Growing the Pie

Export opportunities for Australian vegetable growers

A report for

By Emma Germano

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Executive Summary

More than 6,000 growers across the nation produce $A3.6 billion of vegetables annually on 130,000 hectares of agricultural land – the largest of any Australian horticulture industry (Mifsud & Valle, 2015). Since 2010, the export values of Australian fresh fruit and nuts have grown significantly, however fresh vegetable export levels have remained consistently low (Voice of Horticulture, 2014).

Despite the recent focus on increasing agricultural exports by the Australian government (Commonwealth of Australia, 2015), only 20 per cent of Australian vegetable producers view exporting as a major growth opportunity, with more than half believing that developing export markets is too difficult and time consuming (Lubulwa, 2014).

In an operating environment challenged by high labour costs, expensive transport and distribution and limited product differentiation, it is very difficult for Australian vegetable growers to compete on the global market. To realise opportunity in export markets, Australian producers need to target high-end food segments by producing differentiated products built on a solid reputation for safety, integrity and quality (Commonwealth of Australia, 2015).

The research undertaken for this project examined market price, promotion and products across Australia, India, Qatar, Turkey, France, Italy, Spain, Netherlands, USA, South Korea, Japan, Indonesia, Malaysia, Singapore, Philippines, Hong Kong and United Arab Emirates, and identified the emergence of key product and supply-chain trends.

Consumers are seeking products that are conveniently portioned or value-added. They value branding and provenance, particularly where it assures safety or environmental and ethical sustainability. Specialty and niche products are sought, as well as variety, far beyond what Australian consumers are accustomed to (as a result of the stifling supermarket duopoly). Competition amongst retailers in foreign markets has driven the offering of unique retail experiences, whilst the rise of e-commerce is creating the need for new direct marketing strategies. Additionally, cold-chain distribution and product traceability remain significant challenges in many markets.

For Australian vegetable growers to ‘grow the pie,’ there needs to be significant shifts that need to occur at a grower, industry and governments level. A revision of thinking must occur, from ‘domestic’ to ‘global.’ There must be significant cooperation between growers to supply quality products consistently.

Growers need to be educated on the nuances of different markets and supply accordingly. They must be able to apply the knowledge of these nuances in their marketing campaigns and the forging and maintenance of business to business relationships.

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Foreword

Growing up on a family farm in South Gippsland had its perks, even if one doesn't come to appreciate them until later in life.

I had always resisted the idea of becoming a 'farmer'; in fact, the notion was far from my mind. I fell into the vegetable industry by accident; my role came about due to a heated discussion with my father about the nature of his sales and marketing strategies for the vegetables he was producing. I simply couldn't understand how a business could operate never knowing exactly how much it would be paid for its products.

Dad was selling all of his produce to a single agent at the Sydney Wholesale Market. Every semi-trailer of cauliflowers that he sent to market represented six months of planning, preparation, sowing, growing and harvesting for market. His reward? A fax with a magic number on it, denoting the price he would be paid for his produce. Lacking transparency, Dad would often wonder if this number was a true reflection of the market price, and whether there would be enough to pay the bills, let alone warrant all the hard work and effort.

I just couldn't understand it. In my previous job, I was consulting with small business owners to create strategic and operational plans, install human resource processes and develop marketing plans. I was training others on how to build a successful business, and offering the business owners the ability to achieve their aims in life.

Thinking that my experience made me qualified to comment, I put the question to Dad, "how can you bear to invest the time, money and effort into growing all these plants, all this food for the Australian consumer, and not even have the slightest idea whether or not the price you are being paid is fair or worth your worry?" His response was simple enough, "Love, if you think you can do a better job, you are welcome to it."

I started out selling in the same manner as Dad through the Australian Fresh Markets, but focussed on having stronger relationships with more buyers so that I couldn't be tricked about the market price, but even that strategy had its frustrations. I would spend my early mornings arguing down the telephone with the buyers. I soon realised the reality, that vegetable prices were too low, there was always an over-supply in the market or no demand for a myriad of

often feeble reasons, and the supply chain was far from transparent. The wholesalers would point the finger back at the growers, “you keep upping your numbers and producing more and more, trying to make the money that you are losing due to low prices.” I learnt the very harsh reality of supply and demand.

On too many occasions, I watched whole paddocks of vegetables ready for harvest be ploughed back into the land, because market prices were so low it didn’t warrant the harvesting, packing and transport costs to get the produce to a market that would potentially have to dump unsold stock anyway. What a waste.

Seeking answers, I wanted to know how the Australian government supports agriculture and how industry spends its funds. I became involved with the peak vegetable industry body, AUSVEG. I learnt about our levy system and our strategic investment plan, where research dollars and investment is going. The answer I kept hearing was, “the pie in Australia is too small, we need to grow the pie.”

This road led me to Nuffield. And Nuffield led me around the world trying to figure out how Australian vegetable growers could get more pie.

Figure 1: Visit to coffee plantation with Global Focus Program group, India June 2014

Acknowledgements

I would firstly like to acknowledge Nuffield Australia for the amazing opportunity to experience the best that agriculture has to offer. I am in awe of the passion and dedication that this organisation inspires others to develop. To be surrounded by agribusiness professionals who have become my biggest advocates and support networks is the greatest of gifts.

I would like to thank the staff and board of Horticulture Innovation Australia for seeing the value in the Nuffield Scholarship, and supporting the professional development of me as an individual. I assure you that it is impossible not to share the knowledge and passion that this program builds, I endeavour to repay your investment with interest, by giving back to industry as much as I am able.

In my pursuit to understand the global produce market, I met so many different people from across the globe, who opened their doors, shared their knowledge and understanding with me. This report would not have been possible without their insight.

To my fellow scholars, you are simply the most inspiring group of people with whom I will continue to share agriculture, life and love with for many years to come.

Thank you to Hannah Lewis, without you this report literally would never have come together, you are a great sounding board and a true talent.

I offer enormous thanks to my sister AnnMarie and my friend Fiona who love, support and encourage me always. You inspire me to be my best and make no apologies for it.

Finally, I want to thank my father Laurie and my mother Maria. My business partners and my best mates. You have copped a difficult support role, given that each trip I returned from I had a new idea that I wanted implemented on farm and in our family business. Though we may have argued over a few, you have always encouraged me to stick to my guns, never give up and have backed me 100 per cent. Thank you for the opportunity to create my own legacy.

Abbreviations

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
AUD	Australian dollar
EU	European Union
FTA	Free Trade Agreement
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
HIA	Horticulture Innovation Australia
NAFTA	North American Free Trade Agreement
OECD	Organisation for Economic Co-operation and Development
QIA	Qatar Investment Authority
RD&E	Research Development and Extension
SGD	Singapore dollar
SPS	Agreement on Sanitary and Phytosanitary Measures
TBT	Agreement on Technical Barriers to Trade
UAE	United Arab Emirates
USD	US dollar
WTO	World Trade Organisation

Objectives

The objectives of this report are to:

- Examine global fruit and vegetable market price, promotion and products;
- Understand the limiting factors and barriers to vegetable growers accessing export markets; and
- Explore the capacity of Australian producers to seize export opportunities.

Introduction

The gross value of Australian agricultural commodities was $A53.7 billion in 2014-15, with vegetable production valued at $A3.35 billion (ABARES, 2016). Australian vegetable producers primarily supply the domestic market, with vegetable exports equating to only $A299 million. 60 per cent of these exports were fresh vegetables (ABARES, 2016).

The Australian government has advised producers that, by 2060, over one billion people will shift into the middle classes in the developing Asia region alone (Commonwealth of Australia, 2015). It is argued that population and income growth will drive demand, generating export opportunities for Australian food and fibre producers (Commonwealth of Australia, 2015). Theoretically this is a positive outlook for Australian growers, however actually capturing and capitalising on these opportunities is far more complex.

In an operating environment challenged by high labour costs; expensive transport and distribution; and limited product differentiation, it is very difficult for Australian vegetable growers to compete on the global market. To realise opportunity in export markets Australian producers need to target high-end food segments by producing differentiated products built on a solid reputation for safety, integrity and quality (Commonwealth of Australia, 2015). Presently, the majority of Australian vegetable producers are not willing or able to produce and market such products (Wu Huang, 2014).

If Australian vegetable growers are to truly 'grow the pie', there are significant structural and operating shifts that need to occur at a grower, industry and government level. Successful exporting of Australian vegetables will require a revision of thinking, from domestic to global: growers will need to co-operate more in order to provide consistent supply quality and quantity. Growers will also need improve their understanding of the idiosyncrasies of individual markets, which will mean a change in the varieties and specifications that growers supply. This will result in a shift in how growers market their products and improve their understanding of how to build and maintain relationships in these markets.

Chapter 1: Understanding the Australian Vegetable Industry

1.1 Domestic Market

Vegetables are Australia's largest horticulture industry, with more than 6,000 growers across the nation producing a value of $A3.8 billion annually on 130,000 hectares of agricultural land (Mifsud & Valle, 2015). Since 2010, the export value of Australian fresh fruit and nuts has grown significantly, however fresh vegetable export levels have remained consistently low - equating to a value of only $A299 million in 2014-15 (Voice of Horticulture, 2014). These vegetables were primarily exported to New Zealand, Japan, Singapore and the United Arab Emirates (ABARES, 2016).

