

Determining the cost benefit analysis of vegetable R&D

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AUSVEG Ltd

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The purpose of this final report is to communicate the successful delivery of project VG03102 Determining the cost-benefit analysis of vegetable research and development.

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Media Summary

The Australian vegetable industry has been historically unique in Australian agriculture. There has been little common purpose and the sense of industry so strong in other Australian agriculture industries has been lacking. Vegetable growing has been seen as on the fringe of Australian agriculture, rather than its true position as one of Australia's great agricultural industries. Growers prided themselves on supplying good quality product to market but little attention was paid to market conditions or long term demand trends.

It was only with a sense of crisis in the last few years as export markets were lost, import competition increased and growers left the industry, that growers saw the need to act with common purpose. The difficulty for them was that they had little economic data, no research or development to understand what was going on and hence 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. This project was born out of the need to address these problems.

The key component of this project was to improve the range of economic data available on the industry, research and analyze that data and provide a range of economic information previously denied to the vegetable industry. The economist was also required to provide a range of economic expertise on issues relating to the industry. New directions were required where the emphasis shifted from supply to demand analysis and a new focus was placed on a strategic direction for the industry. These inputs were seen as essential if the industry was to ensure its long term viability.

The key outcome of this project is that the industry has a much wider and more accurate database. Measures have been put in place to expand the range and accuracy of economic information. Economic rigour has occurred in areas where none was previously available. This rigour has extended across a range of issues such as an industry position on Free Trade Agreements to the cost/benefit analysis of bio-security control measures.

Despite the advances made with this project the industry requires further and expanded data collection. Consistent time series data is essential. More extensive data on costs of production is needed to establish benchmarks to which individual producers can strive to achieve best business practice. Further economic work is required on supply chain demands and with processors and retailers. Studies of demographic and lifestyle trends are essential to assist the industry in the achievement of the strategic direction outlined in VegVision 2020.

Technical Summary

Until this project there was inadequate economic data and information available for the Australian vegetable industry to identify key challenges facing the industry. Lack of information and economic analysis was hindering the industry's development. The industry had little idea of where it was at and it had insufficient economic knowledge to frame directions which would lead to a long term viable and profitable industry. Inadequate economic information meant that policy makers were finding it difficult to assist the vegetable industry in tackling the mounting issues it was confronting. With this in mind, this project was created to provide the necessary economic foundation and expertise that was missing to enable the industry to remain economically viable in the face of increasing competitive threats.

The approach adopted was to initially gather existing data together, provide economic analysis of that data and make it readily available to industry participants. Access to a number of online data software packages was purchased and extensive discussions entered into with industry participants as to how to improve the flow of data on the industry. Discussions were held with the Australian Bureau of Statistics (ABS), the Australian Bureau of Agriculture and Resource Economics (ABARE) and other government agencies with the intent of improving the range and timeliness of data on the industry.

The major outcome of this work has been a vast improvement in the availability of data on the industry. A range of data on the domestic operations of the Australian vegetable industry is publicly available on the AUSVEG website. Economic commentary on trends in the industry is also provided. Data covered includes, production, number of establishments, size of farms, State distribution, grower distribution by earnings, plantings, yields and the value of vegetable production. 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. The industry has benefited by the use of the economist's expertise in discussing various issues with Government including Free Trade Agreements.

Further development of this work is essential for the industry's future well being. Ongoing development work with the ABS is required to lift the timeliness of production related data and with ABARE to provide the necessary financials on the industry. Further in depth analysis of trends in trade is required as the industry has suffered a significant loss of export markets and is under direct import threat. 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. The Australian Vegetable Industry Development Group set up by the Australian Government requires the ongoing input of an economist to help it achieve the goals as set out in VegVision 2020.

Introduction

Historical background

The Australian Vegetable Industry has historically been poorly serviced through a lack of economic information and analysis. Data has been woefully inadequate and there has been little scope for the industry to develop a strategic plan or even direction for the industry. 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 and, with the exception of growers producing for the domestic food processing industry, growers have been grouped around the major urban centres. Supplying domestic rather than export markets has been the focus of the industry.

