reflects erosion in the purchasing power of money over time.

There are many different factors that determine the rate of inflation. Cost-push inflation arises when external factors have an adverse impact on the supply of goods or services. Examples include disruptions to the flow of oil or other important commodities, or the impact of bad weather on the supply and availability of food, which cause prices to rise. Demand-pull inflation occurs in strong or over-heating economies when strong demand for goods and services causes their prices to rise. This is often referred to as 'too much money chasing too few goods'. A strong economy often results in shortages of labour in particular sectors or industries and results in bigger wage increases which, in turn, feeds through into faster inflation.

A sharp plunge in the exchange rate of the currency of a particular country results in higher prices of imported goods and services in that country. That has a direct detrimental impact on inflation and there can be secondary effects if this results in higher wages or increases in the cost of domestically-produced goods if, for example, companies use the reduced price competitiveness of imported goods to raise their own prices in order to build profit margins.

There are a number of data bases that can be used to measure the rate of inflation (price rises) in the Australian economy, but the one that is widely used and reported on in the media is the Consumer Price Index (CPI). In Australia data for the CPI is collected on a quarterly basis. The CPI measures changes in the price of a basket of goods and services purchased by a representative sample of households.

What is the impact of inflation on the price of vegetables? What other relevance does inflation have on business?

As with other goods, the price of vegetables is determined by the interaction of supply and demand. Demand for many vegetables is fairly price inelastic, which means that modest rises in their price do not significantly reduce demand, while lower prices do not generally produce strong increases in demand. In the case of more exotic or unusual vegetables that command high prices then demand is likely to be more sensitive to price changes than is the case with basic vegetables.

The impact of bad weather can have a significant impact on the production and supply of vegetables and such changes in supply are more likely to result in significant fluctuations in the prices of vegetables than changes in demand which usually occur gradually over a longer period of several years or more. Sometimes price rises can be substantial such as in recent instances where severe flooding in Queensland caused major damage to production of a range of vegetables and resulted in substantial price increases.

The main impact of inflation on vegetable growers is in eroding the purchasing power of their income or profit. The real value of their income in terms of the goods and services that can be purchased will decline unless they are able to increase the price of their own produce to compensate for the impact of inflation. This is no different from the impact on other businesses and individuals. If the attempts of businesses to compensate for inflation by raising the prices of their products are successful, and workers are able to secure wage increases that maintain their real income, then inflationary pressures will intensify. The Government and the central bank (the Reserve Bank of Australia) will use fiscal and monetary policy (see below) to curb inflation and, in certain circumstances of rapid and accelerating inflation, may resort to direct controls on prices or wages to bring inflation under control.

In considering demand for their produce, growers of particular vegetables are probably more interested in specific changes in the price of their vegetables relative to other vegetables rather than in the overall rate of inflation. If there has been a general rise in the price of vegetables because of bad weather, but not much change in the price of the particular vegetables they grow in relation to other vegetables, then the impact on demand is likely to be fairly modest. In circumstances where the prices of a few vegetables have risen sharply relative to most other vegetables then the impact on demand for those vegetables is likely to be much more significant.

If bad weather has a significant detrimental impact on the domestic supply of vegetables and leads to strong price rises then a consequence could be an increase in imports of vegetables.

Another major impact of inflation on vegetable growers is on the cost of labour and other inputs of production. Faster inflation will usually trigger demands by workers for higher wages as they seek to preserve or restore the purchasing power of their income. Vegetable growers will also focus on the detail and causes of inflation paying particular attention to their main costs of production which, in addition to labour costs, include fertiliser, seed, and fuel.

Interest Rates and Monetary Policy

What are interest rates?

An interest rate is the cost that a borrower pays a lender for borrowing a principal sum of money for a period of time. It is usually expressed as a percentage rate payable per annum on the principal borrowed.

There are numerous interest rates with differences in rates reflecting many factors. These include:

- the time period of a loan
- its terms and conditions and flexibility
- whether the loan is unsecured
- if the loan is secured the strength of the security used as backing for a loan
- the risk assessment of the borrower which takes account of financial circumstances and credit history
- the purpose of the loan and viability of any business or investment plans or proposals
- whether the interest rate is fixed for the term of the loan or floats (changes) as economic and financial circumstances change
- the currency of the transaction.

Interest rates (the price of money) on individual loans reflect the level of risk involved. The higher the risk the more lenders will expect for their money. Hence, interest rates are structured with interest rates rising as the perceived level of risk increases. For example banks will charge vegetable growers higher interest rates for unsecured loans such as overdrafts than for loans backed by an asset such as land. In Australia interest rates are structured upwards, depending on risk, from the cash rate set by the Reserve Bank of Australia (see below).

What impact do interest rates have?

A vegetable grower will usually borrow money for working capital expenses, to manage cash flow problems or to expand, develop, or diversify business. Whether the cost of a loan, determined by its interest rate, is worthwhile will

depend on factors such as the viability of the business plan being undertaken and whether alternative sources of finance are available.

Things to consider

The borrower will need to make a detailed assessment of the viability of his/her own business plans, assess conditions and whether factors that directly affect his/her business might change during the term of the loan. It is also important to consider how broader economic and financial changes could affect the interest rate paid and have an impact on the viability and profitability of the business venture.

This sort of detailed assessment will usually also be undertaken by the lender and provides the basis for negotiation concerning the interest rate to be paid, whether it is floating or fixed, and the terms and conditions of the loan. As well as seeking the lowest possible interest rate by comparing the rates offered by different lenders, the borrower should also pay attention to the terms and conditions of the loan such as whether the loan can be repaid early, without financial penalty, if his own business circumstances change, or broader external economic and financial have an impact on the viability of the business venture. In offering to provide security for the loan, such as a guarantee or mortgage on land or property, the borrower needs to be alert to the consequences, which can be far-reaching if the security is realised by the lender.

What is monetary policy?

Monetary policy is the process by which the central bank or monetary authority of a particular country controls the money supply, often by using its power to change short-term interest rates, in order to promote economic stability by aiming for specific economic targets such as a rate of economic growth sufficient to promote employment and ensure low unemployment, and low and stable inflation.

In Australia the Reserve Bank of Australia (RBA) is responsible for conducting monetary policy. It does so independently of government. The RBA's principal role is to control inflation but its charter also specifies that its powers should be exercised in such a way as to contribute to currency stability, maintain full employment, and promote economic prosperity.

Monetary policy decisions of the RBA involve setting the interest rate on overnight loans in the money market (the cash rate). In normal circumstances, the RBA announces its cash rate decisions on a monthly basis (except January) on the first Tuesday of the month. By buying or selling government securities the RBA manipulates the cash rate on a daily basis to the desired (target) level.