The Australian government is currently attempting to improve Australian market access for agricultural trade, through the negotiation of free trade agreements and the investment of $A30.8 million to remove technical trade barriers (ABARES, 2016). Nonetheless, only 20 per cent of Australian vegetable producers view exporting as a major growth opportunity, with more than half believing that developing export markets is too difficult and time consuming (Lubulwa, 2014).

ABARES predicts vegetable production to continue to expand to meet domestic market requirements, and forecasts some increase in export demand, to reach $A4.2 billion by 2020-21. The value of vegetable exports is projected to increase steadily to around $A350 million in 2020-21.

1.2 Cost of Production

Vegetable grower profitability and sustainability is intrinsically tied to the cost of production. Recent data for vegetable levy-paying growers shows that increasing financial pressures are being driven by costs, which have risen by 10 per cent since 2011-12, resulting in falling grower returns (AUSVEG, a). Australia has one of the highest costs of production in the world, predominately due to the cost of labour (Lubulwa, 2014). This creates a challenge for margins in the domestic market. Additionally, Australian vegetables are significantly more expensive than vegetables produced in other countries, particularly developing nations (AUSVEG, a).

1.3 The Duopoly Effect

Currently, the retail channel dominates fresh product distribution with 77 per cent market share by volume. Australian supermarket chains, Coles and Woolworths, are estimated to hold almost 70 per cent of the total market (Morgan, 2016.)

Historically, Australian vegetables were primarily distributed through central fresh markets with the retail sector buying from these wholesale markets. The Sydney Flemington market, Melbourne Footscray market, Queensland Rocklea market and Adelaide market handled and traded the majority of Australian fresh produce (Simonetta, 2014).

In the early 2000s, the major retailers changed their buying strategies, moving to source directly from the growers or large wholesalers. Many growers welcomed this shift, optimistic that direct relationships with the retailer would increase trust, transparency and farm-gate prices. Those growers and packers directly supplying these retailers quickly adapted their business strategies to service the needs and wants of either Coles, Woolworths or both (Simonetta, 2014).

Australian vegetable growers tailored their growing schedules, quantities and product specifications solely to those dictated by the retail giants. The sheer influence and power that the supermarket duopoly have over Australian fresh produce production has now hamstrung the industry's ability to meet export market expectations (Shields, 2015). To ensure sales of product, most Australian growers will now only grow to supermarket specifications. The narrowing product specifications from major retail buyers is now stifling innovation, variety, market opportunity and increasing waste.

The duopoly has also pushed out the ability for vegetable growers to market their produce under private labels, unless they are the sole supplier of a niche variety. This is significant because it prevents businesses from distinguishing provenance and building brand loyalty, which are particularly important in export markets. This environment has resulted in Australian growers lacking the skills required to market their product, tell their story and create a strong brand.

Australian growers now also tend to lack business-to-business service expertise (Asia Fruit Logistica, 2014). This is leaving producers on the back foot when it comes to exporting, as

they are uncertain about how to effectively quote a market price that captures their cost of production, insurance, freight and other supply chain costs. Adding to this problem is the increase in supermarket investment into farms and supply chains. The Coles Nurture Fund, for example, provides growers with loans up to $A1 million for capital expenditure, helping to increase supply into the retailer, but weakens the grower's ability to export, as the investment is solely tuned towards the domestic market (Coles Supermarket, 2017).

Case Study 1 | Cauliflower Specifications

The Woolworths size specification for cauliflower is 150-180mm in diameter, equating to approximately 1-1.5kg in weight (Woolworths Supermarket, 2010).

The majority of Australian growers will grow to these size specification; however, in almost every market and store visited abroad in target export destinations, cauliflowers were sold at 130-140mm in diameter, and weighed between 700-800g.

The trends in higher income brackets in international markets show that optimum portion sizes are decreasing, shopping baskets are smaller, the frequency of shopping is growing and family sizes are smaller (Veldhuizen, 2013). Domestic research echoes this sentiment, with Australian preferring smaller cauliflower or florets and fresh cuts (Woodley, 2014).

Sending 1.5kg cauliflowers into a market with a strong preference for 800g cauliflowers is not viable. Additionally, large cauliflowers are more expensive to freight as fewer heads fit into each consignment.

Australian growers must adapt to the preferences of the international market if they wish to export successfully. For the average farmer, producing multiple specifications on-farm increases costs of production, particularly if the order is small. To overcome this challenge, growers need to have a very firm grasp on costs of production, and how they will be impacted by changes in specification and will need to work these costs into an export strategy. Growers must also understand their target return on investment and measure their performance by this benchmark. Finally, producers must be committed to long-term export strategy that fits within their business objectives.

1.4 RD&E Levy System

The Australian vegetable industry collects a statutory levy of 0.5 per cent of vegetable cash receipts for fresh and processed vegetables. The levy is collected at the first point of sale, by the wholesaler, processor, or in the case of direct sales, by the retailer. Once collected, the funds are matched dollar-for-dollar by the Commonwealth government and used for industry research, development and extension (RD&E) purposes (Moore, 2015).

The grower-owned company, Horticulture Innovation Australia (HIA), co-ordinates, invests and manages the RD&E programmes. Funds are allocated in accordance with the Industry Strategic Investment Plan. Findings from the RD&E programmes are communicated back to growers via AUSVEG, the peak national vegetable industry body, and other extension organisations (AUSVEG, b).

The 2012-17 Industry Strategic Plan recommended a change in the allocation of RD&E funds for optimal industry outcomes. Previously RD&E funds were focused on short term investments and field productivity. Within the industry, however, the understanding that domestic oversupply of vegetables lowered farm-gate returns, resulted in concern that RD&E funds spent on productivity would lead only to even lower returns (Consulting & Implementation Services, 2012).

The strategic plan proposed that spending of the levy should take a holistic approach in an attempt to capture the entire value chain and new markets. Levy funds are now divided amongst three strategic pillars: 45 per cent on consumer alignment; 20 per cent on market and value chain development; and 35 per cent on farm productivity, resource use and management. This strategic shift is a deliberate attempt to increase demand for Australian vegetable products, with a focus on expanding domestic and global markets (Consulting & Implementation Services, 2012).

Previous industry RD&E has identified Asia and the Middle East as key destinations for Australian vegetable exports. Between 2010-15, more than $A7 million was spent on developing market opportunities within China, Malaysia, United Arab Emirates, Indonesia, Japan and South-East Asia. These funds have facilitated involvement in inbound and outbound trade missions, attendance at international fruit and vegetable trade shows, grower symposiums, research reports and market analysis (Coote, 2015).

The vegetable levy is restricted from being used on marketing (Gordon, 2013). This is due to and industry belief that it will lead to cannibalisation of other vegetable lines; for example, marketing broccoli will potentially result in lowered cauliflower sales (Moore, 2015). This contrasts with other horticulture industries which collect both a RD&E levy and a marketing levy. The marketing funds are used in a range of whole commodity initiatives, including advertising. Many Australian consumers would be aware of the Australian Banana Growers Council's digital and print campaign '*Grab a na-na, over a no-no*', which educates consumers about the health benefits of bananas and encourages consumers to snack on bananas over processed snack alternatives (Australian Bananas, 2017). Avocados Australia funded a similar campaign, '*Love that avocado feeling*', which promoted avocados and educated consumers about the fruit's versatility (Australian Avocados, 2014).

1.5 Investment into Australian Agriculture

In November 2016, ANZ Bank reported that Australian agriculture requires a minimum of $A109 billion in capital to maintain the current market share of exports by 2025 (Bennett, 2016). Capital is required to drive productivity gains, via additional on-farm infrastructure, new technologies and innovation. A lack of investment also impacts supply chain efficiency and has negative repercussions on Australia's ability to compete internationally (Bennett, 2016). For example, investment into crop protection infrastructure on farms can significantly increase yields and mitigate weather risk, enabling growers to more consistently supply domestic and export markets. Despite the benefits, many growers cannot afford the significant capital outlay of the crop protection without the support of additional investment.

Nine out of ten Australian farms are owner-operated, family farming structures that tend to utilise traditional bank debt funding to grow and support their operations. Currently, most Australian farmers have little to no access to institutional investment and external sources of equity (ANZ, 2016). No investor – be it a bank or equity contributor – wants to invest in a poor-performing business. Investors ultimately seek positive return. Therefore, to attract the needed capital, Australian farms need to display a greater level of sophistication when it comes to managing the farm business, including increased financial reporting, greater accountability and long-term business planning. Australian growers also need to be open to the adoption of alternative business ownership and operating structures. These include joint

ventures, shared farming arrangements, equity partnerships, off-take structures, fund managers, corporate sector funding and co-operatives (Bennett, 2016).

Chapter 2: Trade and the Global Market Place

International trade allows countries to prosper through exploiting their comparative advantage, allowing them to concentrate resources on what they produce most efficiently and trading these products for those that other countries make. Economic theory builds a strong case for liberal trade and the free flow of goods and services, with clear growth advantages. Despite the benefits, governments are seldom willing to forgo sovereignty and control over their markets and trade is often utilised as a tool for political agenda and advantage. The 2016 global milk price crash demonstrates this, where, in response to EU imposed sanctions on Russia for its intervention in conflict in Ukraine and Crimea, Russia embargoed imports of EU dairy products, shutting off access to the EU's biggest market. This was coupled with increased domestic dairy production within Russia and led to a flooding of the global market and significant price decrease (Sputnik International, 2015). In turn, these events had a major impact on Australian dairy farmers and domestic agricultural policy. This demonstrates how the connections forged between countries through globalisation can have far-reaching outcomes. International trade hangs in a careful balance, subject to complex relations and negotiations, and must be tactfully managed.