As a consequence unlike for other agriculture industries the vegetable industry has failed to establish a sense of national purpose and identity. 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. The industry has been supply focused with an “I’ll take any price approach” rather than producing to meet market needs. Exports have been largely opportunistic. There have of course been exceptions to this and some vegetable growers have been keenly focused on markets and provide some outstanding examples for the industry to bench mark off.

It was largely a sense of looming crisis and inadequate returns to growers that prompted this project. A great deal 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 game appeared to be like “the dog trying to catch its tail”. 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 were being lost in Asia, particularly in Malaysia, Singapore and the Japan to Chinese competition. In addition, growers supplying the processing side of the industry were facing significant competition from processed vegetables out of Europe and from 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.

Why was this project undertaken?

Until this project the industry had largely been concerned with production issues. Research and development had concentrated on pests, diseases, yields and productivity improvements on farm. There had been some projects that focused on marketing issues and demand factors but none that took a holistic industry view. The employment of an economist to analyze industry wide economic developments was regarded as essential if the industry was to have any hope of identifying, quantifying and analyzing the issues it was confronting. You have to know where an industry is at and identify the problems and opportunities before concerted action can be devised and undertaken to address these problems. This was a significant shift in the thinking of the industry.

What were the aims of the project?

The employment of an economist had six main objectives:

- to collect and analyze data on the industry
- to research and identify key problem areas
- to identify where the development of the industry should be concentrated
- to assist growers in developing their businesses into best practice
- to enhance grower understanding of market developments beyond the farm gate
- to advance the vegetable industry in public and economic forums.

What are the implications for the industry?

The implications are that the industry needs to change the way it views itself and its modus operandi. From a vegetable growers perspective he/she needs to be focused on the industry dynamics. 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 sound the death of the industry under the weight of competitive forces.

What is the likely impact of the results?

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. The project will if further developed 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.

Growers now have an enhanced knowledge of factors impacting on their business beyond the farm gate. Further development of economic analysis and input will enable growers to adopt better business practices. New business skills will be applied by both growers and their employees to enhance productivity. This project is a key ingredient in enabling the industry to achieve the goals laid down in the recently announced industry strategic plan, VegVision 2020.

Materials and Methods

In economics there is no substitute for hard data. Even if difficult to collect, and what ever the inbuilt inadequacies of that data, without data, there can be no industry analysis. Hence, there is little alternative to the hard work of setting up collection of economic material for analysis. This by necessity takes time and is a stage by stage process with incremental improvements. The data base, while not sufficient in itself, is an essential pre condition for properly researching and analyzing trends which are by far the most important ingredient in any industry analysis. In collecting data, a judgement has to be made as to the degree of imposition on the industry and the cost to industry participants of the collection of that data. Being smart and innovative in collection of data is the key to this project.

The methodology 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
5. communicate economic analysis and trends in the industry to industry participants

The initial starting point was to assess the limited data which was available on the industry. There had been no collection of economic data on a national basis by the industry. The only information available on the industry from a national perspective was the data collected by the ABS in its Agriculture Census conducted every five years and the Agriculture Surveys conducted in the intervening years based on the range of data collected in the Agriculture Census.

Discussions with the ABS revealed concerns with the adequacy of this data and the fact that it did not give a true indication of the size, scope and details of the industry even in fairly basic economic data such as production. The range of vegetables covered in the questions asked in both the Agriculture Census and the Agriculture Surveys was so limited that the second largest vegetable category was ‘other vegetables.’ Throughout 2004/05 discussions were held with the ABS to improve this situation. A greatly expanded vegetable section was devised for the 2006 Agriculture Census covering a wider range of vegetables. As an example Asian vegetables which had grown in popularity in recent years were now included in the Census.

