# Smarter, Leaner and Greener Vegetable Production-

**Value Adding**

**Business with Retailers**

**Supply Chain Management**

**A report for** NUFFIELD AUSTRALIA FARMING SCHOLARS

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2011 Nuffield Scholar

July 2014

Nuffield Australia Project No 1110

Sponsored by: Woolworths

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# Executive Summary

This report focuses on three key strategies to give vegetable businesses greater forward motion and also aims at giving Australian farmers an insight into how vegetable businesses are attacking the risks which lie ahead.

The three main focuses are:

1 Value Adding

2 Business with Retailers

3 Supply Chain Management

The findings of this report are that Vegetable Value Adding inherently allows agribusinesses to increase revenue and that the category continues to excite consumers with convenient, safe and fresh food and is likely to be the major growth category in the vegetable industry.

In Australia there is growing concern over the rate of growth with our big two retailers and how that is affecting farm gate pricing; however, the evidence in this report shows that strong relationships with large scale retailers allows for greater business growth through an ever expanding store network, which in turn allows a better medium to access sales. As the consumer is our customer, vegetable growers are continually being asked to produce "excellent quality food for less" and with crop inputs trending upwards it seems that the most likely way to increase the bottom line is to decrease the number of people who "touch your product", thus enabling a greater slice of the pie to return to growers.

Vegetable production in Australia has always been seen to be a risky business, due mainly to the way we market our products. The purpose of this study was to see if some of the risks can be mitigated through the above mentioned factors.

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# Foreword

Figure 1: Andrew Dewar in Baby Cos lettuce Crop,"Listowel"

Agribusiness has always been in my blood. As a fourth generation farmer I grew up on a broad acre property North of Moree, NSW growing mainly Cereals and Cotton. In 2004 a family decision was made to move into irrigated farming and thus the original family property was sold and we acquired "Listowel" which is an irrigation farm situated in the tightly held area known as the Pilton Valley, just south of Toowoomba in Queensland.

In 2008 the family made a strategic move into horticulture supplying a local processor with iceberg lettuce for approximately half the year. Since then we have grown our business to now encompass two farms on the Darling Downs for summer production and a farm in the Lockyer Valley for winter production.

As with all agribusiness, managing risk is now one of the major focuses of our business and undertaking a Nuffield scholarship enabled me to see first-hand, how other countries farmers mitigate their business risk and often capitalise on opportunities.

In completing my studies, I travelled to visit the world's largest horticultural regions and properties to explore with them strategies for mitigating risks and increasing revenue through innovation.

# Acknowledgements

First and foremost I would like to thank my family, and our staff whom in my absence, carried on our business and steadied the sometimes “rocky ship”. Every person involved had to do more than their fair share to enable me to produce this report.

Secondly I must thank Jim Geltch and the Nuffield board for believing in me to be able to produce this report and giving me the opportunity to grow, as a person embarking on a Nuffield scholarship, invariably does.

Woolworths as my sponsor, without whom I could not have experienced the face to face time with amazing leaders in our industry all around the world. I am proud of my relationship with Woolworths and I believe that our relationship will continue to grow in the future. I hope that due to this report your alliance with the Nuffield brand continues to become stronger. Special thanks should go to Pat McEntee and Rebekah Earp who both worked closely with Nuffield on this project.

Last but not least the countless people around the world, who offered their time and homes to me for this report in some way shape or form and I know that the friendships which we have formed will never be forgotten.

# Abbreviations

| | |
|---|---|
| AU$ | Australian dollars |
| US$ | American dollars |
| EU€ | Euro |
| CBD | Central business district |
| Ha | Hectares |
| Ac | Acres |
| UK | United Kingdom |
| USA | United States of America |
| EU | European Union |
| T&A | Tanamura and Antle |
| EU-27 | 27 states in the European Union |
| ABS | Australian Bureau of Statistics |

# Objectives

Vegetable production in Australia has always been seen to be a risky business, due mainly to the way we market our products. This report summarises how some of the world's largest vegetable growing areas and businesses mitigate risk through innovation and the business models they employ. The objective of this report is to see if value adding, distribution with large retailers and supply chain management enables family farms to grow into a more corporate style of business and in doing so reducing business risk.

# Introduction

The world has changed dramatically over the last 24 months. Things are happening in the external business environments which have never happened before, and words like “unprecedented”, “meltdown” and “crisis” have become the fodder of normal everyday conversations. In this type of environment, which is still rapidly evolving, it is wise not to take anything for granted, not even the things which you have always taken for granted.

The Australian vegetable production sector is an important source of food, supplying most of the fresh vegetables consumed in Australia and also providing inputs for a large proportion of the processed vegetable products consumed in Australia and exported overseas. The gross value of production of the vegetable industry is estimated to have been $3,315 million during 2007-08, contributing around seven per cent to Australia’s gross value of agricultural production (Horticultural Fact Sheet, 2011).