2.1 Global Vegetable Market

The global vegetable market is dynamic, with volumes, price and trade flows perpetually fluctuating. This is caused by factors including climate, seasonality, proximity to market, technology, transport, logistics and trade agreements. Changing consumer preferences and demographics also have significant influence over global markets (Wu Huang, 2004).

The USA, Canada, European Union (EU) and Japan account for most of the world vegetable trade in both imports and exports (Wu Huang, 2004). As technology and cold-chain distribution improves, trade of vegetables beyond regional boundaries is increasing in value and volume, particularly in counter-seasonal products. Growth is also being driven by an increased consumer appetite for value-added and high value products that are not available from domestic or regional supply. The globalisation of vegetable trade, and the continual breakdown of barriers, has levelled out supply fluctuations caused by seasonality, softening

commodity prices, while making fresh produce accessible to more consumers (Wu Huang,2004).

2.2 International Goods Trade

The trade of goods and services in the global market place is governed by the World Trade Organisation (WTO). 162 countries are currently members of the WTO and subscribe to the organisation's fundamental trading principles (WTO, 2017). The General Agreement on Tariffs and Trade (GATT), Agreement on Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT), form part of the treaty that established the WTO. These agreements encourage trade without discrimination, where countries must treat all their trading partners the same as their most-favoured trading country. This encourages freer trade, where barriers to trade such as tariffs and quotas are gradually removed and improves market predictability and stability through transparency and binding commitment (WTO, 2017a).

Vegetable producers who sell their goods in export markets must be aware of the impact that these treaties have on their market access and their obligations to conform to certain international regulations. Capturing export opportunities depends on Australian producers delivering goods that meet the pest, disease, food safety and regulations set by other countries. Not doing so can have serious implications for entire industries. For example, in 2014, the detection of the growth hormone Trenbolone in Australian beef sent to Russia resulted in a trade ban, costing Australian beef producers an estimated $A200 million (Wilcock, 2014).

Sanitary and phytosanitary measures include biosecurity and quarantine measures applied to agricultural goods. These measures are designed to mitigate risks arising from the introduction, establishment and spread of pests and diseases and from risks arising from additives, toxins and contaminants in food and feed (Department of Agriculture and Water Resources, 2016). The SPS agreement sets out basic rules for food safety, animal and plant health. Under the agreement countries are able to set their own safety and health standards, however, they must be based on science and be applied only to the extent necessary to protect human, plant or animal life or health (WTO, 2017b).

Technical barriers to trade cover all agricultural goods and include standards for packaging and labelling, animal welfare, and agricultural and veterinary chemicals (Department of Agriculture and Water Resources, 2015). The TBT agreement seeks to ensure that technical regulations, standards and conformity assessment procedures do not create unnecessary obstacles to trade. The agreement allows countries to implement measures to maintain legitimate policy objectives, such as the protection of human health and safety, or protection of the environment. To facilitate trade and transparency, it is encouraged that these measures are based on international standards (WTO, 2017c).

Despite the efforts of the WTO to lower barriers to trade, some standards, particularly around food quarantine and food safety, remain excessively high and act as protectionist measures in the export markets (Commonwealth of Australia, 2015). It is the role of the Australian government to address these trade distortions and negotiate the best possible commercial deal in bilateral and regional free trade agreements (FTA). For example, following the signing of the Korea-Australia FTA in 2014, a 24 per cent tariff on cherry exports was eliminated, increasing the export value to the Republic of Korea from $A69,000 to $A3.5 million the following year (Commonwealth of Australia, 2015). Similarly, after the Japan-Australia Economic Partnership Agreement was signed in 2015, an 8.5 per cent tariff on cherries was removed, resulting in a 35 per cent increase in the value of cherry exports to Japan. Whilst on the surface these agreements have been very positive for Australian growers, the quarantine conditions that both Korea and Japan have in place mean that only growers in Tasmania can meet them (Commonwealth of Australia, 2015).

Trade success extends well beyond the signing of an FTA; meaningful market access relies upon ongoing skilful diplomacy and co-operation between States. Japan, for example, does not allow access to Australian fruit and vegetables that may be affected by fruit fly. The same barrier previously existed for Dutch exporters due to Medfly, however negotiations have successfully opened the Japanese market to producers from the Netherlands (Ross & Ozawa, 2015).

It is also important to recognise that trade protocols can take in excess of 15 years to negotiate, during which time the supply and demand for goods can change considerably (Koval, 2015). To ensure meaningful trade access negotiators must be highly trained and

understand agricultural production, supply chains, and how to overcome technical and phyto-sanitary barriers. When relevant, growers with a deep understanding of certain commodities should be included in trade negotiations.

2.3 Tariffs, Quotas and Subsidies

Tariffs, quotas and subsidies all work to distort markets, and can be utilised by governments to protect domestic production by hamstringing foreign competition. The WTO advocates for the breakdown of such protectionist measures. However, it is important for Australian agricultural producers to understand that many producers in other countries remain sheltered by these issues.

This can be illustrated by the example of Mr Ludovic Reversat, a small-scale French beef producer who keeps ten cows, breeding and butchering the offspring for the local community. At the time of visiting, Mr. Reversat was in the process of installing an on-site kill room and other facilities to process geese for foie gras. 30 per cent of the funding for the value-adding facilities had come from government grants, which enabled him to attain the balance of the finance from a bank. The shed in which he kept his cows, laden with solar panels, had been paid for by a solar company that had installed the panels through a government incentive. Mr. Reversat's annual on-farm income was equivalent to approximately $A300,000, based largely on the energy he was producing (Reversat, 2014). With the addition of on-farm processing, Mr. Reversat will be able to export his premium goods, and he does so with significantly more government support than Australian producers. As a result, his operating costs will be far lower than an Australian producer's and he will be far more competitive in the global marketplace. There are many similar examples throughout Europe due, to the EU Common Agricultural Policy which subsidises farmers (Karami-Ruiz, 2014).

Additionally, growers must appreciate how market distortions can create supply opportunities for Australian producers. For example, the Qatari government utilise a reverse subsidy for the import of live Australian sheep. Within this market, local preference, based on culture, religion and tradition, is for Awassi sheep meat, mainly supplied from northern Africa. In June 2014, the Awassi sheep was valued at 750 Riyals, equivalent to the real cost of imported Australian sheep (Abdul Hadid Al-Hajry, 2014). The Qatari government subsidise the Australian sheep, reducing its cost to the consumer to 450 Riyals, to ensure that the majority

of the working class, largely Asian emigrants, have access to affordable fresh meat. This policy creates demand for Australian sheep meat, distorting the market and demand levels, to the benefit of Australian industry. Future export growth relies on these relationships being maintained (Abdul Hadid Al-Hajry, 2014).

2.4 Foreign Exchange Market

Buying goods internationally requires the transaction to be made in foreign currency. The foreign exchange market is the market in which the currency of one country is exchanged for the currency of another. The price of foreign currency, or exchange rate, is determined on a competitive market that is dictated by supply and demand. The lower the exchange rate, other things remaining the same, the lower the prices of Australian-produced goods to foreigners and the greater the quantity of exports demanded (McTaggart, Findlay & Parkin, 2010).

It is important that Australian producers are aware that exporting increases exposure to economic risk, due to fluctuations in the foreign exchange market. The price of Australian dollars (AUD), comparable to other currencies, will dictate how competitive an Australian product is in a foreign market and will therefore impact the ability of growers to successfully capture a market. For example, if a Singaporean importer has the option to purchase asparagus from Australia or the USA, it will be less expensive to purchase the asparagus from the USA if the Singapore dollar (SGD) buys more US dollars (USD) than AUD.

2.5 Self-sufficiency, Sustainability and Food Security

Prior to the 2013 federal election, the Australian coalition government released its “5-Pillar Economy” plan, coining a policy which would help Australia become the “food bowl of Asia” (Sampson, 2016). Since then politicians, media and industry representatives have constantly referred to the implied opportunity for Australian agriculture, driven by an increase in demand from the exponential growth of the Asian middle class. Unfortunately, the truth behind these claims is limited and believing the rhetoric has now left Australian producers a step behind the rest of the world.

In recent years, attaining food security has been the paramount concern for governments across the globe. Food security “*exists when all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food to meet dietary needs and food*

preferences for a healthy and active lifestyle" (FAO, IFAD & WFT, 2015). Australia's international competitors have been proactive in not only securing food sources for the future, but also investing in technology and industries in order to overcome supply constraints and to ensure they are self-sufficient as demand from population growth increases.

Visits to Asia and the Middle East revealed significant investment into high-tech vertical urban farming. At a Mitsubishi plant in the Fuki prefecture of Tokyo, a feasibility study on modern and sustainable glasshouse production has resulted in the production of spinach and baby leaves, which can be grown in 18 days, a process which ordinarily takes 4-6 weeks (Bulmer, 2015). By employing vertical cropping methods, the need for land, water and inputs diminished, whilst simultaneously reducing waste product.