Also different production techniques were identified in vegetables where they had become important. For example, there has been a significant shift in the production of tomatoes with growth in greenhouse tomatoes at the expense of field tomatoes. Failure to separate out these can lead to distorting data as a fall in hectares planted to tomatoes may simply reflect a change in production techniques rather than a trend decline in tomato production.

In addition through 2004/05 detailed trade data on fresh and frozen vegetable trade was sourced from the ABS. Extensive excel spreadsheets were established to record the range of data that was available. Website development occurred and a range of individual vegetable reports were produced and posted to the website. In July 2005, a change in personnel led to further developments. Available domestic production data was analyzed and published to the AUSVEG website. In conjunction with AUSTRADE's London office an investigation was conducted into the opportunities for counter seasonal vegetable exports into the United Kingdom market

The new economist further developed the database and played an active role in a series of crisis meetings in the second half of 2005. Out of these crisis meetings a number of reports were commissioned by the Government. The economist was in close liaison with and provided information to ABARE for their report on the International Competitiveness of the Australian Vegetable Production Sector as commissioned by Senator McGauran, the Minister for Agriculture, Fisheries and Forestry. As well the economist provided significant input into the two major research reports undertaken by Kiri-ganai Research under the Australian Vegetable Industry Partnership project between the Australian vegetable industry and the Australian Government. Both of these reports, the State of the Industry Report and the Setting Directions for the Future of the Vegetable Industry Report, identified the key role of economic analysis in assisting the industry in developing a viable future.

The appointment of a new AUSVEG Chief Executive Officer in January 2006 provided the impetus for a round of visits to each of the States to consult growers, supply chain representatives and government officials. The purpose of these visits was to ascertain the level of data available at the State and regional level and to assess the critical economic issues that the industry faced. AUSVEG is a federation of potato and vegetable grower State organizations. Not all vegetable growers are represented in this structure and some vegetables remain outside the jurisdiction. Consequently meetings were organized with a range of industry participants outside AUSVEG's normal constituency. Discussions with State representatives and especially the State based Industry Development Officers were held as to the range of economic information available. A range of issues was discussed where economic analysis was considered essential for the industry. The result of these discussions revealed that there were scattered pieces of data available, mostly incomplete and if available, State or regional based. Much of this data was outdated and ad hoc with no consistent time series largely due to under resourcing. These visits enabled an identification of key economic information required and provided ideas as to how this incomplete information could be used as supplementary to more official data.

Throughout 2006 extensive economic data was posted to the website. The use of a trade data software package enhanced the collection of trade data and the trade information was expanded to include processed and other derived vegetable products. Trade information was analyzed and regularly updated. Individual product reports were reviewed and expanded. Further discussions were held with supply chain recipients as to the collection of economic information to assist analysis of trends in consumer demand.

The economist played an important role in the inaugural Vegetable Industry Conference held in Brisbane in May 2006. Economic information was presented to the industry by

presentations, magazine articles and through the website. The economist also provided the economic research and development for policy decision making and was active in representing the vegetable industry in a number of industry forums.

In addition, the Australian government, through the Department of Foreign Affairs and Trade and the Department of Agriculture, Forestry and Fisheries requested that the economist give a speech on the vegetable industry in 'Xian, western China, as part of the negotiations for an Australia/China, Free Trade Agreement. The economist was appointed to the Horticulture Market Access Committee to advise Bio –Security Australia of priorities for horticulture access negotiations into foreign markets.

Bio-security issues loom large in the vegetable industry and with increasing globalization the threat of importation of exotic pests and diseases has grown. In the past, these issues were dealt with from a scientific/biological viewpoint. Little attention was given to the use of economic cost/benefit studies to evaluate the measures that should be taken to protect the Australian vegetable industry from pest and disease. With pressure for industry funding for bio-security control measures, economic expertise was needed by the vegetable industry to assist in the development of a policy framework. In late 2006, the economist became the chief conduit between Plant Health Australia and the vegetable industry. A two week secondment was arranged with Plant Health Australia as part of new work to apply some rigorous cost/ benefit analysis of measures to control pest incursions into Australia.