The vegetable industry in Australia is undergoing rapid change. Farmers are being scrutinised by economic, environmental, political and ethical values. With rapid change, opportunity also rises…

This report aims at understanding these pressures and opportunities in the hope that some light can be shed on what may lie ahead for the vegetable growing community in Australia. Specifically, this report summarises observations from some of the world’s largest vegetable producers and explores the opportunities of value add, retail distribution, and supply chain efficiencies on mitigating risk and enabling growth for producers.

# Horticulture in Australia

Australia's horticulture industry comprises fruit, vegetable, nut, flower, turf and nursery products. The industry is labour intensive and mostly seasonal. It comprises mainly small-scale family farms, however, there is a growing trend towards medium to larger scale operations. Australia's horticulture industry has long enjoyed a domestic and international reputation for quality primarily due to our high standards across all stages of the supply chain, from farm to consumer.

In 2009-10, Australia's horticultural industry was the nation's third largest agricultural industry, based on gross value of production. The horticultural industry contributes significantly to the prosperity of people living in rural and regional Australia. There are 63,300 people employed in Australia to grow fruit, vegetables and nuts for the domestic and export markets. A further 9,800 are employed in fruit and vegetable processing (DAFF, 2009-10). The value of production for annual and perennial horticultural crops are approximately equal, with the total area under production in Australia around 250 000 hectares.

## Growing Regions

The major horticulture growing areas in Australia include the Goulburn Valley of Victoria, the Murrumbidgee Irrigation Area of New South Wales, the Sunraysia district of Victoria/NSW, the Riverland region of South Australia, northern Tasmania, southwest Western Australia and the coastal strip of both northern New South Wales and Queensland. Nursery production generally occurs close to the capital cities. Some horticultural produce from the southern states is directed to processing.


**Figure 2: Horticultural Growing Regions – Australia with dark grey areas showing major Horticultural areas**

Source: Horticultural Maps 2010.

Queensland vegetables typically supply the southern states during the cooler June to October period. Lettuce, banana, pineapple, mandarin, avocado, mango, fresh tomato, capsicum, zucchini and beetroot production is concentrated in Queensland; stonefruit, oranges and grapes in New South Wales, Victoria and South Australia; processing potatoes in Tasmania; fresh pears, canning fruit and processing tomatoes in Victoria and apples and fresh vegetables in all states.

Australia has a significant tropical horticultural industry including large irrigation schemes in the Ord River in Western Australia and the Burdekin River in Queensland. Bananas, mangoes, avocados, papaya, lychees, cucurbits (rockmelons, watermelons, pumpkins) together with tropical nursery plants and vegetables are important industries. There is also a growing rare and exotic fruit industry producing fruits such as rambutans, durians, tamarillos, carambolas, jackfruit and mangosteens.

## Production Statistics

In 2009-10 Australian horticulture had a gross value of production of $8.407 billion, ranking third behind the meat and grain industries. The major product groups had the following gross value of production in 2009-10: fruit and nuts $4,060 million; vegetables $3,023 million; nursery, flower and turf production $1,324 million (Australian Bureau Statistics, 2011).

## Trade Statistics

Australia has a trade surplus in fresh vegetables (that is, the value of exports exceeds the value of imports). However, because of high imports in the processed, frozen and other sectors, overall Australia had a "trade deficit" in 2010-11 for fresh and processed fruit, nuts and vegetables of $697 million (ABS, 2011).

| **Value (millions of dollars AU) of imports of horticultural commodities** | | | | | | |
|---|---|---|---|---|---|---|
| | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
| Fruit & Nuts | 741 | 846 | 928 | 991 | 943 | 1022 |
| Vegetables | 528 | 621 | 731 | 842 | 744 | 786 |
| **Total** | **1269** | **1467** | **1659** | **1833** | **1687** | **1808** |
| **Value (millions of dollars AU) of exports of horticultural commodities** | | | | | | |
| | 2004-05 | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 |
| Fruit & Nuts | 829 | 774 | 760 | 898 | 778 | 651 |
| Vegetables | 365 | 410 | 384 | 397 | 372 | 460 |
| **Total** | **1194** | **1184** | **1144** | **1295** | **1150** | **1111** |

**Figure 3: Value of imports and exports Australia Horticultural Commodities**

Source: ABARES: Agricultural Commodity Statistics 2011, Table 134

In 2010-11 Australia exported $1.111 billion of fresh and processed fruit, nuts and vegetables. Export of fresh produce (particularly fruit) is limited by quarantine restrictions in a number of countries including Japan, United States of America, mainland China, South

Korea and Taiwan. In 2010-11 Australia imported $1.808 billion of fresh and processed fruit, nuts and vegetables. A wide range of fresh produce is prohibited from entering Australia on the basis of quarantine restrictions. Produce is imported into Australia out of season, or during periods of domestic shortage due to production failures, an inability to produce the commodity and/or production shortfalls relative to demand (Horticulture Fact Sheet, 2011).