Examples of product diversification and waste utilisation are abundant. In one instance, an Indian coconut farmer found an opportunity in planting nutmeg underneath his coconut trees. He then looked for ways to utilise waste, creating nutmeg juice and candied nutmeg from the plant's fruit, generating shelf-stable, value-added products. This farmer also innovated to utilise the husk of the coconuts – turning it into rope – creating yet another revenue stream out of what would usually be considered waste (Somasundaram, 2014). The cultural attitude towards waste dictates how resourceful the farm business is. In India, the farmers are forced, out of necessity, to be as efficient as possible and use all waste. In the developed world, the shift towards intensification and away from permaculture has resulted in less resourceful operations.

Figure 2: Coconut husk is watered down to prevent dust, before being processed into rope. Coimbator, India, June 2014

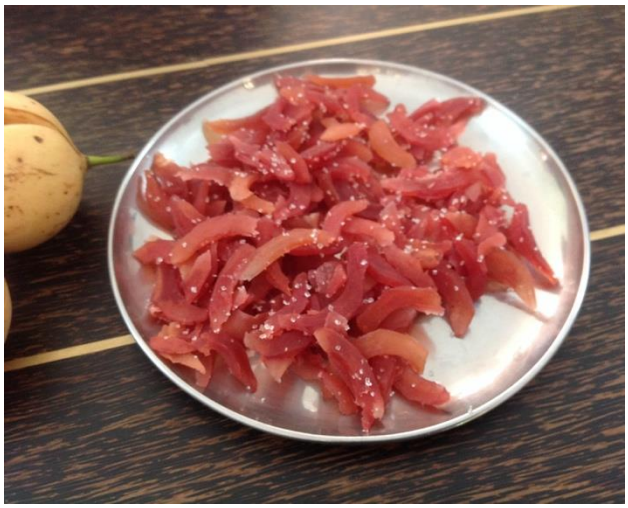

Figure 3: Candied nutmeg, a shelf-stable, value added product that offers the coconut farmer income diversification. Coimbator, India, June 2014

Grower co-operation in overseas markets has been key to achieving sustainable, self-sufficient farms. Farmers in overseas markets have found ways to reduce input and production costs through the sharing of assets and inputs. Particularly in smaller communities, efficiencies have been gained through the co-ownership of machinery, where each farmer is only required to put forward a share of the capital needed to purchase the equipment, and then can invest in other on-farm necessities. For instance, instead of each farmer in the district purchasing a tractor for $A400,000, ten farmers would each put forward $A40,000, leaving each farmer with $A360,000 to invest elsewhere. This was illustrated in Montauban, France, where growers in the local area shared the cost of machinery and jointly contracted a full-time operator to harvest crops (Reversat, 2014). A co-operative approach is currently quite rare in Australia. It is not in the Australian farming culture to share; rather Australian growers tend to compete against each other, resulting in higher overheads and running costs, which impacts Australia's international competitiveness.

Case Study 2 | The food security myth

Hassad Food Company is a global investor and developer in agriculture. The company is a wholly owned subsidiary of the Qatar Investment Authority (QIA), entrusted to support the needs of the country's growing economy and to contribute to the food security of Qatar (Hassad Food, 2015). The QIA is the sovereign wealth fund of Qatar, which was established in 2005 as a necessary building block to reach the national vision of transforming the country into an advanced State by 2030 (General Secretariat for Development Planning, 2008).

Hassad Foods seeks out agribusiness and food production investment opportunities with a 50-100 year outlook. The company has a long-term, sustainable view of investments. Since establishment in 2009, the company has secured grain, rice, sugar and animal protein sources (Hassad Food, 2015a). The Qatari branch of Hassad Foods focuses on producing and procuring green fodder, while investments in Pakistan produce and process high quality rice, poultry in Oman, and grains and livestock in Australia (Hassad Food, 2015b). The QIA expected Hassad Foods to achieve food security in these commodities within 20 years; it was accomplished in five.

Technology development is a cornerstone of Hassad's strategy. In Qatar a high-tech, 5.5 hectare cold house is a premier cut flower production facility., allowing flowers to bloom in the desert. The facility has also launched a pilot project to produce chemical-free vegetables and bedding plants and is now producing 100 tons of fresh vegetables and 1 million bedding plants annually (Hassad Food, 2015c).

Foreign investment into land has also been pivotal. Hassad Australia owns and operates 300,000 hectares of farm land in Australia, producing 190,000 tonnes of grain and 290,000 head of livestock annually (Hassad Food, 2015d). Currently, this produce is remaining in the Australian market; however, if and when food security becomes an active threat, Qatar has the ability to remove the meat and grains from the Australian market for their own consumption. Should Australian policy makers remain complacent, strategies such as this could put Australia's own food security in jeopardy in the future.

Australia cannot be a “food bowl” for Asia. Australia currently produces enough food to feed 60 million people. Even if production output doubled, Australia would still be unable to feed half of the Indonesian population alone. The sheer size of the Asian market, which is expected to grow to more than 3.2 billion people by 2030, means that Australia will have to keep a sense of proportion when considering its place in the global food supply chain (Sampson, 2016). It is also important to remember that Australia is not the only country that is positioning itself to capitalise on the demand from Asian markets. Looking forward, competition to supply export markets will be fierce and Australian producers will need to deliver safe, high quality, premium products that are marketed to the top quintile of consumers in export markets in order to succeed.

The Australian Government and producers alike must learn from the countries that have been proactive in prioritising policy for agriculture and food supply. A meaningful, consistent strategy is needed to achieve outcomes. As demonstrated by the example of Qatar, investments in agriculture need to be long-term, with an outlook of 50 years and beyond. They need to be operated in a stable and consistent manner, in alignment with an enduring vision. Australian agriculture therefore must be politically bipartisan. The strategy should not change with each electoral cycle and shift in the political environment. Australia’s strategy must also capture technology and innovation, to not only become more efficient and competitive, but to also allow producers to create premium, value-added products for export markets.

2.6 Building Relationships in the Global Market

Good relationships, built on trust and mutual benefit, between the supplier and the foreign importer are the key to successful marketing. Strong links can help to mitigate the risks associated with global transactions: for example, an importer may be more willing to overlook short-term foreign exchange volatility, that increases the price of goods, if they have a loyal supply relationship. To build these connections it is vital that Australian growers are mindful of the traits unique to each foreign marketplace, and understand the customer’s needs and wants.

To illustrate, in one such business relationship, a Singaporean importer was insisting the Australian supplier send goods on a specific flight. This was proving challenging to assure due

to the freight-forwarding process. With further investigation, the supplier was able to understand the need behind the request: cold chain storage at Changi airport is paid for in eight-hour blocks, and the goods needed to arrive at a certain time to reduce costs for the importer. Knowing this, the supplier was able to find other flights that also would minimise the cold storage costs at the airport, relieving the pressure on the freight-forwarder and improving the business relationships with the importer (Ang, 2016).

Australian exporters must also make themselves aware of the foreign culture and be mindful of basic customs and pleasantries associated with doing business in that country. Having an understanding of these intricacies can explain why certain products hold particular value in a culture – such as gift-wrapped fruit in Japan – or why importers might require small, mixed consignments, such as in Indonesia, where distribution capacity is limited (Sheehy, 2015). In addition, Australian exporters must understand who the purchaser of their product is and explore how they can assist them to meet their needs. For example, if supplying a food service business, bulk packs may be more suitable than a small, value-added product. A successful export business should be sensitive to the characteristics of each market, and build an export strategy accordingly.

Consistency of quantity and quality supply is also important when building relationships. Australian producers tend to only sell on the export market when domestic price is low (Ang, 2016; Wong, 2016). This attitude is largely driven by necessity, with small to medium producers being unable to take on the price risk and opportunity cost of not supplying the domestic market when prices are good. However, this strategy frustrates importers and has resulted in a general air of mistrust towards Australian exporters fulfilling their export agreements. The supply quality of Australian products also tends to be inconsistent. A Singaporean importer, Mr Hanns Wong, lamented that Australian produce was often varying quality and size specification. This was due to purchasing from an Australian wholesaler who sourced cauliflowers from more than just one grower, according to the wholesaler's own business requirements and product availability. Frustrated by the variance in quality and size, importers opt to buy goods from other countries that are able to offer a more consistent product (Wong, 2016). To create supply consistency, small and medium Australian growers will need to work co-operatively to meet foreign market demand.

Case Study 3 | Supply consolidation

International freight is charged by consignment weight and volume and is a significant cost to exporting. In an interview with a Singaporean importer, supply consolidation was revealed as a key component of managing freight costs.

The importer sought Australian loose-leaf salad product and asked a small farm growing salad for a quotation. A large Australian exporter was also asked for a quotation, in which the sourcing of pumpkins was also included. The exporter sourced the loose-leaf product from the same small grower who had tendered directly to the importer.

The small farm needed to charge $9.00 per box for the product plus $8.36 freight to breakeven. The large exporter was able to quote $9 for the loose-leaf when included in a consignment with the pumpkin. The exporter charged slightly above market rate on the pumpkin in order to offer the salad at a price that was inclusive of freight (Ang, 2016).