Results

The project has delivered a much more robust level of data than the industry had previously. Data is collected and analyzed at a national level. The data has provided important information and has been significant in identifying key problems facing the industry. The data has revealed a decline in the number of vegetable farms and increasing returns to the larger producers suggesting that economies of scale are important. A decline in export markets suggests a loss of competitiveness and the need for a new approach to marketing overseas. Increased import competition suggests a lack of cost competitiveness that needs to be addressed.

At the same time the data reveals some positive stories. Growers are responding to the new challenges and there has been some product innovation. New export markets are being developed in the Middle East to replace the losses in South-East Asian markets and there has been a concentration on recovering lost markets in Japan with enhanced quality and new innovations such as mixed vegetable juices.

Further analysis of developments in the industry will be greatly enhanced when the results of the improved Agricultural Census conducted in 2006, which this project directed, are delivered. Discussions are in progress with the ABS to expand the Agriculture Surveys which will be of significant benefit in enhancing time series collection of data on the Australian vegetable industry. The Australian Vegetable Industry Development Group, set up by the Australian Government, has agreed to fund a financial survey to be conducted by ABARE and the economist will provide the key link between these groups.

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. Being able to speak with economic expertise on a range of issues, from Free Trade Agreements to the cost/benefit of bio-security control measures is essential in this day and age. The vegetable industry has now identified the issues and is taking steps to address these.

This project has not only being about economic research and development. The pressures on growers have in most cases being industry related. The project has had the added benefit of encouraging vegetable growers to think as an industry. For the first time in the Australian vegetable industry's history it is been taken as an important agricultural industry. No longer is it seen as a group of market gardeners on the fringe of town. With the provision of 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.

Discussion

The initial project had the following outcomes and objectives:

1. The provision of expert advice on market trends, global economic outlooks and commodity price fluctuations.
2. Act as a resource to the vegetable industry in identifying opportunities for further improvements in the provision of industry research and development.
3. Provide specific customized analysis of the economic and production trends affecting the Australian vegetable industry.
4. The provision of economic assessment and analysis of key projects submitted to the industry for approval.
5. The production of economic articles in industry magazines.

This project has delivered the following:

- Provided analysis of domestic and global developments and how they might impact on vegetable business operations
- Undertaken research and analyzed data for use in vegetable industry publications, presentations to growers and researchers, State vegetable industry bodies and by other industry participants
- Researched and analyzed changing economic and industry structures
- Lifted the understanding of vegetable growers of broader economic issues by providing information on developments in financial markets including interest and exchange rate movements
- Undertaken research into bio security issues and developed appropriate economic responses to these issues while liaising closely with Plant Health Australia, Bio Security Australia and Commonwealth and State Departments of Agriculture
- Liaised with Horticulture Australia Limited and Horticulture Australia Council on economic matters and represented vegetable growers on committees requiring economic expertise
- Acted as a resource to the vegetable industry in identifying opportunities for further improvement in industry research and development and made recommendations to the AUSVEG Ltd board
- Produced articles for publications and posted information to the industry website.

- Provided expert advice on market trends including the level of competitiveness of the Australian vegetable industry and overseen research and development into opportunities for sales growth in both domestic and export markets

Clearly the project has achieved its objectives and the outcomes have enhanced the industry's ability to understand and meet the challenges that it faces. Continuing collection of data and ongoing analysis is required in the future to achieve the full benefits of this project.

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.

Technology Transfer

Economic data and information was transferred on a daily basis to a wide range of industry participants. The target groups and the major means of communication were:

Vegetable growers - through the State organizations, AUSVEG Board members, the industry development officers in each of the States, meetings with growers, the AUSVEG website and the vegetable industry conference.

Supply chain participants – AUSVEG website, discussions in pre arranged meetings.