Other interest rates in the economy are influenced by the cash rate to a varying degree, with monetary policy having a significant impact on the behaviour of lenders and borrowers in the financial markets. The cash rate has a much more

direct influence on short-term interest rates than on longer-term rates on loans/borrowings with a maturity of one year or more where inflationary expectations over the period of the financial transaction are likely to be more important than short-term monetary policy settings.

Exchange rates

What are exchange rates?

An exchange rate between two currencies is the rate at which one currency is exchanged for the other. There are a myriad of factors that determine the exchange rate of a particular currency and how it changes over time. In most countries these factors include general economic conditions and the economic outlook, the rate of inflation, the level of interest rates, and the balance of payments.

The international competitiveness of the exports of countries with inflation persistently higher than that of other countries will deteriorate, with a detrimental impact on the balance of payments. As a result, the currencies of countries with relatively high rates of inflation are likely to depreciate, or weaken, over the medium term in order to help to restore international competitiveness. However, it is not unusual that there are lengthy periods when the actual exchange of some currencies is out of line with their underlying or fundamental value in terms of purchasing power.

Changes in international commodity prices can have a significant impact on the exchange rates of the currencies of particular countries and this is the case in Australia with its large mining and agricultural sectors having a major impact on economic prospects and the balance of payments. The operation of monetary policy and changes in interest rates has an impact on exchange rates with higher interest rates in Australia relative to other countries likely to prove attractive to foreigners, increasing the demand for Australian dollars and pushing the value of the Australian dollar up.

How do exchange rates influence the Australian economy?

Changes in the exchange rate can have a significant impact on the economy through their impact on inflation, the balance of payments, and growth and employment prospects in different sectors of the economy. These linkages are examined below. Because of the importance of international commodity prices to the Australian economy, swings in the exchange rate of the Australian dollar can be large and there have been periods when the scale of exchange rate movements has exceeded those in many other countries. Since the dollar was floated in 1983 the average yearly movement in the Australian dollar against the US dollar has been in the order of 14 cents.

How do exchange rates influence my business?

An appreciating or strong Australian dollar damages the competitiveness of Australian vegetable exports on world markets, while improving the competitiveness of vegetable imports into Australia competing with domestically-grown vegetables. A weak or depreciating currency has the opposite effect and is favourable for vegetable growers insofar as it has a favourable impact on the competitiveness of vegetable exports while making imports of vegetables less competitive against domestic produce.

Recent analysis shows that changes in the external value of the Australian dollar have some impact, after a time lag, on the level of vegetable imports. There are, however, a myriad of other factors at play so it is not possible to measure the scale of the impact of currency movements on overseas trade in vegetables with precision.

Things to consider

The impact of exchange rate movements on the export competitiveness of vegetables is likely to be a significant factor in determining whether vegetable growers seek to sell some of their produce overseas. However, it can take many years to build a successful export business and individual vegetable growers might not have the resources to attempt to do so. They will also take account of the risk that while a decline in the value of the Australian dollar against other currencies may have boosted the competitiveness of their product in overseas markets, the currency outlook is dependent on many factors and sentiment can change suddenly causing gains in competitiveness to be lost.

Fiscal Policy

What is fiscal policy?

Fiscal policy is the use of government spending and revenue (tax) decisions to influence economic conditions and the economic outlook. It is separate from, but used in conjunction and in co-ordination with monetary policy, the other major lever of economic policy.

Spending and tax changes are detailed in government budgets prepared on an annual basis. Individual taxes may be introduced, abolished, or changed in order to improve their efficiency or to assist particular sectors of the economy, but fiscal policy is concerned with overall revenue and spending decisions which, as with monetary policy, have the ultimate objective of creating conditions conducive to economic prosperity and well-being.

A major focus of the annual budget is on the bottom line, that is, the surplus or deficit that is produced from total government revenue and spending. If economic conditions are weak and the economic outlook poor or uncertain then the government may choose to boost its own spending and/or to cut taxes and

incur budget deficits in order to provide economic stimulus. This was the course of action implemented by the Australian government to help to minimise the detrimental impact of the global economic crisis in 2008.

Interactions

How do inflation, interest rates, monetary policy, exchange rates, the balance of payments, and fiscal policy interact?

Inflation, interest rates, and monetary policy

The principal objective of the RBA's monetary policy is to control inflation and an inflation target is at the centre of its monetary policy framework. The appropriate target, agreed by the government and the RBA, is to achieve an average inflation rate of 2-3% over the economic cycle. This rate was chosen because it does not significantly distort economic decisions in the community. In other words this level of inflation is seen as providing the basis for a Goldilocks economy – not too hot or not too cold.

It provides a framework for monetary policy decision-making while allowing some flexibility as the RBA decides how to react to changing economic and financial conditions over the economic cycle. In focusing on inflation the RBA pays particular attention to "underlying" inflation. There are a number of measures of the underlying rate of inflation that the RBA considers but basically the difference between the "headline" rate of inflation and the "underlying" rate is that the latter excludes volatile price movements which are a one off such as the sharp rise in vegetable prices following the Queensland floods or the sharp rise in banana prices after Cyclone Yasi. This is because these rises are not determined by general economic conditions and consequently not a reliable indicator of persistent inflationary pressures in the economy.

Monetary policy and exchange rates

In the past, central banks in some countries have used monetary policy to hold the exchange rate of the currency in a particular band against a particular currency or basket of currencies, or to promote exchange rate appreciation or depreciation. In recent years many central banks, including the RBA, have not used monetary policy to directly influence exchange rates, preferring a policy of non-intervention and allowing market forces to determine exchange rates on the basis that changes in exchange rates can themselves help economies adjust to changing economic circumstances.

While not trying to prevent big shifts in the exchange rate of the Australian dollar, the RBA stands ready, like other central banks, to intervene on foreign exchanges if trade becomes disorderly.

The level of interest rates can be a significant factor in determining the strength of the currency. The strength of the Australian dollar against most other major

currencies over the past couple of years is mainly a reflection of strong overseas (particularly Chinese) demand for Australia's minerals and some big projects, which are boosting the supply of those minerals. However, short-term interest rates in Australia are significantly higher than comparable rates in the US, Europe, and Japan and this has also been an important factor in contributing to the strength of the Australian dollar.

The exchange rate and balance of payments

One of the main linkages is between the exchange rate and the balance of payments because of the impact that currency movements have on international competitiveness. Market forces would result in an appreciation of currencies of countries running large surpluses on the current account of their balance of payments. The current account is the part of the balance of payments that records a country's exports and imports of goods and services, and transfer payments (such as interest payments and receipts) with the rest of the world. The stronger currency would have a detrimental impact on the competitiveness of exports, but lower the price of imported goods making them more competitive with domestically-produced ones. The overall impact on the economy would be to erode the large current account surplus and bring it back towards balance, but the impact on individual sectors of the economy can be significant. In countries running large current account deficits, the process operates in reverse. The currencies of such countries would, as a result of market forces, depreciate and the weaker exchange rate would bolster the international competitiveness of exports, damage that of imports, thereby reducing the current account deficit.