The large exporter was able to offer the importer a more competitive price because of their ability to consolidate multiple product lines. Small to medium growers need to consolidate to minimise freight and distribution costs and improve competitiveness.

Offering foreign retailers an industry point of contact is also very important. A complicated supply chain can leave retailers unsure of who to speak to about the products they stock. This was highlighted during a visit to a retail store in Jakarta where the manager spoke of his frustrations with stocking Australian grapes. The grapes had been falling off the bunch and it was proving very difficult to find a product representative to take responsibility for the issue. In contrast, when the manager had imported grapes from the USA, an in-country industry representative was available to contact in the case of a product defect, who would follow up with the packing shed, importers and distributors to resolve any problem. As a result of this customer service, the retailer preferred to stock USA products (All Fresh, 2015).

Chapter 3: Trends in Overseas Markets

The key to successfully selling goods in any market is understanding what the consumer wants. In the case of vegetables, the needs and wants of those purchasing the product are significantly different from Australian consumers. Take for instance a box of strawberries; whilst in Australia a punnet of berries is little more than a summer fruit staple, in Japan, a certain variety of strawberries box-wrapped are a coveted gift, reserved for very special occasions, and sold in-store for over $A70.00 (Gayton, 2015).

There is great opportunity in understanding the subtleties of overseas markets. To comprehend these subtleties, growers need to shift their mindset from domestic to global markets. They need to be willing to visit these markets, immerse themselves in different cultures and meet the consumers. The chance to capitalise on these export markets will only arise once the grower fully understands the product and supply-chain trends that are unique to that market.

3.1 Product Trends

3.1.1 Value Adding and Convenience

Pre-packaged fruit and vegetable products were consistently observed throughout Asia and the Middle-East in top-end retailers. Most produce was individually wrapped in convenient portion sizes, often ‘fresh cut’, ‘ready to eat’ or ‘ready to cook’. Packaging also displayed nutrient information, origin information and recipe ideas.

Given the high cost of production in Australia, any produce sold in export markets needs to be value-added. Foreign consumers want more options, and opportunities exist for producers willing to innovate to provide these products.

Within Australia, pineapple can be purchased ready-to-eat in portioned, cut-up squares, in a container. This product is treated with citric acid to extend shelf-life and meet food standards, which affects the taste. Many overseas markets offer a similar value-added product, however it is cut fresh, in store, to the size and quantity specified by the customer – a superior offering to what is currently available in Australia.

A shelf-stable product adds value for the producer. It ensures that supply gluts, which would usually put downward pressure on price, can be levelled out over a longer period of time. For example, instead of needing to have the vegetables sold and consumed within days, a shelf-stable product may have up to two months to be sold. Dole Corn is one such product, identified for sale during a retail visit to Burj Khalifa – a Dubai shopping mall – in June 2015. The corn is vacuum sealed and then cooked, extending its shelf life to 365 days.

Value-adding also creates an opportunity to utilise lower-grade vegetables. For example, if wanting to sell a cauliflower as ready-cut florets, the producer can sell A1 graded cauliflower on the market as whole, and then sell cauliflower that may not meet the A1 specifications as *florets. This allows producers to significantly increase the value of their secondary products.*

Figure 4: Dole Corn, a vacuum sealed, shelf-stable product, for sale in Dubai, UAE, June 2015

Figure 5 value-added fruit products for sale in Barcelona, Spain, June 2015

Case Study 4 | The Value-Add Conundrum - Ready-to-bake potatoes

International buyers seek value-added products from Australia; however the supermarket duopoly effect and small domestic market is stifling producer's ability to innovate and create these products. One concept recently trialled was 'Ready-to-bake potatoes'. There was significant pressure from the supermarkets to discontinue this product, because the product had a seven-day shelf life; predicting sales volumes was difficult and the product margin was significantly less than fresh potatoes or the frozen equivalent. Because Australian consumers do not yet have a palate for these types of products the supermarkets do not have the dedication or a commitment to keeping them on the shelf. Nor are the supermarkets in need of a competitive edge or point of difference, due to their dominant market share. Without the support of a domestic market the producers find it very difficult to fund the development of these value-added products. Consequently, there are few of these products currently available for export markets (Simonetta, 2015).

Similarly, Australia's relatively small population makes it difficult for producers to create value-added products. Because these products are significantly more expensive, they will only appeal to the top quintile of income earners. This pool is significantly smaller than in other markets with larger populations – such as the USA – where the top quintile represents a far greater number of people. In markets with large population and high per capita net wealth it is more viable for producers, processors and retailers to bring a value-added product onto the market.

3.1.2 Branding and Provenance

Effective product branding and provenance is a trend seen throughout the international marketplace, as well as products imported into Australia. For example, Roquefort cheese, a -sheep-milk blue cheese, produced only in the south of France, is recognised globally. Global consumers will pay a premium for Roquefort, with the brand signifying a specific geographical area, a particular group of growers and method of production.

Another example of the power of provenance can be demonstrated by the sale of asparagus in Japan. In-season Japanese asparagus is sold for the equivalent of $A8.50 per bunch, whilst Australian asparagus sells for $A6.50 and Peruvian for $A4.50. The Australian asparagus is the

most expensive to produce and distribute, however the Japanese product attracts a premium because consumers place particular value on local production (Ross& Ozawa, 2015).

In recent times, the majority of Australian vegetable growers have not needed to focus on consumer marketing or branding (Shields, 2015). Typically, growers have sold to a wholesaler or directly to a retailer and therefore have only had to consider business-to-business marketing. The export market however is extremely competitive and products must have a point of differentiation to justify and communicate the higher price to the consumer (remembering that Australian vegetables are some of the most expensive products available in the global marketplace).

It is also important that Australian growers recognise that a successful Australian marketing strategy will not necessarily be effective in a foreign market. Current evidence suggests that Australian brands are treating export markets as an extension of the Australian market, rather than responding to the intricacies of each foreign market (Coote, 2015). Whilst this strategy may be sufficient if the vegetables are being sold to an importer, it does nothing to contribute to building brand loyalty amongst consumers directly. Australian vegetable growers must consider how they can add enough value through a brand and understand the value of communicating their story.

The global perception of Australia and its production of food reflects on all Australian producers. Currently Australia boasts a brand built on the concept of 'safe, clean and green' (Commonwealth of Australia, 2015). The truth behind the marketing is however rather feeble. While Australia only accounts for around 1.5 per cent of global greenhouse gas emissions, its per capita carbon dioxide emissions are nearly twice the OECD average and more than four times the world average (ABS, 2010). Agriculture is the second largest contributor to greenhouse gas in Australia, behind the energy sector (Keogh). As a whole, Australia is not living up to the sentiment of its brand. It is paramount to recognise that other countries,such as New Zealand, have similar brand positioning and have greater integrity behind their message. It is the responsibility of Government, in conjunction with support from industry, to ensure that the regulatory framework appropriately support's Australia's brand position in the global market (Cornell University, 2014).

Case Study 5 | Ethical sourcing

Ethical sourcing involves ensuring goods are obtained in a responsible and sustainable way; that the workers involved in making them are safe and treated fairly; and that environmental and social impacts are taken into consideration during the sourcing process. According to the Chartered Institute of Purchasing & Supply, ethical sourcing also means the procurement process respects international standards against criminal conduct and human rights abuses and responds to these issues immediately if identified (Mcavoy, 2016).

Growing, harvesting and packing horticultural produce is labour intensive, often arduous and repetitive. Australian fruit and vegetables are some of the most expensive available in the international marketplace due largely to the mandated casual award rate of $A22.86 per hour (Fair Work Ombudsman, 2017). Working conditions and occupational health and safety are also regulated. In comparison, in a sweet corn packing house in Punjab, India, the women earn the equivalent of $A2.00 per day (Pagli, 2014). Due to this labour cost disparity, Australian producers will be unable to compete on price. Instead Australian exporters must market goods as premium, superior products.

There is growing opportunity to capitalise on ethical sourcing and sustainability efforts. Commitment to ethical procurement methods mitigate risks, can elevate brand image and grow sales (McAvoy, 2016). Australian producers should ensure that they consider the power behind the safe and fair treatment of workers, when developing branding and marketing positions in global markets.

3.1.3 Variety of Products

Varieties of fruit and vegetables available to consumers within Australia are very limited. It is cost-effective for retailers to simply offer a single or handful of varieties of a product. This has translated to producers focusing solely on productivity gains, rather than exploring what consumers want and the opportunities with offering unique product varieties. This is in stark contrast to other markets around the world. In the Japanese retail market, there are over ten varieties of strawberries for consumers to choose from. Each customer knows the flavour profile of the different varieties, as well as the flavour nuance associated with the provenance of the product, and chooses based on their preference (Gayton, 2015).

3.1.4 Specialty Produce

Specialty and niche products, sold with a price premium, were observed in markets across the globe. Organics and 'superfoods' were in particularly high demand. Specialty lines were particularly common in high income, densely populated countries, such as the USA. American growers are able to grow specialty lines in much larger volumes than growers of specialty lines in Australia, due to higher demand, making the line more commercially viable. Furthermore, unlike the duopoly driven retail system in Australia, the food supply system in the USA was observed to be decentralised and complex. The outcome of this proved to be beneficial to growers who could take advantage of different markets and supply chains (Fararci, 2014).