# Horticulture in USA

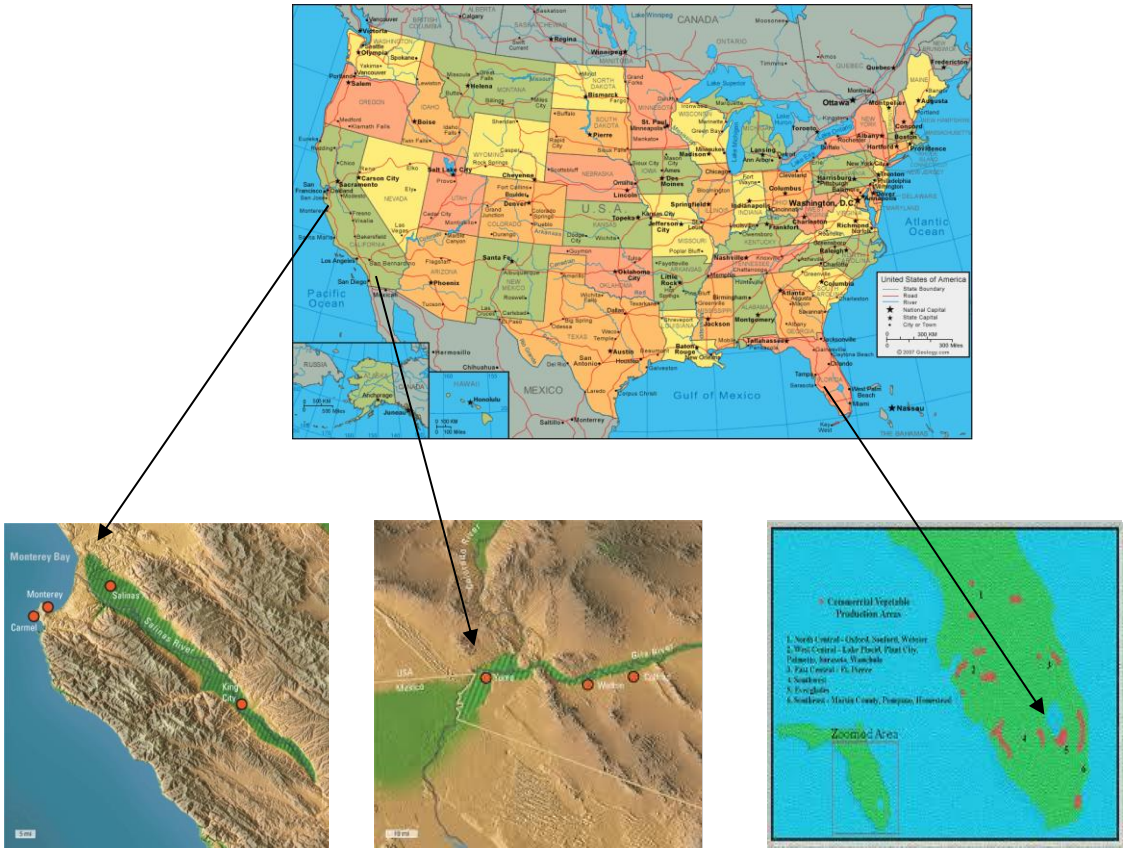


Figure 4: Areas visited in USA

Source: [www.maps.com](http://www.maps.com)

## Overview of the USA Horticultural Industry

Farms in the USA tended to produce vegetables for both processing and the fresh market. There were 62,495 farms that grew fresh market vegetables and 11,468 farms that produced vegetables for processing in 2007.

The 2007 Census of Agriculture shows an increase in the value of sales for vegetables, potatoes and melons from $12.8 billion in 2002 to US$ 14.7 billion in 2007, an increase of 15 percent. Vegetables, potatoes and melons accounted for 4.9 percent of all agricultural products sold in the United States during 2007. While the number of farms growing

vegetables increased, acreage of most vegetable crops decreased from 2002 to 2007 (Census of Agriculture, 2007).

| **USA Horticulture Crops, Value 2010**: (US $ Millions) | |
|---|---|
| 1. Leaf Lettuce | $651.503 |
| 2. Strawberries | $619.267 |
| 3. Head Lettuce | $460.605 |
| 4. Nursery | $326.105 |
| 5. Broccoli | $276.110 |
| 6. Grapes | $238.366 |
| 7. Spring Mix | $172.386 |
| 8. Spinach | $131.004 |
| 9. Misc. Vegetable | $123.560 |

**Figure 5: USA Horticultural Crops**

Source: Monterey Chamber Of Commerce, 2011

The top five counties for sales of vegetables were Monterey and Fresno County, California; Yuma County, Arizona; Palm Beach County, Florida; and Kern County, California. Monterey County was the only county in the United States with more than $1 billion in vegetable sales, almost twice the sales value of the next largest county, Fresno. Monterey County produced almost 9% of total USA value of vegetable production.