This linkage does not, however, only operate in one direction. Some countries, for example use monetary policy to prevent large current account surpluses resulting in currency appreciation and eroding the competitiveness of their exports. This is because the export sector is regarded as a crucial driver of economic growth and source of employment and prosperity. Many Asian countries have pursued such policies for many years. The problem of course is that not all countries can pursue such policies, the results of which are to produce major imbalances in the world economy, which eventually can have a major detrimental impact on global economic conditions.

The exchange rate and inflation

There is also a significant link between changes in the exchange rate and inflation, and again this link can operate in both directions. An appreciating currency makes imports cheaper and thus reduces inflationary pressures. A depreciating currency makes imports more expensive and exacerbates inflationary pressures. There might be a rise in inflation unrelated to currency movements, possibly because large sections of the labour force have been successful in gaining wage rises well above the rate of inflation. If this were to occur there could be a damaging impact on export competitiveness, which could result in downward pressure on the exchange rate. Of course one of the main

objectives of monetary policy is to prevent excessive wage settlements that would have a detrimental impact on inflation.

Monetary policy, the exchange rate, and economic growth

The global financial crisis in 2008 produced a sharp slowdown in economic growth and recessions in many countries, which caused international commodity prices to fall sharply and, in turn, put downward pressure on the Australian dollar. The RBA did not use monetary policy to try to slow or halt this decline recognising that the lower exchange rate, through the beneficial impact on the competitiveness of exports, would have a favourable impact on economic growth. Over the past couple of years, strong rises in international commodity prices have caused the Australian dollar to rise sharply on the foreign exchanges. Again the RBA has not used monetary policy to stem the currency's rise despite the adverse effect that the strong currency is having on many sectors of the economy including manufacturing, tourism, and international education.

Monetary policy and fiscal policy

In well-managed economies fiscal and monetary policy are used in tandem, each supporting the other, to create economic conditions conducive to economic growth, employment, low unemployment, low inflation, a stable balance of payments, and currency stability. In order to achieve these objectives and because changes in fiscal policy are rather crude in trying to secure changes in economic conditions in the short-term, economically-responsible governments outline the medium-term stance and objectives of fiscal policy, allowing monetary policy, through changes in short-term interest rates, to play the leading role in meeting specific inflation targets in the short and medium term. Fiscal policy can still be used as a counter-cyclical tool of economic policy, which is to bolster demand when economic conditions are weak or to curb demand at times when it is strong. In the global financial crisis of 2008 the government and the RBA worked in tandem, the former spending money and giving cash handouts, the latter by slashing interest rates, in order to shield the Australian economy from the fall out of the crisis.

Ill-disciplined fiscal policy, possibly by incurring large budget deficits over several years, can create inflationary pressures and lead to a build-up of government debt which, in turn, can place undue pressures on monetary policy and result in short-term interest rates being set at a much higher level than if fiscal policy was credible and used to prevent these deficit and debt imbalances persisting and creating dangerous imbalances over time.

9.7 Articles for CIO publications – example South Australia

Headwinds for vegetable growers in the 'boom' economy.

Economic talk continues to concentrate on a boom developing in the economy. This boom is being driven by high prices and demand for Australia's mineral resources. Huge investments in mining and related developments are about to begin. The Australian economy in 2011 will be hit with a tsunami of money. Prices for Australia's key exports are at levels unseen since the Korean War boom of the early 1950's. Legend has it that wool growers substituted Rolls Royce's for Holden Utes to pick up sheep in that boom. We are unlikely to see a repeat of that legend this time. More like Porches on the streets of Perth.

The reality for most Australian consumers to whom vegetable growers sell is far removed from this world. True, employment growth was strong during 2010 and unemployment is low. But many Australian households are under increasing pressure from rising living costs. Petrol costs have increased sharply and utility prices have risen. Electricity prices were up 6.2% in Adelaide last year and water charges 14%. Mortgage holders have had to cope with seven 'official' interest rate rises of 0.25% in the last sixteen months with the banks chipping in with some extra 'margin restoration.' Moreover the talk is of further interest rate rises. Consumers remain cautious, are paying down debt and saving at rates unseen since the 1980's.

As a consequence other industries in the economy are travelling at a different speed to the mining sector. What impact will these economic developments have on vegetable growers? Consumer spending will be tight and targeted at delivering value for money. Policy makers will make sure that consumers stay that way by restraining expenditure and if necessary raising interest rates to prevent the economy from overheating in the face of the mining boom. Workers, despite recent government talk of labour market reform to boost supply, will be in short supply. Input costs will be under pressure again. Attention to quality produce and cost control remains the key to vegetable grower profitability in 2011.

Ian James
Economic Sub Program
National Vegetable Industry Development Program
February 2011

9.8 Article for Vegetables Australia magazine – an example March/April 2012

Vegetable Industry: the Facts

Often vegetable growers are asked questions about the vegetable industry. While knowledgeable about the vegetables they produce and general market conditions for those vegetables growers are often at a loss to provide details on the industry. The economics sub-program of the Vegetable Industry Development Program provides a range of data on the vegetable industry's structure, production, exports, imports, financial performance as well as research and analytical papers which can be accessed through the AUSVEG website. This article aims to inform by providing a snapshot of the vegetable industry.

Vegetable Industry is Big
Vegetable growers need to sing it from the trees. The vegetable industry is an important part of Australian agriculture. Taking the latest figures published by the Australian Bureau of Statistics the vegetable industry is Australia's fourth largest agricultural industry by value. The gross value of vegetable production (measured at the first point of sale) in 2009/10 was just over $3 billion dollars. The vegetable industry was larger in value than the wool, lamb and poultry industry more than double the size of the sugar industry and more than three times the size of the cotton industry. (graph 1)

Range of products diverse
You name it and Australian vegetable growers grow it. In volume terms the largest tonnages of production are what you may suspect: potatoes, tomatoes, onions, carrots and lettuces. But did you know that vegetable growers produce around, 45,000 tonnes of broccoli, 24,000 tonnes of zucchini, 20,000 tonnes of leafy Asian vegetables 2,000 tonnes of parsley and 250 tonnes of okra?

Industry is focused on domestic markets
Vegetables are mainly sold in the domestic markets and unlike other agricultural industries the level of exports as a percentage of total production is low (graph 2) and has remained at best flat over recent years. This is both a strength and weakness of the industry. The strength is that growers' incomes are not as beholden to price movements in world markets. The weakness is that an important source of growth has not been used to expand sales. Growth in demand is limited to population growth or the ability to lift per capita consumption, a difficult task.