Media – interviews were conducted with ABC rural radio commenting on a wide range of industry issues and economic data, information and discussions were held with the popular press and frequent dialogue maintained with the rural and regional press. Often these stories were generated from the AUSVEG weekly newsletter or information that was regularly updated on the AUSVEG website.

Horticulture Australia Limited – there was ongoing transfer of economic research and development liaison with HAL, largely through the vegetable industry services manager.

Government – the economist was in discussion with Agricultural Departments at both the Federal and State level at a high level of policy input. Discussions were also held with the Minister's office on key economic issues. The ABS and ABARE were key government agencies where there was a clear two way transfer of technology. Technology was transferred from this project to Bio-Security Australia through the economist's role on the Horticulture Market Access Committee. The transfer of the research and development undertaken by the economist into pest incursions was an important input into the work of Plant Health Australia.

Publications – a regular two page spread on economic issues was published in the industry bi-monthly magazine, Vegetables Australia. Articles were also produced for more targeted publications such as Potatoes Australia. Economic news items were written for the AUSVEG News Weekly and contributions made to State newsletters.

Consultants – the results of the economic analysis undertaken was readily available to industry consultants and economic input from this project was used in the papers prepared for the Australian Vegetable Industry Partnership Program between the Australian Government and the Australian vegetable Industry.

Public and interested parties – through the AUSVEG website and responding to email requests for information.

Recommendations

There is a need for ongoing research and development into economic issues confronting the industry. The established data bases need to be maintained and updated. Data to be useful needs to be collected as a time series rather than in cross sectional studies. For instance, the value of the improved flow of data flowing from the ABS Agriculture Survey will be diminished unless similar data is collected in the intervening Agriculture Surveys. It would be a tragedy if this project was seen as a one off.

The industry should give further consideration to continuing this project in some form as well as providing the necessary finances to expand the economic data base. For instance there is a need for a time series on the financials of vegetable growing along the lines of the ABARE Farm Surveys so that cost and revenue issues can be addressed in the industry. Benchmarking studies need to be undertaken to identify best practice so that industry can lift its standards. Studies need to be conducted here and in competitor countries to ascertain where the industry is competitive or non-competitive. Further trade analysis needs to be undertaken to identify market niches overseas and where the looming competitive threats are coming so that action can be taken.

Further research and interlinkages along the supply line remain an essential and urgent need. The industry needs to focus its energies on the demand side of the economic equation and improving business practices. Ignoring these and focusing on raising yields is to the long term detriment of the industry. It undermines prices and fails to enhance industry profitability. Demographic trends, lifestyle changes and broader health issues all need research and development and to be linked into the broader economic analysis.

Recognition of the importance of economic research and development in positioning the industry in the next decade has been given in numerous studies and forms a key role in the strategic direction been undertaken by the industry under VegVision 2020. Economic research and development was the key element identified in the three strategic areas outlined in the paper Setting Directions for the Future of the Vegetable Industry released in November 2005. Some examples of recommended strategies identified in that report requiring action out to 2009 were:

- Identify and monitor cost structures and market strategies of overseas competitors
- Pursue import trade measures consistent with World Trade Organization agreements
- Develop and resource strategies for identifying specific export markets and products
- Develop and implement a benchmarking strategy for the industry
- Develop and implement new business models to supply customer requirements
- Address market knowledge gaps to enable domestic and export market growth
- Improve efficiency in how information is collected, maintained and distributed.

Clearly the industry needs to have the where for all that an economist can provide.

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 overly impressed as to the vision and understanding of many growers in the industry.

I have also drawn much inspiration from others in the vegetable supply chain outside the grower sector. While more work needs to be 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.

At the risk of failing to give due recognition to some deserving people, a special vote of thanks for support goes to my current CEO John Roach and former CEO Euan Laird. I also acknowledge the strong support of the AUSVEG board and its individual members for this project and in particular the Chairman over my period of employment, Mike Badcock.

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