Field practices were observed as very primitive and highly manual compared to Australian production techniques. This is mainly due to the low cost of labour. This “no need to become efficient” attitude, however, is changing as labour costs continue to rise. The United States growers are starting to move to a more mechanical labour solution to remain competitive.

## Salinas Valley

The Salinas Valley is the epicentre of Monterey County's US $3.8 billion agricultural industry. Due to its temperate, Mediterranean-like climate and fertile soils, the county has become the number one vegetable-producing region in the nation. The area supplies 80 per cent of the nation's lettuces and nearly the same percentage of artichokes. Broccoli, cauliflower, spinach, strawberries, peppers, squash, carrots, asparagus, celery, tomatoes, mushrooms, Brussels sprouts, garlic, onions and flowers are also grown (Monterey Chamber Commerce, 2011).

**Farms Visited - Tanamura & Antle (T&A)**

Farming in the Salinas Valley in summer and Uhma in winter, T&A was by far the largest producer visited, farming 35,000 hectares of vegetables annually with a workforce of 3,500 harvesting people split up into 52 harvesting crews.

T&A is, as the name suggests, a partnership between two families which extends back as far as the Second World War. T&A's business structure is still family based, however, they have implemented a board. Their approach to vegetable farming is doing more with what they already grow (Value Adding) and they have a full team of people working on ways of adding value to their products.

T&A's market alignment is very much focussed on the large USA retailers being a direct supplier to Walmart and Costco. They work hard to ensure product continuity is achieved, within specification, 365 days a year. It was observed that this type of business tended to be where the large retailers went to for supply gaps, as T&A became more of a one-stop shop for them.

T&A's business demonstrates how value adding and direct supply to large retailers has enabled business growth and risk mitigation.

# Horticulture in Europe

## France, Germany, Spain, Netherlands, United Kingdom, Ireland.

In the European Union (EU-27), the most important vegetables in terms of production were tomatoes, onions and carrots, while the most important fruits were apples, oranges and peaches. In 2011, Italy and Spain had the largest vegetable production among the EU Member States, with a combined share that was equal to two fifths (41.5 %) of the EU-27's production of 57.5 million tonnes. Italy and Spain were also the largest producers of fruit among the EU Member States, with 21.6 million and 11.2 million tonnes respectively. (Europe in figures, 2009).

An analysis for individual products shows that fruit and fresh vegetable production was concentrated in a few Member States. For example, nearly three fifths of the EU-27's apple production in 2011 was located in Italy, Poland and France while practically all oranges were produced in Spain and Italy, aside from relatively small levels of production in Greece and Portugal. Close to two thirds (around 64 %) of all the tomatoes produced in the EU-27 originated from Italy and Spain, while almost half (about 46 %) of the onions produced in the EU-27 came from either the Netherlands or Spain (Eurostat Table, 2012).

## United Kingdom (UK)

In the UK, farms visited tended to be multi-generational operations which had moved from smaller scale family businesses to larger corporate type organizations to gain greater market share. Labour costing's tended to be high and as a result UK farmers have become more adopting of mechanical technologies to remain as competitive as possible. The total open field area under vegetables and flowers has fallen by 9% from 76,000 hectares in 2006 to 69,000 hectares in 2008 (DEFRA, 2009). As seems a common theme throughout Europe, a great emphasis is put on value adding to their products to maximize farm returns.

## Main agricultural indicators

| United Kingdom | 2008 | 2009 | 2010 | 2011 | 2012e |
|---|---|---|---|---|---|
| Output of the agricultural industry (% of GDP) | 1.4 | 1.44 | 1.4 | 1.5 | 1.5 |
| Agricultural output prices (index, 2005=100) | 127.0 | 124.3 | 125.1 | 137.3 | 138.9 |
| Agricultural input prices (index, 2005=100) | 123.1 | 116.5 | 118.3 | 130.2 | 133.0 |
| Agricultural income (Indicator A) (index, 2005=100) | 143.3 | 134.5 | 138.8 | 150.7 | 137.4 |
| Agricultural employment (% of total employment) | 1.5 | 1.3 | 1.5 | 1.3 | - |

**Figure 6: UK Main agricultural indicators**

Source: Eurostat 2012

**UK Farm Visited: T.E Thomas and Sons, established in 1907**

T.E Thomas and Sons is a family run farming operation in England farming mainly salads and brassicas for fresh markets and the retail chains. T.E Thomas and Sons pride themselves on their "in house built" Quality Assurance (QA) program which gives their products complete transparency throughout the supply chain

In 2005, T.E Thomas and Sons started as a direct supplier to Tesco's, farming 250-300 ha of vegetables yearly. In the past six years, due to them having greater access to markets, their business has doubled in size from an annual turnover of six million pounds to 14 million pounds.