Some export success
Carrots are Australia's largest vegetable export and in the twelve months to November 2011 66,781 tonnes were exported valued at just over $50 million. The next four largest exports were onions, vegetable seeds for sowing, potatoes and asparagus. Markets for exports are diversified. Carrot growers have been successful in expanding into markets in the Middle East to add to existing markets in Asia. (graph 3) Onion exports are mainly to Europe and Japan, vegetable seeds to a range of countries with substantial two way trade with the Netherlands, potato exports are mainly to South Korea and Indonesia and 90% of asparagus exports are to Japan.

Contrast between the states

The vegetable industry although geographically dispersed has regional pockets where vegetable farms are concentrated. There are some differences in the structure of the vegetable industry between the Australian states. Queensland is the largest producing state. Growers in NSW are on average on smaller vegetable farms and are less profitable but concentrated as they are in the Sydney basin the capital values of their farms per hectare are higher. South Australia has the highest proportion of undercover vegetable growers. Reflecting their historic distance from the large population centres a high proportion of Tasmanian vegetable production is destined for the processing market and a higher proportion of vegetable production in Western Australia is exported. The Northern Territory produces a unique range of exotic Asian vegetables such as gourds, bitter melons, okra and snake beans.

Vegetables are fantastic value for money

Price rises for vegetables at the retail level are always highlighted but in actual fact vegetable prices are dirt cheap. Vegetable price increases are usually due to catastrophic climatic events. Vegetable growers are quick to respond to price signals and supply shortages are quickly eliminated often at the expense of vegetable grower profitability. This occurred in 2011 with vegetable prices falling progressively throughout the year following the price spike caused by flooding in Queensland and Victoria early in 2011. Vegetable prices were lower at the end of 2011 than they were at the end of 2010. Over the longer term vegetable prices have lagged other food prices. Since vegetables were first measured as a stand alone category in the Consumer Price Index (CPI) in September 1989, vegetable prices have risen at the retail level by 48%. The overall index has risen 84% and the food component 101%. Of all the major food sub components in the CPI only poultry prices have risen less than vegetables. (graph 4)

Business sustainability

In any given year a number of vegetable growers fail to produce a positive cash flow little alone earn a business profit (farm cash income – imputed grower and family labour – depreciation + stock changes). Graph 5 shows that in 2009/10 17% of growers failed to generate positive cash flow and 57% failed to generate a business profit. Growers may move in and out of this situation due to uncontrollable circumstances such as weather. But growers who find themselves repeatedly in this position do both themselves and the industry a disservice. They could achieve better returns on their labour and capital elsewhere and by staying in production they increase supply driving prices down and undermining other growers' returns.

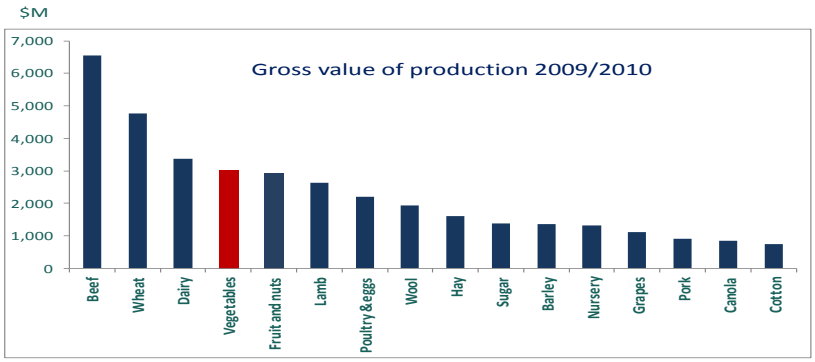
Vegetable growers are becoming more specialised

Data is collected on the number of vegetables grown by each grower. Over the four year period to 2008-09 the number of growers specialising in producing one vegetable grew from 44% to 55%. In the latest year for which data is available only 9% of growers grew more than four vegetables. Vegetable growers are tending to concentrate on a limited range of vegetables concentrating resources and maximising economies of scale.

Conclusion

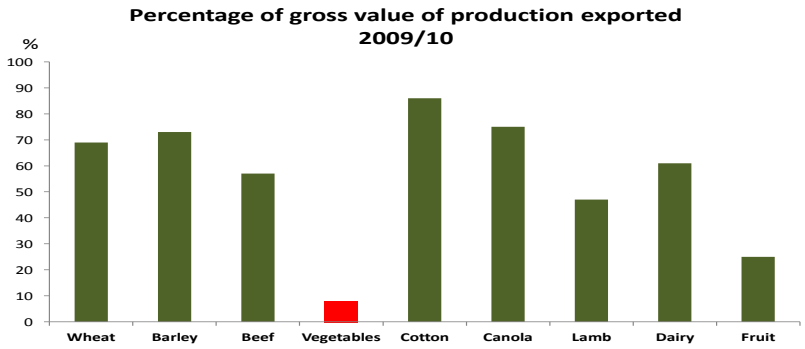
There is a wealth of information on the vegetable industry and more detail can be found on the AUSVEG website at http://ausveg.com.au/resources/industrystatistics.htm.

Vegetables: fourth largest agriculture industry by value



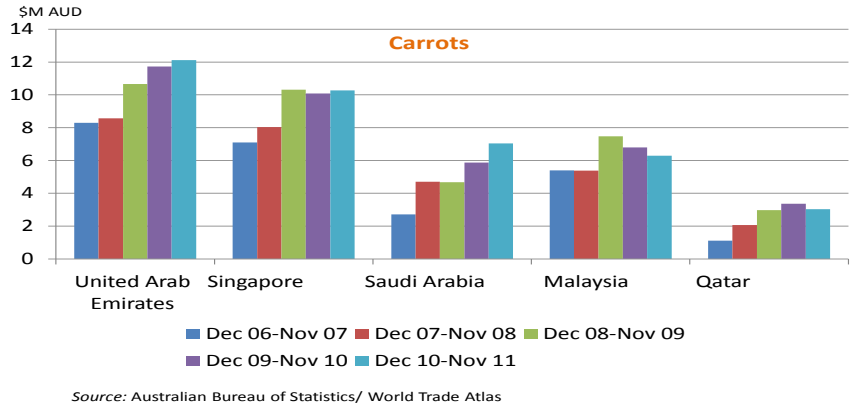
Source: ABS 7503.0 Value of Australian Commodities Produced, Australia 2010

Vegetables low export propensity



Source: ABARES Australian Commodities Statistics 2010, Australian Commodities March Quarter 201, vegetable industry data. Figures are approximate as exports may have been produced in previous years and stocked.