As an example, Watermelon Radish – a radish with a white outer and vibrant pink centre – was being sold at the Hunt's Point Produce Market in New York. This particular product was in very high demand amongst the American food service sector at the time of touring. The retailer of this particular radish was willing to pay any price to ensure supply, particularly given limitations during the American off-season (Fararci, 2014).

A niche market may exist not only for a particular product, but also the time of the year in which it can be supplied. For instance, supplying blood oranges to New York City in August would be a particularly lucrative niche market as there is no domestic supply from within the USA. The challenge for Australia is securing sufficient supply. There are only a very small number of blood orange growers in the country, with most of their crop being pre-sold. It takes many years and substantial financial investment, as well as specific knowledge to develop new and niche varieties. Growers are often nervous to invest large amounts of money and time into new orchards trees when there may be uncertainty about the security of the market.

New product development is vital when considering specialty product opportunities in international markets. Ultimately every product will become a commodity, as producers recognise opportunity and try to capitalise on a niche or specialty market (Chandler, 2014). To maintain the price premiums offered by this market trend growers must continue to innovate and seek out new opportunity.

Organically grown products were another key trend in markets across the globe. Australian producers must therefore also consider organic production, and should be supported by government and industry research to reduce the costs of organic production. In Hong Kong, organic products were readily available, largely from the USA, and were selling at the same price as Australian conventional products.

Case Study 6 | Purple Cauliflower: Exclusivity & getting a niche variety to market

Purple cauliflower is a niche variety, that offers premium returns in export markets. Standard white varieties, are deemed as 'cheap wet market lines' and are available at very low cost from other countries such as China (Ross & Ozawa, 2015). Germano Cauliflowers attained interest in purple cauliflower from several Japanese importers. This included Mr. Keisuke Miyao from Watari Co Ltd, who sought pre-cut mixed packs of white, purple and Romanesco lines; and Mr Akira Hashimoto from Anchor Corporation who hoped to buy purple cauliflower, amongst mixed speciality lines, that also included Australian Sea Asparagus, Samphire and Finger Limes (Hashimoto, 2015).

In considering these export opportunities and new product development, Germano Cauliflowers faced numerous risks. Firstly, the outlays associated with increasing plant volume are significant. Risk is also high, as importers will not order the product until it is readily available. This means there can be a significant lag in return on investment, which is troubling for small farms that rely on frequent cash receipts.

It is not viable for a business to spend time and money developing a new product if the market is not exclusive and other growers are able to capitalise on the costs incurred by the farm investing in the development. One method which protects the intellectual property of new product development is to offer exclusive marketing rights for specialty varieties. Exclusivity agreements tend to be expensive, because of the amount of time and research that contributes to developing new breeds. For example, it took Gautier Semences, the purple cauliflower breeder, more than eight years to develop the variety (Barneron, 2015). Exclusive rights to the purple cauliflower would have required the purchase of 300,000 seeds per year – a new product trial volume that is unrealistic for a small to medium sized farm (Popov, 2015).

From the perspective of the seed breeder, it is not viable to offer exclusivity to a 'small Australian grower' when volumes are tiny compared to exclusivity deals done with growers in larger markets such as the USA and Europe. Additionally, as other growers export to Asia and the Middle East, exclusivity would only be assured in the Australian domestic market.

Seeking solutions to seed volume requirements, Germano Cauliflowers contacted Woolworths Australia offering to supply the product to this retailer. 6,000 seeds were grown per week over a 12-week trial. The shelf life testing and the creation of a product code however took longer than the trial to develop, and the seasonal window was missed. Additionally, due to the Woolworths quality assurance program, Germano Cauliflowers would have needed to partner with an intermediary for packaging and distribution. This rendered the trial non-commercial, and did not create enough surety that a second trial would be worthwhile.

The downside of exclusivity and plant breeding rights or sole marketing rights, is that many growers end up growing protected varieties. Under the agreements, growers must sell the product back to the marketer of the seed, which means they do not have the flexibility to export the product. This can be illustrated by the potato industry, where the majority of growers plant restricted varieties that are sold through pack houses to Coles, Woolworths or large processors such as McCain's (Leevers, 2015). The example below describes why this can hamstring the producer's ability to export.

A trading company in Dubai was interested in importing 300 tonnes per week of Australian Russet potatoes into the UAE for processing. The venture would have been supported at a fixed price above average domestic prices. Russet is not a variety that is supplied to the major retailers, therefore no large growers produce the variety. To meet the specified quantity, a raft of small growers would have needed to collaborate, which would potentially lead to product inconsistency and poor-quality assurance. Large consignments from numerous growers often result in high freight and insurance costs; it can also be difficult to negotiate trading terms. Additionally, growers would have to change current packaging and operational procedures, all of which would be onerous if the export order did not perpetuate into the future. Ultimately, in this example, the risk was too great for small to medium producers to export and the venture proved unviable.

3.2 Supply Chain Trends

3.2.1 Retail Concepts

The retail experience has gone beyond the purchase of food. Due to the number of retailers in overseas markets, stores look to gain a competitive advantage by offering unique in-store experiences. In Dubai for example, it was observed that families would often spend an entire day at a shopping mall. Customers have therefore come to expect novelty and entertainment attached to their food purchasing experience. Retail visits in Dubai, Japan, Indonesia and New York revealed concepts such as fish being purchased from a live aquarium, goods in novelty packaging and products on the shelf with QR codes that can be scanned for a virtual interactive experience.

In-store promotion and value-adding is a common trend. For example, staff are on hand to cut a banana into a fruit salad, or mix it into a fresh smoothie in-store. This member of staff is also able to educate the consumer about the food, ultimately increasing consumption. High-end brands tend to offer samples and have a local advocate, promoting the product and raising brand awareness. Whilst an expensive operation in Australia, this person could cost a foreign retailer as little as $US4 per day (Setyono, 2015). In Indonesia, a premium-branded rockmelon grower was observed offering in-store promotion in times of oversupply, as a way to restrict supply of the product and keep price constant (Setyono, 2015). Australian producers must be aware that consumers have an expectation of promotion in-store, particularly amongst premium brands.

Building even further on this concept, many top-end retailers do not distinguish between retail and food service. During a visit to retailers in Hong Kong, it was observed that many stores offer dinning opportunities in addition to purchasing groceries. Australian growers should be aware of the services the retailers offer and consider where they can add more value. For example, spinach being sold to the retailer for cooked breakfast could be sold as second grade product at a reduced price, whereas spinach for fresh consumption could be sold on the shelf as a first-grade premium product.

Figure 6: Mr Setyono offering rockmelon in-store promotion, Jakarta, Indonesia May 2015

3.2.2 E-commerce

The rise of E-commerce has been extensive in international markets. Many suppliers are now utilising direct, online sale methods to reach their consumers, with shelf-stable products – such as the Dole Corn – being very simple to distribute via post. Online platforms facilitating the sale and delivery of fresh produce are also growing in popularity.

Fruitday is China's premium online fruit retailer, totalling around 5 per cent of the country's fresh produce distribution. In four years the platform has gained four million customers and delivers to more than 300 Chinese cities. Unlike the traditional market for fresh fruit and vegetables in China - where the most popular fruits are table grapes, bananas and apples – Fruitday's biggest selling fruits are cherries, kiwifruit and oranges. Much of their customer base is made up of young people who perceive e-commerce to be reliable and trust Fruitday to deliver lower prices, higher quality and safe food (JB, 2015). With the ability to target their customers directly, Fruitday can overcome some of the distribution challenges associated with fresh produce sales: for example, if the business imports ten containers of oranges, they can adjust their marketing plan to ensure they sell the entire consignment within the month.

E-commerce is both a challenge and opportunity for Australian growers. It provides the ability to reach millions of consumers around the world and to build direct relationships with them. Supply chain management and distribution of fresh vegetables, that have a limited shelf life, remain the greatest constraint to online sales. Solutions are also needed to improve vegetable packaging and portion sizes to ensure that the goods meet the customer's needs, whilst also being cost effective for transport. For Australian growers to capitalise on these opportunities, an accessible website and, if relevant, an e-shop, is important. Ideally this should also be coupled with appropriate marketing and social media planning.

3.2.3 Cold Chain Distribution

Many foreign markets do not have cold chain infrastructure that allows goods to be safely stored and transported. Indonesia, for example, has very limited refrigeration facilities and truck load weight is restricted to two tonnes. The impact this has on distribution is significant. Importers in Indonesia prefer small, frequent consignments because their ability to store and move the goods is limited. Ideally, they also seek mixed consignments, which means that Australian growers will likely have to partner with other growers to supply into this market.

3.2.4 Traceability

The ability to trace a product's journey through the supply chain is very important to customers in markets where food is not presumed to be safe for consumption. China's Fruitday has trialled mobile app. barcode scanning on Zespri Kiwi Fruit, which allows the customer to learn more about the product they are purchasing (Fresh Fruit Portal, 2016). It details the life of the product from the orchard to packinghouse, packinghouse to port and port to store shelf. Additionally, this technology assists in assuring customers that the product is genuine and combats counterfeits, which are very common in the Chinese market.