*"Managing our business with them is tough; they have incredibly high specifications for their produce. In hindsight, they are also very fair when it comes to pricing and at present it seems we cannot grow enough for them"* (Rob Thomas, 2011).

T.E Thomas and Sons is an excellent example of how managing business risk through market interaction with large retailers has enabled business growth and increased farm gate revenue.

## Netherlands

In the Netherlands, rapid innovations have kept Dutch producers competitive. They are strongly vertically integrated and they look to consumer and retail driven types of production. They thrive on producing high quality products using environmentally sound production techniques. Unfortunately, the Dutch have the disadvantage of expensive raw materials, labour, and a high demand for fuel in the winter season. Technologically, the Dutch are very quick to adapt and innovate as any needs demand to improve their efficiency and effectiveness of production.

## Main agricultural indicators

| Netherlands | 2008 | 2009 | 2010 | 2011 | 2012e |
|---|---|---|---|---|---|
| Output of the agricultural industry (% of GDP) | 4.1 | 4.0 | 4.2 | 4.2 | 4.3 |
| Agricultural output prices (index, 2005=100) | 103.8 | 95.0 | 102.1 | 103.7 | 107.7 |
| Agricultural input prices (index, 2005=100) | 112.9 | 107.8 | 109.4 | 118.3 | 121.4 |
| Agricultural income (Indicator A) (index, 2005=100) | 104.4 | 86.7 | 112.7 | 99.8 | 114.7 |
| Agricultural employment (% of total employment) | 2.9 | 2.6 | 2.6 | 2.6 | - |

**Figure 7: Netherlands Main agricultural indicators**

Source: Eurostat 2011.

## Spain

The total Spanish area under horticulture crops is 406,688 ha, of which 301,399 ha are grown outdoors (74%) and 78,407 under glass. The greatest area devoted to greenhouses are located in Andalucía (72%), located mainly in the Almeria province (Lambarra, 2011).

The horticulture sector plays a relevant role in Spanish agriculture and economy. Their participation in the final agricultural production reached 37% and it represents an important source of employment, with 50% of the entire Spanish agricultural sector employment coming from horticulture (Lambarra, 2011).

In regards to production techniques, there has been progressive substitution of labour for capital, while the basic operating structure of the farms has been maintained. Over time, the average size of "the concern" has grown, favouring the accumulation of capital, and this has occurred in part due to technological improvements in the greenhouses, which have allowed farmers to manage ever-greater surface areas (the average surface area of greenhouses has increased from 1 hectare in the mid-1980's to 2.5 hectares at present (Estrada and López-Salido, 2001). In the very competitive environment Spain seems to be holding their own in the EU as a preferred supplier of vegetables, mainly due to the fact that they have a lower cost of production.

## Main agricultural indicators

| Spain | 2008 | 2009 | 2010 | 2011 | 2012e |
|---|---|---|---|---|---|
| Output of the agricultural industry (% of GDP) | 3.7 | 3.5 | 3.8 | 3.9 | 4.1 |
| Agricultural output prices (index, 2005=100) | 86.0 | 77.5 | 79.5 | 79.7 | 86.7 |
| Agricultural input prices (index, 2005=100) | 115.9 | 103.3 | 106.8 | 118.4 | 126.3 |
| Agricultural income (Indicator A) (index, 2005=100) | 91.1 | 91.6 | 99.0 | 98.0 | 101.5 |
| **Agricultural employment (% of total employment)** | **3.5** | **4.0** | **4.2** | **4.1** | **-** |

**Figure 8: Spain Main agricultural indicators**

Source: Eurostat, 2011.

**Almeria, Spain**

A horticultural revolution has occurred in parts of the province of Almeria in the last 20 years, as formerly barren lands have been turned into extremely productive family farms. The mild, sunny winters have enabled vegetables to be grown in plastic greenhouses. It is estimated that 11,400 ha of protected cropping is now under production in the region. Trickle irrigation is increasingly being employed and research into improving the micro-climate of the greenhouses and diversifying the range of crops is actively being pursued. The main problems facing the industry are the scarcity of non-saline water and the poor transportation links to Western European markets.

The damage to consumer confidence which has occurred since the E. coli outbreak in Germany in 2009 has left the Almeria farming community struggling to make farming economically viable. The exception to this is a small group of companies who saw value-adding as a way of increasing sales and mitigating risk through contracts with larger retailers.

**Figure 9: Almeria, Spain - protected cropping**

**Spanish Farm Visited: AGRIFLORA-Almeria**

Agriflora in Almeria, Spain, is among one of the most interesting businesses visited. They have a fully integrated and corporate approach to farming and is still run by the Sonchez Family.