Top five export destinations for largest vegetable export last five years



Source: Australian Bureau of Statistics/ World Trade Atlas

Source: Australian Bureau of Statistic 6401.0 - Consumer Price Index, Australia, Dec 2011

Business sustainability

Year	Vegetable growers with negative cash income %	Average cash income per farm $	Vegetable growers with negative business profit %	Average profit per farm $
2005-06	18	120,120	54	43,020
2006-07	17	165,210	59	79,940
2007-08	13	165,990	56	74,890
2008-09	12	154, 390	55	59,350
2009-10	17	142,100	57	41,900

Source: ABARES :Annual Survey of Vegetable Farms

9.9 Weekly economic brief – an example

Economic Brief – December 19, 2011
Ian James
Economic Sub Program, National Vegetable Industry Development Program

The year that was

2011 was a tough year that threw up enormous economic challenges. Vegetable growers had to cope with difficult climatic conditions, especially in Queensland, and variable prices. Broader economic conditions also were difficult. The Australian economy was stuck in two speed drive with the mining sector and related industries booming and much of the rest of the economy putting in a lacklustre performance. The high Australian dollar wreaked havoc with demand from the tourism sector with international and domestic tourist numbers down and record numbers of Australians holidaying overseas. More importantly for vegetable growers was the restraint that consumers showed towards expenditure. Consumers focus was on paying down debt and increasing savings. Consumers still spent but purchases were considered. Their perceptions of wealth were shaken by share market volatility and falling house prices. Economic policy did not help. 2011 was meant to be a difficult year hosing down inflationary expectations and preventing the mining boom reeling out of control. With the Government set on a course of reining in expenditure it was left to the Reserve Bank of Australia to use its influence over interest rates to massage the economy. Through most of the year the Reserve Bank threatened interest rate rises but by year's end was doing the reverse in response to the deteriorating situation in Europe. As 2011 draws to a close despite strong national income flows, record business investment and low unemployment consumer and business sentiment remains fragile

The year ahead

Economists are forecasting that economic growth will accelerate as 2012 proceeds. Investment intentions for 2012 are extremely strong after a marked acceleration in 2011 the benefits of which will flow through the economy in 2012. However there is a great deal of trepidation in the real economy. The interest rate cuts in November and December appear to have had little impact on consumer and business confidence. Domestic factors are being swamped by developments overseas. All eyes are turned towards Europe. Europe sits on a cusp as governments seek to lower debt levels by cutting expenditure and raising taxes without devastating the private sector. The bundling leadership in Europe to date hardly inspires confidence. At best Europe will struggle through with weak economic growth or mild recession. The economic situation in the United States is better despite high rates of unemployment and the possibility of political deadlock in an election year. The US economy has a robustness that Europe lacks. While the potential for economic Armageddon lies close to the surface the fact that it does provides some hope that the advanced economies will muddle through. China holds the key to prospects for the Australian economy in 2012. While growth in China will be slower it will still remain strong underpinning demand for Australian resources. But hang on to your hat. Economic uncertainty is the most likely scenario for 2012 with little that growers or indeed Australia can control.

9.10 Research paper – an example

Production Expenses and Profitability of Vegetable Farms in Australia and the USA – a Comparison

Introduction

This paper examines the production costs of vegetable farms in the USA and makes comparisons with the costs incurred by vegetable farms in Australia. It also tries to draw some idea of the comparative profitability of vegetable farms in Australia and the USA.

The source of the US data is an article on the Production Expenses of Specialised Vegetable and Melon Farms published by the US Department of Agriculture in December 2009. The most recent data covers the period 2004-06. Farms defined as specialised vegetable farms are those in which vegetables and melons account for at least 50% of the total value of farm production. Such farms accounted for almost 90% of the value of vegetable production in 2004-06.

Australian data is from the annual survey of vegetable farms conducted by the Australian Bureau of Agriculture and Resource Economics (ABARE) on behalf of the Australian vegetable industry over the period 2006-08. The definition of vegetable farms is similar to that of the US with farms surveyed having a high proportion of their total output derived from vegetable growing classified under the Australian and New Zealand Standard Industrial Classification code (ANZSIC).

The cost breakdowns are expressed as percentages of total costs in order to overcome this timing difference and to avoid the impact that changes in currency exchange rates, sometimes of significant magnitude, can have on cost comparisons between countries over different time periods. The cost categories of the Australian data are more detailed than the US figures so the Australian statistics are re-arranged to fit the broader US categories in order to permit more accurate comparisons.

Production Expenses of Vegetable Farms in the USA

The biggest component of the production expenses of US vegetable farms is labour, which accounted for 30% of total costs during 2004-06. The labour cost component varies depending on the type of vegetable produced. Labour costs involved in growing fresh-market vegetables such as tomatoes, capsicums and broccoli, are much higher than the labour costs of farms producing vegetables for the processing sector because of the need for skilled labour. The former require delicate handling for operations such as thinning, cultivation, irrigating and harvesting, in contrast to vegetables for processing, such as sweet corn, green beans and green peas, the harvesting of which is largely mechanised.

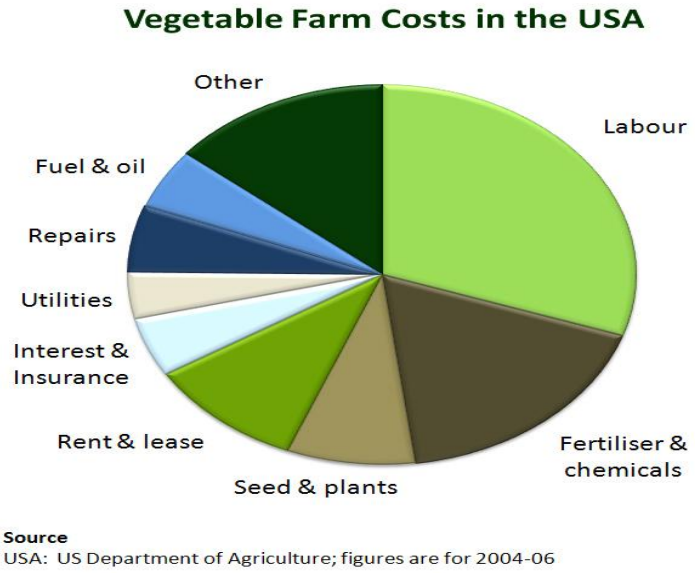
This factor is responsible for significant differences in labour costs between different geographic regions of the US. In the South where vegetable farms mainly supply the fresh market, labour costs account for over 36% of total costs. In contrast, in the

Midwest where vegetable farms are much more focused on producing vegetables for processing, labour costs are much lower at 28% of the total.

Size also impacts on labour costs. In the US over 70% of vegetable farms have a value of production of less than US$40,000 but they only produce 1% of total vegetable supplies. In marked contrast, the largest farms (production exceeding US$1,000,000) account for only 8% of the number of farms, but produce 88% of the value of vegetable production. Labour's share of total expenses varies widely, ranging from 9% of total cash costs on the smallest farms to 31% on the largest ones. This big difference is largely due to the farm operator and family providing a much greater share of unpaid labour on small farms than on larger ones.