From an industry perspective, traceability is also very important for managing the health and safety concerns inherent in supply chain. In February 2016, Tripod Farms was forced to recall 30 of its loose-leaf salad mix lines due to salmonella contamination. The product had been distributed domestically, as well as exported to Hong Kong, Singapore and Thailand (Whitworth, 2016). The Age (2016) reported Australian trade officials were concerned about the impact of the outbreak on Australia's exports to Asia, due to a fall in consumer confidence. Despite the outbreak stemming from a single farm, the entire loose-salad leaf industry was

blemished and suffered a drop in sales domestically and internationally (Blucher, 2016). Traceability can therefore play an important role, in not only finding the cause of a contamination issue in the supply chain, but also ensuring consumers are empowered to distinguish between products, limiting any loss in confidence.

Conclusion

Export markets do exist for Australian vegetable growers. However, significant barriers at both a government and industry level continue to stifle opportunity. It is imperative that the Australian Government prioritises long-term food security strategy creating a regulatory environment that fosters ongoing investment into agriculture. The government should continue to work towards opening foreign markets and reducing barriers to trade. Industry bodies must also ensure that they are assisting growers to capture export opportunities and mitigate risks.

Australia has one of the highest costs of production in the world, predominately due to the cost of labour. This creates a challenge for margins in the domestic market as well as export markets. The high-cost environment means that Australian producers must focus on servicing the highest income consumers in each market. These products must be value-added and be backed by reputable brand perception.

To seize export opportunities and 'grow the pie', Australian growers must look at how they can become more competitive in the international market. This will involve collaborating more closely to share the burden of capital expenditure and consolidate consignments. Similarly, it will be important for Government to work alongside industry, and all industry bodies to ally, to ensure mutually beneficial outcomes for all horticulture producers.

If growers plan to export they must commit to a long-term strategy that fits within the objectives of their business. This will involve growers shifting their mindset away from supplying the domestic market – namely Coles and Woolworths – to a global outlook. In doing so, they will have to be willing to educate themselves in business-to-business service skills and invest in developing their private brands. It will also require producers to immerse themselves in different cultures to fully understand the idiosyncrasies that are unique to each individual market.

Recommendations

For the Australian vegetable industry to capitalise on export growth opportunities, Government and industry must be proactive in implementing the following recommendations:

1. Create an industry levy for investment into vegetable marketing activities, both domestically and internationally. [Section 1.4]

2. Government and industry should work together to improve the financial literacy and investment readiness of growers, to attract investment. This should include practically assisting with the preparation of financial documents and business structures; facilitating access to networks of high net worth individuals and self-managed super funds; providing interest free loans for capital investment to increase on farm productivity and export readiness; and incentivising outside investment into agriculture via taxation and economic policy measures. [Section 1.5]

3. Government and industry should develop facilities in major ports for the treatment of pests and diseases, at minimal cost to growers, to better facilitate compliance with the TBT and SPS agreements, and ensure the security of Australian export market access. For example, irradiation and microwave technology for fruit fly. These 'hubs' should incorporate value-adding infrastructure, such as processing and packaging equipment, to enable smaller growers to cost effectively meet export market specifications. This will also enable growers to undertake new product development, which is often cost prohibitive and generate better collaboration. [Section 2.2]

4. The government should facilitate faster trade negotiations, with the inclusion of strong industry representation. Government and industry should also ensure that any increase in foreign imports as a consequence of agreements be balanced by strong promotion of local products and country-of-origin labelling. [Section 2.2]

5. Government study and publish outcomes of the net benefit of incentivising the export of specific commodities, in markets where Australian producers are currently priced out of the market. Incentives should be introduced where there is a net positive outcome to GDP, unemployment rates and rural communities. [Section 2.3]

6. Government establish a federal agricultural committee that is bipartisan by nature and stretches beyond election cycles, for the purpose of recommending food security policy. [Section 2.5]

7. Industry create and maintain a centralised online database with grower information and contact details, to facilitate collaboration and export consolidation. [Section 2.6]

8. Government provide interest free loans to growers who can identify a new market opportunity for export products, where the grower can demonstrate job creation and financial sustainability. [Section 3.1.4]

References

ABARES. (2016). *Agricultural commodities: March quarter 2016,* Australian Bureau of Agricultural and Resource Economics and Sciences. Retrieved October, 2016 from http://agriculture.gov.au/abares/publications>.

Abdul Hadid Al-Hajry, M. (June, 2014). Personal communication. Widam Food, Slaughterhouse Manager. Doha, Qatar.

ABS. (2010). *Australia's Environment: Issues and Trends, Jan 2010.* Australian Bureau of Statistics. Retrieved November, 2016 from http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4613.0Feature+Article1Jan+2010.

All Fresh. (2015). Personal communication. All Fresh, Store Manager. Jakarta, Indonesia.

Ang, R. (May, 2016). Personal communication. Singaporean importer. Singapore.

ANZ. (2016). *Agriculture Australia: Funding our future*. November, 2016. Australia and New Zealand Banking Group Limited.

Asia Fruit Logistica. (September, 2014). Attendance at trade show. Hong Kong, China.

Australian Avocados. (2014) *Australian Avocados are no won TV. Love that avocado feeling.* Australian Avocados. Retrieved January, 2017 from http://australianavocados.com.au/the-daily-spread/home-entertaining/australian-avocados-are-now-tv-love-avocado-feeling.

Australian Bananas. (2017). *No-Nos vs Na-Nas.* Horticulture Innovation Australia. Retrieved January, 2017 from https://australianbananas.com.au/Pages/nutrition/no-no-vs-na-na.

AUSVEG. (a). *Cost of production for Australian vegetable grower.* AUSVEG Limited. Retrieved November, 2016 fromhttps://ausveg.com.au/app/uploads/2017/05/Costs-of-production-for-Australian-vegetable-growers-1.pdf.

AUSVEG. (b). *The national vegetable levy at work.* Project number VG15027. AUSVEG Limited. Retrieved November, 2016 from https://ausveg.com.au/app/uploads/2017/06/The-vegetable-levy-at-work.pdf.

Bennett, M. (2016). *Farming for funds: how do we pay for Australian agriculture?* Australia and New Zealand Banking Group Limited. Retrieved December, 2016 from https://bluenotes.anz.com/posts/2016/11/farming-for-funds-how-do-we-pay-for-australian-agriculture.

Blucher, A. (2016) *Salmonella outbreak: Tasmanian salad leaf grower takes financial hit despite safe product.* Retrieved November, 2016 from http://www.abc.net.au/news/2016-02-13/tasmanian-salad-grower-suffers-salmonella-fallout/7166062.

Barneron, E. (June, 2015). Personal communication. Gautier Semences, Manager. Eyragues, France.

Bulmer, B. (August, 2015). Personal communication. Bulmer Farms, Managing Director. East Gippsland, Australia.

Chandler, L. (March, 2014). Personal communication. Rabobank, General Manager Food and Agriculture Research. Canberra, Australia.

Commonwealth of Australia. (2015). *Agricultural Competitiveness White Paper.* Retrieved October, 2016 from http://agwhitepaper.agriculture.gov.au/SiteCollectionDocuments/ag-competitiveness-white-paper.pdf.

Coles Supermarkets. (2017). *Coles Nurture Fund.* Coles Supplier Portal. Retrieved January 2017 from https://www.supplierportal.coles.com.au/csp/wps/portal/web/ColesNurtureFund.

Consulting & Implementation Services. (2012). *Australian vegetable industry Strategic Investment Plan 2012-2017.* AUSVEG Limited. Retrieved November, 2016 from http://horticulture.com.au/wp-content/uploads/2016/01/HortInn-SIP-Vegetable.pdf.

Coote, M. (November, 2015). Personal communication. AUSVEG Limited, Export Manager. Sydney, Australia.

Cornell University. (July, 2014). Public Panel Discussion about Climate change hosted by Cornell University Agricultural Experiment Station. Geneva, New York.

Department of Agriculture and Water Resources. (2015). *Technical barriers to trade.* Australian Government. Retrieved January, 2017 from http://www.agriculture.gov.au/market-access-trade/tbt.

Department of Agriculture and Water Resources. (2016). *Sanitary and phytosanitary measures.* Australian Government. Retrieved January, 2017 fromhttp://www.agriculture.gov.au/market-access-trade/sps.

FAO, IFAD & WFT. (2015). *The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress.* Food and Agriculture Organisation, Rome.

Fair Work Ombudsman. (2017). *Pay calculator.* Australian Government. Retrieved July, 2017 from https://calculate.fairwork.gov.au/findyouraward.

Fararci, P. (October, 2014). Personal communication. Cooseman's Worldwide Specialty Produce. New York City, New York.

Fresh Fruit Portal. (2016) *Chinese online consumers spending less each purchase, says Fruitday chief.* Retrieved November, 2016 fromhttp://www.freshfruitportal.com/news/2016/10/17/chinese-online-consumers-spending-less-each-purchase-says-fruitday-chief/.

Gayton, J. (May, 2015). Personal communication. Victorian State Government, Export Development Manager. Tokyo, Japan.

General Secretariat for Development Planning. (2008). *Qatar National Vision 2030.* Retrieved November, 2016 fromhttp://www.mdps.gov.qa/en/qnv/Documents/QNV2030_English_v2.pdf.

Gordon, W. (May, 2013). Personal communication. Horticulture Australia Limited, Industry Services Manager. Presentation during levy payers' information conference. Sydney, Australia.