In 1967 the family began farming vegetables in the province and rapidly grew. Firstly Agriflora made an investment in a seedling nursery to supply seedlings of a high quality to other producers and also to mitigate risk from their own business.

Agriflora now is totally vertically integrated having a full scale nursery, two tractor dealerships and marketing arm which are all run separately to the core farming business. Now, from humble beginnings, farming just 12 ha, they have 1,150 ha under protected cropping, employing 80-90 permanent staff in their farming operations.

Agriflora's vertically integrated business model ensures quality of produce and reduces the risk of out of specification produce and minimises input costs for production. These strategies have improved revenue for the business and continue to give Agriflora a market advantage.

## Germany

In 2009 open field vegetables were commercially grown on an area of 111,027 ha. 3.443 million tons of produce were grown, an increase of almost 11 % compared to the previous year.

German farms are small, very productive enterprises, with the countries average horticultural farm size of 45 ha and an average farm income of €150,000 (Agriculture and Consumer Protection, 2006).
German horticultural farms visited were multi-generational businesses and had either merged with wholesalers or had become wholesalers as a way of increasing revenue for

their products. As is the common theme in Europe, a large emphasis on value adding and vertical integration to maximize farm revenue was observed.

## Main agricultural indicators

| Germany | 2008 | 2009 | 2010 | 2011 | 2012e |
|---|---|---|---|---|---|
| Output of the agricultural industry (% of GDP) | 2.0 | 1.8 | 1.8 | 2.0 | 2.1 |
| Agricultural output prices (index, 2005=100) | 122.3 | 103.4 | 113.7 | 135.3 | 143.5 |
| Agricultural input prices (index, 2005=100) | 130.6 | 113.6 | 114.4 | 129.2 | 133.0 |
| Agricultural income (Indicator A) (index, 2005=100) | 134.7 | 94.8 | 113.2 | 125.7 | 144.4 |
| Agricultural employment (% of total employment) | 1.8 | 1.7 | 1.6 | 1.6 | - |

**Figure 10: Germany Main agricultural indicators**

Source: Eurostat, 2011.

**German Farm Visited : Mählmann Gemüsebau GmbH & Co. KG.**

Established in 1983 in Oldenburger, Münsterland, Mählmann Gemüsebau have quickly become one of Germanys largest vegetable producers servicing the entire EU through the companies privately owned distribution centres, employing 800-1,000 full time and contract staff. Mählmann Gemüsebau has strong connections with the three largest retailers in the EU, namely Tesco in the UK, Edeka Zentrale AG & Company KG and Norway's NorgesGruppen ASA.

Mählmann Gemüsebau employ a large board of 17 directors to navigate their business in a clockwork type fashion. Their board consists of only five farming entities and the remaining 12 people are from non-agriculturally based businesses. Mählmann Gemüsebau is held in high regard throughout the EU, winning local and national business awards.

Board structure, business and farming models give Mählmann Gemüsebau a direct market advantage over competitors. The market advantage also gives Mählmann Gemüsebau a form of business risk mitigation as a preferred supplier to large retail chains.

# Value Adding

## Defining “value adding”

Value added production is:

- Any step in the production process that improves the product for the customer and results in a higher net worth.


**Figure 11: Example of value adding T&A Artisan Lettuce Pack**

Any product can be considered value added if it is originally grown by a farmer and increased in value "by labour or creativity". Value-added products are now being developed by small to large scale farmers who do their own processing and sell direct to customers through farmers markets, individual and direct wholesale orders, or a website. Growers also typically sell wholesale to retail outlets, such as grocery stores. The common factor is that the farmers develop and process the end-product themselves, designing a label and finding the right packaging for each product.

Pre-testing products is an important part when creating a value added product. Taste, flavour, texture, appearance and shelf life are all important to the final product that is developed.

*“The continued development of value-added products emphasizes that a value added enterprise is not static and is continually evolving in order to be successful. Agribusinesses must be professional yet flexible and inventive”.* (Bob Antle, 2011).

Farmers throughout Europe and the USA saw the opportunity for expanding their business by using their products in innovative and lucrative ways. Doing so allowed them both to develop outlets for their creativity and stabilize their farm income all through value adding to their products.

In the USA, fresh-cut and value-added vegetables get much of the credit for the modest sales growth which produce departments enjoyed in the past year. As consumers vote for convenience with their dollars, it is a trend that is likely to continue. By volume, value-added vegetables were up 15% at retail in 2011 after gaining 10% the year before (Nielsen Perishables Group, 2011)

"*The solid growth is coming from the value-added sector of our business, (which is up) 12.8% for 2011.*" (Bob Borda, 2011).

Underutilized vegetables and fruits could be used to prepare various value added products. These products can be nutritious and high in fibre and antioxidants. High costs, lack of awareness, and ideological aspects keep products away from diets and adversely affect underutilized fruit and vegetable businesses.