Almost 18% of total expenditure is on fertiliser and chemicals with rent and lease payments accounting for 10% of total costs. These two categories together with labour costs account for 58% of the total expenses of vegetable farms.

Seed and plants are the next most important item, accounting for about 8% of total costs, followed by repairs, fuel and oil, interest and insurance, and utilities (mainly electricity) with each of these categories accounting for 4-6% of the total. A range of smaller expenditure items, including machine hire, property taxes, transportation, storage, and general business costs are grouped together as 'other variable expenses', which comprise 14% of total costs.



Source
USA: US Department of Agriculture; figures are for 2004-06

Changes in input costs over time.

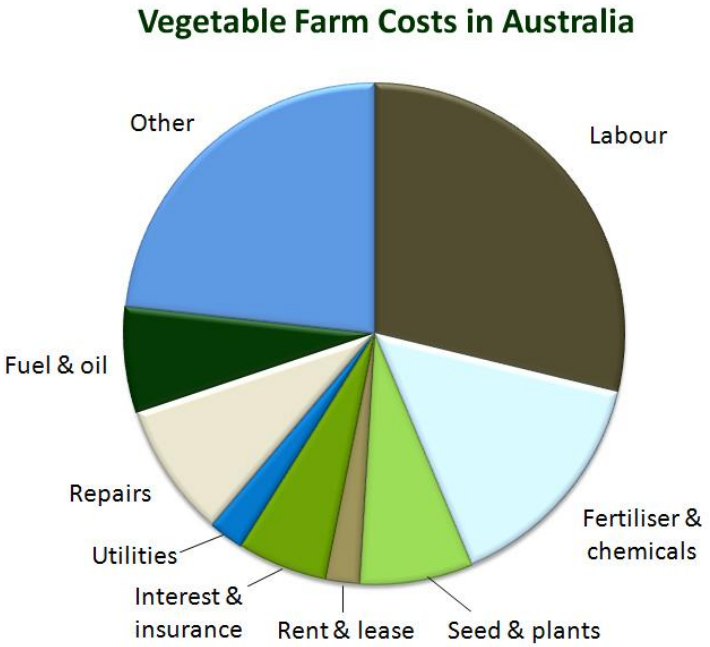
Data is available in the US for two earlier time periods, 1998-2000 and 2001-03 so some comparison of changes in costs over time is possible. The US study reveals that average input prices of items used by vegetable farms rose by 25% between 1998-2000 and 2004-06, well ahead of a 15% increase in prices in the overall economy over the same period. The biggest increase in input prices paid by vegetable growers was for fuel and oil, which more than doubled, rising by 108% between 1998-2000 and 2004-06. Prices

of seed and plants rose by 53% over this period and the cost of repairs and maintenance by 31%. The prices of many other items, including fertiliser and chemicals, insurance premiums, and rent and lease payments, rose by 25-29%, while interest payments were the only significant item to register a decline, falling by 14% over this reporting period.

Shorter-term comparisons of average input prices show very different patterns in price changes between the earlier period between 1998-2000 and 2001-03, and the more recent period between 2001-03 and 2004-06. Cost pressures were most acute in the earlier period. Total cash expenses, which rose by 30% in the first period, subsequently fell by almost 4% between 2001-03 and 2004-06. The cost of utilities declined by 35% and interest payments by 16% in the most recent comparison. Expenses relating to most other categories also declined, the main exceptions being fuel and oil, which rose by 46%, and repairs and maintenance, up by 5%.

Production Expenses of Vegetable Farms in Australia

The biggest cash cost of vegetable farms in Australia is also labour, with expenditure on hired labour and contracts accounting for 29% of total cash costs in 2006-08. The next largest item is fertiliser and chemicals, which accounted for 15% of total cash costs in 2006-08, followed by repairs and maintenance (8.7%), seed and plants (7.3%), fuel and oil (6.8%), and interest (5.8%).



Source
Australia: ABARE; figures are for 2006-08

Total cash costs averaged $404,000 per farm in Australia in 2007-08, but there were significant variations according to geographical location. Average cash costs per farm were significantly higher than the national average in Queensland, ($552,000 in 2007-08) and Victoria ($473,000), and slightly above the national average in Western Australia ($424,000) and Tasmania ($409,000). Below average costs were incurred by

vegetable farms in New South Wales ($185,000), Northern Territory ($249,000), and South Australia ($354,000).

Changes in input costs over time.

Vegetable farm surveys have only been conducted in Australia since 2005-06 so analysis of changes in farm cash costs is confined to a shorter period than in the US study. Australian vegetable growers have been under significant cost pressure. Average cash costs rose by 33% in cumulative terms between 2005-06 and 2007-08. The biggest increases over this period were in contracts paid and interest payments, which both doubled over two years. The cost of repairs and maintenance of buildings jumped by 65% over this period, while repairs of vehicles rose by 33%. Rates increased by 57%, the cost of hired labour by 43% and expenditure on fertiliser and chemicals by 36%. Smaller than average rises were recorded by seed and plants (15%) and fuel and oil (13.5%). Packing materials and packing charges rose by just 5%, while freight costs are reported to have fallen sharply although this component is subject to a much larger-than-usual margin of error.

However there was significant variation around the country with big differences in the average cumulative increase in total cash costs between 2005-06 and 2007-08 between the individual states. Average cash costs per farm rose sharply between 2005-06 and 2007-08 in Tasmania (88%) and Western Australia (81%), with Queensland (41%) also exceeding the national average increase of 33%. In contrast, cumulative increases in farm costs were below the national average in Victoria (25%) and New South Wales (13%), while costs fell by 10% and 38% respectively in South Australia and the Northern Territory between 2005-06 and 2007-08.

Cost comparisons between US and Australian Vegetable Farms

The comparisons show that the cost structures of US and Australian vegetable farms are very similar in many respects:

- Labour is the main component with its share of total costs close to 30% in both countries.
- Spending on fertiliser and chemicals is the second most important item in both countries, with the share of total spending of 17.7% in the US slightly above the Australian equivalent figure of about 15%.
- Spending on seed and plants is very similar, accounting for about 7% of the total in Australia, slightly below the corresponding US figure of 8%.
- Labour costs together with spending on fertiliser and chemicals, and seed and plants, accounted for 51% of total cash costs in Australia in 2006-08, compared to 56% in the US in 2004-06.
- In both countries production costs vary significantly between regions and over time.

There are also some significant differences:

- Rent and lease payments with a 10% share in the US are much higher than in Australia where these costs account for only about 2% of the total because there are very few Australian vegetable growers on leased land.
- Spending on fuel and oil accounts for only 5% of total spending in the USA compared with almost 7% in Australia, with lower US taxation on fuel probably largely responsible for this difference.
- There is also a significant difference in the cost of repairs and maintenance, which account for almost 9% of total expenditure in Australia, well above the US equivalent of less than 6%.