Hashimoto, A. (May, 2015). Personal communication. Anchor Corporation, Owner. Tokyo, Japan.

Hassad Food. (2015). *About us.* Retrieved November, 2016 from https://www.hassad.com.au/Aboutus/HassadFoodCompany.aspx.

Hassad Food. (2015a). *Investment approach.* Retrieved November, 2016 fromhttp://www.hassad.com/English/StrategyFocus/Pages/InvestmentStrategy.aspx.

Hassad Food. (2015b). *Our locations.* Retrieved November, 2016 fromhttp://www.hassad.com/English/Pages/default.aspx#.

Hassad Food. (2015c). *RozaHassad.* Retrieved November, 2016 fromhttp://www.hassad.com/English/Pages/Roza-Hassad.aspx.

Hassad Food. (2015d). *Hassad Australia.* Retrieved November, 2016 fromhttp://www.hassad.com/English/Pages/Hassad-Australia.aspx.

JB. (2015). Inside China's premium fruit e-tailer Fruitday. EuroFresh Distribution. No. 137. p.17.

Karami-Ruiz, A. (June, 2014). Personal communication. BIAC, Policy Manager BIAC. Paris France.

Keogh, M. *Australian Greenhouse Policy and Australian Agriculture: A discussion paper.* Australian Farm Institute. Retrieved November, 2016 fromhttp://www.rga.org.au/f.ashx/Australian-Greenhouse-Policy-and-Australian-Agriculture_A-discussion-paper.pdf.

Koval, M. (March, 2015). Personal communication. Department of Agriculture, Fisheries and Forestry, First Assistant Secretary. Canberra, Australia.

Leevers, D. (May, 2015). Personal communication. McCain's Australia, Export Manager. Seoul, South Korea.

Lubulwa, M. (2014). *Australian vegetable growing farms: an economic survey 2010-11, 2011-12 and 2012-13,* Horticulture Australia Ltd, Retrieved April, 2016 fromhttps://ausveg.com.au/app/data/technical-insights/docs/3049201_164290_VG10047%20Final%20Report%20Complete.pdf.

McAvoy, K. (2016). Ethical Sourcing: do consumers and companies really care? *Spend Matters.* Retrieved November, 2016 fromhttps://spendmatters.com/2016/02/15/ethical-sourcing-do-consumers-and-companies-really-care/.

McTaggart, D., Findlay, C. & Parkin, M. (2010).*Economics.* Pearson Australia. Frenchs Forest, Australia.

Mifsud, C. & Valle, H. (2015) *Australian Vegetable Growing Farm Businesses: an economic survey 2013-14 and 2014-15.* Australian Bureau of Agriculture and Resource Economics and Sciences. Retrieved April, 2016 from http://horticulture.com.au/wp-content/uploads/2016/12/AustVegGrwFrmEcoSurvey.pdf.

Moore, D. (June, 2015). Personal communication. Horticulture Innovation Australia, General Manager of Research and Development. Presentation during Strategic Investment Advisory Panel Session. Surfer's Paradise, Australia.

Morgan, R (2016) Retrieved November, 2016 from http://www.roymorgan.com/findings/7021-woolworths-coles-aldi-iga-supermarket-market-shares-australia-september-2016--201610241542

Pagli, R. (June, 2014). Personal communication. Packinghouse manager. Punjab, India.

Popov, K. (May, 2015). Personal communication. Lefroy Valley Seeds, Manager. Melbourne, Australia.

Reversat, L. (June, 2014). Personal communication. Farmer. Montauban, France.

Ross, P. & Ozawa, K. (May, 2015). Personal communication. Australian Embassy, Tokyo. Tokyo, Japan.

Sampson, A. (2016). Bowled over. *The Weekly Times:DecisionAg.* p.9.

Setyono, R. (May, 2015). Personal communication. Pt. Perusahaan Perkebunan Kalibendo. East Java, Indonesia.

Sheehy, M. (May, 2015). Personal communication. Nuffield Scholar. Jakarta, Indonesia.

Shields, N. (May, 2015). Personal communication. Capespan Asia, Director. Tokyo, Japan.

Simonetta, J. (August, 2015). Personal communication, via telephone. Perfection Fresh Australia, Chief Operating Officer.

Simonetta, M. (September, 2014). Personal communication. Perfection Fresh Australia, Chief Executive Officer. Hong Kong, China.

Somasundaram, O.V.R. (June, 2014). Personal communication. Coconut farmer. Coimbatore, India.

Spencer, S. & Kneebone, M. (2012). *FOODmap: An analysis of the Australian food supply chain*, Department of Agriculture, Fisheries and Forestry, Canberra.

Sputnik International. (2015). European dairy industry in crisis due to Russian food embargo. *Sputnik International.* Retrieved November, 2016 fromhttps://sputniknews.com/business/201508101025581375/.

The Age. (2016). *Tripod Farmers could have salmonella answers in days.* Retrieved November 2016, from http://www.theage.com.au/victoria/tripod-farmers-could-have-salmonella-answers-in-days-20160209-gmp5ro.html.

Veldhuizen, C. (2013). *Asian Market Insights.* Food Innovation Australia Limited. Retrieved September, 2016 fromhttps://fial.com.au/system/files/knowledge_repository/Food%20Precinct%20Asian%20Market%20Insights%20%282%29.pdf.

Voice of Horticulture. (2014). *Horticulture industry facts.* Retrieved April, 2016 fromhttp://voiceofhorticulture.org.au/resources/VOH%20Horticulture%20industry%20facts.pdf.

Whitworth, J. (2016). *Salmonella outbreak reaches 144 probable cases*. Retrieved November, 2016 from http://www.foodqualitynews.com/Food-Outbreaks/Investigations-continue-into-Tripod-Farmers-salad.

Wilcock, K. (2014). Concern about trenbolone in Australian beef. *Queensland Country Life.* Retrieved January, 2017 fromhttp://www.queenslandcountrylife.com.au/story/3577761/concern-about-trenbolone-in-australian-beef/.

Wong, H. (May, 2016). Personal communication. Singaporean importer. Singapore.

Woodley, G. (2014). *Optimum vegetable portion size to meet consumer needs.* Horticulture Innovation Australia.

Woolworths Supermarkets. (2010). *Produce Specifications.* Woolworths Supermarkets. Retrieved January, 2017 fromhttps://www.wowlink.com.au/cmgt/wcm/connect/a6b08200433d3529839d9ba521a80a40/Cauliflower.pdf?MOD=AJPERES.

WTO. (2017). *Members and Observers.* World Trade Organization. RetrievedJanuary, 2017 fromhttps://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm.

WTO. (2017a). *Principles of the trading system.* World Trade Organization. RetrievedJanuary, 2017 from https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm.

WTO. (2017b). *Understanding the WTO Agreement on Sanitary and Phytosanitary Measures.* World Trade Organization. RetrievedJanuary, 2017 fromhttps://www.wto.org/english/tratop_e/sps_e/spsund_e.htm.

WTO. (2017c). *Technical barriers to trade.* World Trade Organization. RetrievedJanuary, 2017 from https://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm.

Wu Huang, S. (2004). *Global Trade Patterns in Fruits and Vegetables.* United States Department of Agriculture, Agriculture and Trade Report Number WRS-04-06.

Plain English Compendium Summary

Project Title:	**Growing the pie: export opportunities for Australian vegetable growers**
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Objectives	To examine global fruit and vegetable market price, promotion and products; understand the limiting factors and barriers to vegetable growers accessing export markets; and exploring the capacity of Australian producers to seize export opportunities.
Background	Vegetables are Australia's largest horticulture industry, with more than 6,000 growers across the nation producing $3.6 billion annually. While the export value of Australian fresh fruit and nuts has grown significantly in recent years, fresh vegetable export levels have remained low, accounting for only $299 million annually. The Australian government is currently attempting to improve Australian market access for agricultural trade, yet only 20 per cent of Australian vegetable producers view exporting as a major growth opportunity, with more than half believing that developing export markets is too difficult and time consuming.
Research	Producers, packers, consolidators, exporters, retailers, restauranteurs and relevant government agencies and industry bodies were investigated across Australia, India, Qatar, Turkey, France, Italy, Spain, Netherlands, USA, South Korea, Japan, Indonesia, Malaysia, Singapore, Philippines, Hong Kong and United Arab Emirates. This included attendance at a number of trade shows, farm visits, retail tours and interviews with key stakeholders.
Outcomes	This study revealed that currently it is very difficult for Australian vegetable growers to compete on the global market. To realise opportunity in export markets Australian producers need to target high-end food segments by producing differentiated products built on a solid reputation for safety, integrity and quality. There are also significant structural and operating shifts that need to occur at a grower, industry and government level to make it easier for horticulture producers to export.
Implications	Growers who are willing to commit to a long-term export strategy will be able to capitalise on opportunities in the global market.
Publications	Research has been presented at: Young Agribusiness Professionals Metro Muster, 5 November, 2015; Department of Agriculture and Water Resources Staff Forum, 1 March,2016; State of Opportunity Agri-Summit, Melbourne 9 June 2016; Victorian Farmers Federation Horticulture Conference, 20 July 2016; ABARES Regional Outlook Conference, 5 October, 2016; and Horticulture Innovation Australia AGM Forum, 26 November, 2016.