Low prices often prevent the sale of products in local markets. Generally available commodities and products are cheaper than specialised value-added lines. Nevertheless, sales of such value added products were limited due to availability of fresh crop and ideological barriers. The demand for fruit and vegetable preserves and preparations is increasing yearly. Ready-to-serve drinks in standard packs are very popular and fast-moving in the tropics. Demand for underutilized fruit/vegetable products, market share, and profits could be increased. Awareness on benefits of these products and market promotion is necessary.

# Australian Retail Environment

Today's retail environment is one that is marked by cost sensitivity and perceived value supplied to consumers and the supply chain. When working with a retailer, it is important to understand that they are looking for improved efficiencies within the product development and supply chain management process, through measures such as cost reduction, improved speed to market (which improves quality) or direct sourcing, while focused on quality control that will ensure the brand they are building stands for quality and will not be compromised. Certification, compliance measures, and testing protocols are all measures that will assist in developing your relationship with the retailer. Farmers should be prepared to audit their QA systems or adopt retailers systems and need to demonstrate electronic data interchange (EDI) proficiency in their ability to receive and transmit data. Accurate and timely inventory and order information is vital in today's retail environment where the focus is on inventory turnover and gross margin return on investment.

Many small businesses view getting their products on to the shelves of big box retailers such as Woolworths and Coles in Australia as value-adding. Besides dramatically increasing a business's profits and opening doors to other lucrative retail contracts, having your products on a big retailer's shelves can give consumers and other retailers the message that your company and its products are to be taken seriously.

## Building buyer relations

*"Once a buyer-supplier relationship is established, I strongly suggest moving the relationship to a "partnership" status as soon as possible. Consider dedicating a company resource as the main point of contact on all things related to the buyer's account (order fulfilment, sample status, testing, etc.). Buyers deal with hundreds of suppliers, so establishing that one point of contact makes it easier for your retail customer to do business with you*."(Bob Antle, interview, Aug 2011).

Trust is the basis for achieving the best possible outcome with a buyer, which is about winning a buyer's loyalty. The very best salespeople aspire to, and often do, win buyer loyalty as well as the long-term relationship that comes as part of the package.

In one study which examined the buyer-seller relationship in the retail environment, research indicates that a buyer's trust in a vendor influences long-term relationships in the following ways (Ganesan, 1994):

- Buyers who trust their vendors perceive less risk associated with opportunistic behaviour's by the vendor.
- Buyers who trust their suppliers have increased confidence that any short-term inequities will be resolved over the long haul.
- Buyer trust actually reduces the transaction costs in an exchange relationship. When a buyer trusts the vendor, it takes less time (and therefore money) to reach a mutually acceptable agreement with the vendor regarding terms, contingencies and enforcement of terms.

Both in Europe and the USA agribusinesses visited expressed the need for trust and to form partnerships with retailers.

*"A customer becomes a partner when both parties can foresee mutually beneficial outcomes to an agreement and a very good way of insuring business trust is to work closely together to help build stability in a product."* (Jack L. Sinclair, Interview, Aug 2011).

## Professionalism in Agribusiness

### Systems

In both the USA and throughout Europe, it was particularly noted that the agribusinesses which retailers tended to have alliances, were the companies with full corporate structure. Most farms visited were family run farms, had implemented a board type management structure and systemised the daily routine to an almost clockwork-type farming model. Thus, it can be assumed that agribusinesses in Australia can implement many of these

corporate structures to maintain professionalism and to build upon their relationships with retailers.

# Supply Chain Management

Figure 12: Effective supply chain efficiencies - trucks leaving "Listowel", 2011

**(Mechanical Harvesting, Salinas Valley, 2011)**

## Food Miles

Vegetables have to reach the consumers in the minimum possible time otherwise it becomes waste and affects shelf life. The food mileage of vegetables causes considerable impact on the vegetable due to its perishable nature. The term 'Food Miles' or ' Food Kilometres' refers to the distance the food travels from the location where it is grown or processed to the location where it is consumed, or in other words, the distance food travels from farm to plate.

Food miles do not refer to the input material, effort, efficiency or energy of the crop yield. Food miles are a way of attempting to measure how far food has travelled to reach the consumer. Food Miles include the journey from farm to processor, then from processor to retailer and finally from retailer to consumer. Studies estimate that processed food in the United States travels over 2,080 kilometres, and fresh produce travels over 2,400 kilometres, before being consumed (Holly Hill, 2008). In the UK, 20 per cent of food (by weight) moves more than 200 kilometres (Garnett, 2003).

The food mileage impact is realised by all players in the vegetable supply chain, from farmers to consumer. "Food Mileage" is an indicator that evaluates the impact on economic,

social and ecological systems and it associates with the quality of food availability, food wastage and disposal. Food miles is a factor to understand inefficiency of food supply chain.