Vegetable Farm Costs in the USA and Australia

Cost Category	USA (% of total)	Australia (% of total)
Labour	30.2	28.8
Fertiliser & chemicals	17.7	14.9
Seed & plants	8.2	7.3
Rent & lease	10.1	2.2
Interest & insurance	5.0	5.8
Utilities	4.0	2.3
Repairs	5.7	8.7
Fuel & oil	5.1	6.8
Other	14.0	23.3
TOTAL	**100.0**	**100.0**

Sources
USA: US Department of Agriculture; figures are for 2004-06
Australia: ABARE; figures are for 2006-08

Farm Cash Income and Business Profit in the US

Over the period 2004-06 total cash receipts per vegetable farm averaged US$372,000 per farm while cash costs averaged US$289,000. The US report calculates a cash expenses ratio, which shows total cash expenses as a proportion of total cash farm income. This ratio averaged 77.5% for all US farms over this period, but there were significant differences in the ratio depending on the size of the farm and its location. The ratio shows that the largest farms incurred about $75 of cash income for every $100 of income produced, while the smallest farms were spending almost $120 for every $100 of income.

Average farm cash income was US$84,000 and farm business profit which is calculated after allowing for non-cash items such as depreciation and imputed expenses such as unpaid labour was calculated at US$47,000. The economic expense ratio which includes both cash and non-cash items as a proportion of gross farm income was calculated at 88%. There was an even bigger difference in this measure than the cash expense ratio when examined in terms of the size of the farm with the biggest farms recording an average ratio of 81% in 2004-06. On average the largest vegetable farms were clearly profitable delivering good rates of return. In contrast the smallest farms were incurring total economic costs in excess of income and on purely economic grounds were non viable. There was as was the case for costs considerable variation across the country.

The report breaks down the cash expense and economic expense ratios by the location of the farm. The cash expense ratio during 2004-06 was lowest in the West and Midwest at 76.5% and highest in the Northeast at 89%. The economic expense ratio was lowest in the West at 84% and highest in the Northeast at 113%.

The US data shows improving profitability over time. In 1998-2000 average cash income per farm was US$47,000 and farm business profit was only US$10,000. In 2001-03 average cash income was US$75,000 and farm business profit averaged US$19,500. By 2004-06 average cash income rose a further 12% to US$84,000 while business profit rose to US$47,000.

Farm Cash Income and Business Profit in Australia

Average total cash receipts of Australian vegetable farms were $570,000 in both 2006-07 and 2007-08. Cash costs rose slightly from $398,000 to $404,000. Average farm cash income which was $172,000 in 2006-07 declined to $166,000 in 2007-08. Despite the decline in average farm cash income in 2007-08, the number of Australian vegetable farms reporting negative farm cash income fell from 17% in 2006-07 to 13% in 2007-08.

A breakdown of financial results by individual states reveals some significant differences. Queensland and South Australia were the only states to experience lower farm cash income in 2007-08 with declines of 27% and 11% respectively, much steeper falls than the national average decline of 3.4%. The most striking result was a surge in farm cash income in Tasmania from less than $20,000 per farm in 2006-07 to $109,000 in 2007-08. The remaining states recorded increases in farm cash income in a range of 8-11% in 2007-08 from the previous year, while farms in the Northern Territory reported a modest increase of 2.6%. Western Australia overtook Queensland to record the highest farm cash income with an average of $217,000 per farm in 2007-08, ahead of Queensland ($201,000), Victoria ($182,000) and the Northern Territory ($180,000). States with farm cash income below the national average are South Australia ($153,000), New South Wales ($119,000) and Tasmania ($109,000).

The average business profit of Australian vegetable farms, which takes account of depreciation, changes in trading stocks, and the cost of imputed labour, was $82,000 in 2006-07. As with farm cash income, farm business profit declined in 2007-08, falling by 9% to average $75,000 per farm. 56% of farms reported negative business profit in 2007-08, down slightly from 59% in 2006-07.

Once again there were significant differences between the individual states. Average profit of Tasmania farms was $32,000 in 2007-08, a major turnaround from losses averaging $55,000 per farm in 2006-07. Profits of farms in Victoria rose by 55% in the latest year, while farm profits in Western Australia increased by 20%. Farm profits in the other states declined in 2007-08, with falls ranging from 13% in New South Wales to 40% in Queensland. Average profits of $123,000 per farm in Western Australia in 2007-08 are the highest in Australia, well above the national average of $75,000. Average business profits in Queensland ($100,000), Northern Territory ($92,000) and Victoria ($80,000) are also above the national average. States with farm business profit below the national average are South Australia ($67,000), Tasmania ($32,000) and New South Wales ($29,000).

Comparisons of Income, Costs and Profits on US and Australian Vegetable Farms

The latest US figures for 2004-06 have been converted into Australian dollars for purposes of comparison using average exchange rates for 2004-06. The US figures are compared with the latest Australian figures, which are an average of financial years 2006-07 and 2007-08.

The table below provides a basis for comparing profitability of vegetable farming in the US and Australia. The figures are averages across farm and do not indicate the income, costs and profitability of individual growers. In reality there are significant differences in profitability across the industry due to factors such as types of vegetables grown, geographic region, size of farm and other factors.

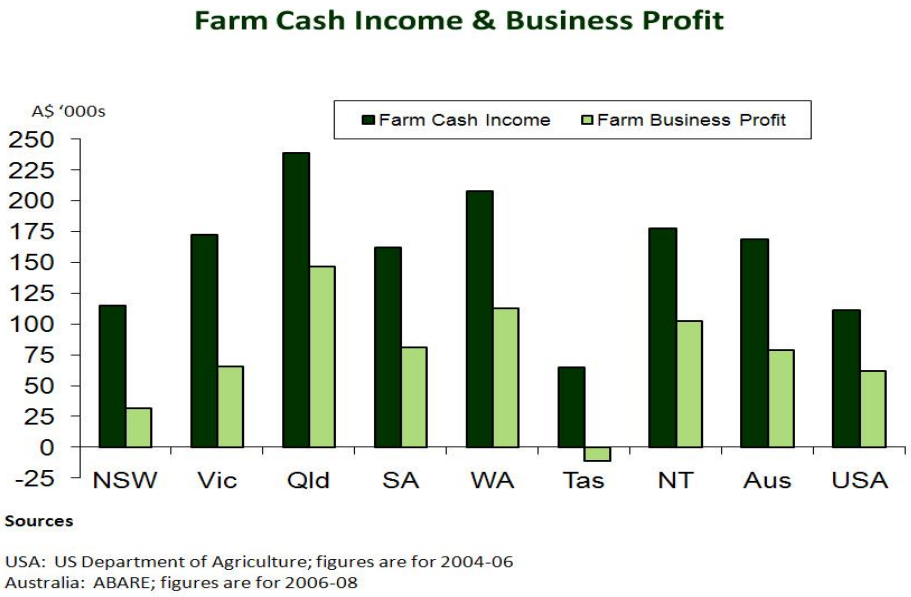
Vegetable Farm Income and Profit in the USA and Australia