In economic or business perspective, every food mile is costly. The transportation cost is directly proportional to the food miles. Every mile added in transport is an addition in the cost of the goods, and farmers and customers pay for it. The more miles the vegetables travel, the less fresh they become. This means customers may pay more for vegetables which have less initial nutritional value and shelf life. When the food travels less the money can be reinvested closer to the farming community and more financial contribution is provided to local economy.

*"Plant the dollars close to home and watch community grow"* (Food Routes Network, 2008).

Local farmers who sell directly to consumers can receive a larger share of the profit for their food; however, localised volumes are small and cannot sustain farm growth. By growing locally, farmers tend to spend their money with local merchants and build a stronger local economy. The social impact of higher mileage food is that food that comes in from abroad often results in regional economic erosion. Apart from the retailer the local economy is weakened via money being transferred to the growing region. Vegetables with less mileage are fresher, preserve original taste, retain initial ingredients and are more palatable. Low food miles create a greater sense of closeness and trust.

Ecologically, food mileage is a convenient indicator of sustainability and sustainable development; wherein fewer food miles indicate more sustainability. Reducing food miles results in a reduction of emissions. Shorter distance travel leads to reduced usage of fossil fuels and thus, conservation. Minimum food travel signifies minimum pollution and environmental degradation.

# Conclusion

The vegetable industry in Australia is a fiercely competitive and an intense market place in which to do business. The high demand for quality produce, high production costs, and a greater focus on food mileage are increasing pressures for horticultural producers. Horticultural businesses by nature need to be market reactive yet at the same time, innovative, flexible and adaptive enough to respond to industry changes and mitigate risks.

For businesses to survive it is imperative that producers focus on quality and safety in addition to looking for innovative means to maximise returns. Producers need to scrutinise the steps in which their product takes from farm to customer and look to integrate some or all of these processes themselves, minimising supply chain steps and maximising returns.

Globally, the UK market has many parallels to the Australian market, including the dominance of the retail sector by a few large chain stores (Tesco's and Sainsbury's) and high costs of labour. In this environment, family farms have sustained growth through developing relationships with major retail distributors, innovative product usage and supply chain management. Throughout Europe and the USA major retailers are having profound impact on the establishment of QA and safety systems and discerning consumers want to know more about the products they consume and where they come from, impacting producers to innovate and establish systems, adding to production costs. This also creates opportunities for the consumers and producers to build closer relationships and improve awareness of food production.

To enable sustainable business models and mitigate risks for horticultural producers, this report has explored the impact of value adding, relationships to improve retail distribution, and supply chain management.

# Recommendations

Australian horticultural producers have abundant opportunities to innovate to improve systems and supply chain management to mitigate risks and improve sustainability of the business.

## Value Add

In the future Australian businesses should look for a segmented approach to market opportunity, as a means of catering to the needs of different consumers and eating occasions. This strong customer service and consumer market focus will be required to tap into premium market opportunities. This will require businesses to meet the market requirements through value adding and customising products. *Give the consumer what they want and when they want it.*

One of the greatest issues with primary production in horticulture is under-utilised or wasted fruit and vegetables. It is imperative, economically, for farmers to manage waste on farm and to try and utilise waste fruit and vegetables through value added products. Often unmarketable product can be processed and in return will give a greater gross margin profit.

## Retail Distribution

Strong business relationships with the “Big Two” retailers in Australia are desirable as it enables the producer to achieve a maximum number of sales through a continually growing network, however, doing business with the “Big Two” retailers presents challenges. Ensuring the professionalism and improving QA and safety systems will improve producer’s capacity to build relationships with large scale retailers.

## Supply Chain Management & Revenue Maximisation

Maximising efficiencies in the supply chain will enable vegetable producers to have an edge over competitors through increased quality, taste and freshness. Through the efficiencies

gained in tighter supply chain management there will be undoubtedly a cost benefit to the producer and to consumer. Exploring ways to reduce food mileage is a key strategy to achieve this.

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# Plain English Compendium Summary

| **Project:** | **Smarter Leaner and Greener ,Vegetable Production** |
|---|---|
| Nuffield Australia Project No: | 1110 |
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| **Objectives** | To report on horticultural business growth strategies for family run farms around the globe and to highlight three main areas to build on. |
| **Background** | Investigate how vegetable farming families successfully grow their businesses. |
| **Research** | Travel to Philippines, China, USA, Canada, Ireland, Brussels, Netherlands, Mexico, France, Germany and Spain and investigate what business models family farms used to grow their business and minimise risk. |
| **Outcomes** | This research shows that the three main strategies for business growth in family farms are:<br>1. Value adding is a sound investment in the return on produce<br>2. Business with large scale retailers allows for greater sales scope<br>3. Supply chain management can greatly increase farm profits and product quality |
| **Implications** | Better return on investment for vegetable producers in Australia |
| **Publications** | Nil |