Average per farm (All figures in Australian dollars except where stated)	**USA 2004-06**	**Australia 2006-08**
Total cash receipts	493,805	569,819
Total cash costs	382,699	400,774
Costs as % of receipts	77.5	70.3
Farm cash income	111,106	169,045
Farm business profit	61,884	78,591

Sources
USA: US Department of Agriculture; figures are for 2004-06
Australia: ABARE; figures are for 2006-08

Both receipts and costs are higher on Australian vegetable farms. Average total cash receipts per farm in Australia in 2006-08 were 15.4% above the equivalent US figures for 2004-06, while Australian cash costs exceeded US costs by 4.7%. As a result, the cash expense ratio, which measures total cash costs as a percentage of total cash receipts, averaged 70.3% in Australia over the period 2006-08 compared to 77.5% on US vegetable farms over 2004-06.

Average farm cash income in Australia in 2006-08 exceeded that of US farms in 2004-06 by 52% and farm business profit was, on average, 27% higher than in the USA. The gap implies greater non-cash costs on Australian vegetable farms. This may be due to higher imputed values for own and family labour on Australian farms than in the US.



In short vegetable growing over the period studied appears to have been more profitable in Australia than in the US. This may have something to do with size with the US appearing to have a larger number of small uneconomic vegetable farms than in Australia.

There are similar features in respect to rates of return on vegetable farms in the two countries. Research in both countries indicates that there are a large number of small vegetable growers who are clearly non-viable on purely economic criteria. This does not mean that small vegetable farms are non-profitable. What it suggests is that a number of small growers remain in the industry for reasons other than achieving economic rates of return on their labour. It also suggests that these growers rely on other sources of income either in other agricultural pursuits or off-farm income in order to survive.

Conclusions

- The biggest component of the production expenses of vegetable farms in both the US and Australia is labour.
- The cost structures of US and Australian vegetable farms are very similar in many respects such as the levels of spending on labour, fertiliser & chemicals, and seed & plants.
- There are some significant cost differences such as much higher rent and lease payments in the US, and lower fuel costs in the US.
- There are substantial differences in the profitability of farms in both Australia and the US between different geographic locations.
- In both the US and Australia there are a number of vegetable growers who are clearly non-viable based on rates of return from vegetable growing. In both countries this appears to be related to size with the US appearing to have a longer tail than in Australia.
- Australian vegetable farms in 2006-08 were, on average, 27% more profitable than US vegetable farms in 2004-06.

9.11 Presentations – some examples

Understanding the economic environment facing the vegetable industry

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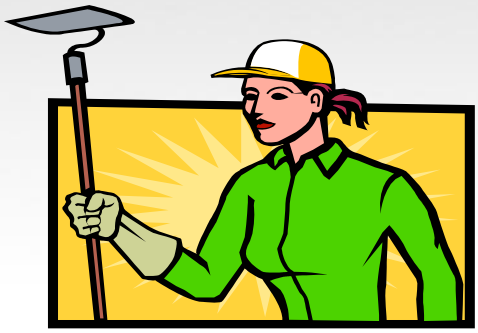
Address to 'Women in the vegetable industry: Developing skills and leadership'



Ian James
Industry Data Economic Analysis
Economics Sub-Program
Vegetable Industry Development Program

Webinar
January 19, 2011

Thinking outside the box

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Economics Sub-Program - VIDP

Adelaide
April 19, 2010

An Economic Challenge to Aspiring Leaders in the Vegetable Industry

Ian James
Vegetable Industry Economist
Industry Data Economic Analysis

Melbourne
July 27, 2011

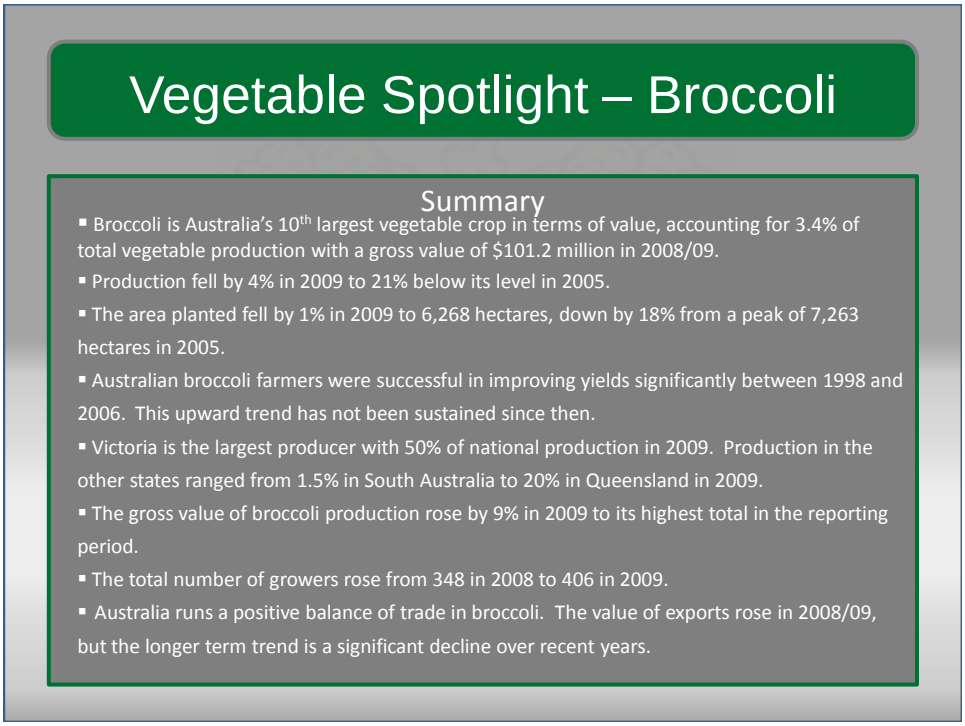
Economic, Business and Marketing Issues for Horticulture – A view from within the Vegetable Industry

Address to 'Sustaining Horticulture' NSW Farmers Association

Ian James
Industry Data Economic Analysis
Economics Sub-Program
Vegetable Industry Development Program

Sydney
July 19, 2010

9.12 Broccoli vegetable spotlight – an example



Full text at
http://ausveg.businesscatalyst.com/statistics/Website/Vegetable%20Spotlight/Broccoli%20Report%20October%202010.pdf