

Appendix D- Market analysis & crop selection

This section provides an overview of the agricultural sector globally and locally in Australia, and the results of a detailed analysis of crop and market distribution options for horticultural production at Singleton Station.

The market analysis was undertaken by Freshlogic (www.freshlogic.com.au) to filter a number of perennial and annual crops suitable for production in the West Davenport Region of the Northern Territory. Selection criteria were applied to identify a shortlist of most suitable crops for the project. The selection criterion used included domestic and export market size, production scale impact on these markets and income generation per hectare.

The Australian domestic market will be critically important for the project, while the export market will offer significant opportunities for large volumes and price premiums.

1.1 Agriculture Global Scenario

Food and agribusiness has a significant economic, social and environmental footprint globally. The US\$5 trillion industry represents 10% of global consumer spending, 40% of employment and 30% of greenhouse-gas emissions. By 2050, it is estimated that caloric demand will increase by 70% and crop demand for both human consumption and animal feed will increase by at least 100%. Simultaneously, the emergence of resource constraints will increase. If left unaddressed, the resulting resource scarcity could lead to political unrest on a large scale.

Goedde et al. (2015) reported that food and agribusiness companies on average have higher total returns to shareholders (TRS) than many other sectors, such as energy and information technology. The food and agribusiness value chain encompasses a wide variety of companies ranging from suppliers of agricultural machinery, seeds and processed foods to data providers for precision agriculture. In order to identify investment opportunities across geography, crops and the value chain, it is critical to first analyse the major trends that will most likely influence the economics of food and agribusiness over the next decade (Goedde et al. 2015).

1. Population growth, urbanisation and increased income in emerging markets – over half of the global GDP growth comes from countries outside OECD and more than half the world's urban population is from emerging economies. The demand for food, calories, protein and processed foods in emerging markets has risen dramatically.
2. Demographic and behavioural change in mature markets – consumers from developed countries and increasingly from emerging markets are becoming more health conscious and have greater importance placed on environmental sustainability. The demand for healthier, functional foods that offer benefits beyond basic nutrition is rising. Certified and traceable foods that demonstrate corporate social responsibility (CSR) or guarantee that certain safety and environmental levels have been met are also increasingly demanded.
3. The productivity imperative – global productivity is impacted by the exhaustion of natural resources, climate volatility on crops, and the overall declining productivity gains in agriculture. These are expected to hinder growth in the global food supply, by forcing countries to produce more with less.
4. A polarized industry structure: Toward bigger and smaller – the ongoing consolidation of firms and the emergence of niche players is anticipated across the agribusiness value chain. There is also increasing vertical integration within agribusiness companies as more traders expand into production and processing, and retailers into production and sourcing of key input commodities.
5. Trade to contribute to food security – although agricultural trade is rising, protectionism remains a concern for many stakeholders. Global agricultural exports can influence world market prices and regulation. The sector continues to play an integral social and political role.

6. Big data and information – the expanded access to and sophisticated use of information will increase data availability and enhance analytical capabilities. Big data and information will play an increasingly important role in agriculture.
7. Unprecedented price swings – the continued volatility in agricultural input and output prices, are influenced by politics and technology advancements of biofuels. Factors including adverse weather, rising oil prices, export restrictions, and civil strife also influence volatility and price levels (Goedde et al. 2015).

1.2 Australian Agriculture Overview

Australia is renowned for its clean, green and safe produce. The country has a well established reputation as a leading agricultural producer and is well positioned within the growing global market. Australia has a track record of innovation and thrives in the agtech and foodtech sector. Australia also excels in research and provides an ideal test market to develop solutions that can be exported globally (Australia Trade and Investment Commission 2019).

In 2018-2019, Australian agriculture achieved value of \$62 billion, which is forecast to reach \$84 billion by 2030. The government's plan is to enable agriculture, fisheries and forestry reach \$100 billion by 2030, leaving a gap of approximately \$16 billion to achieve (National Farmers Federation 2019).

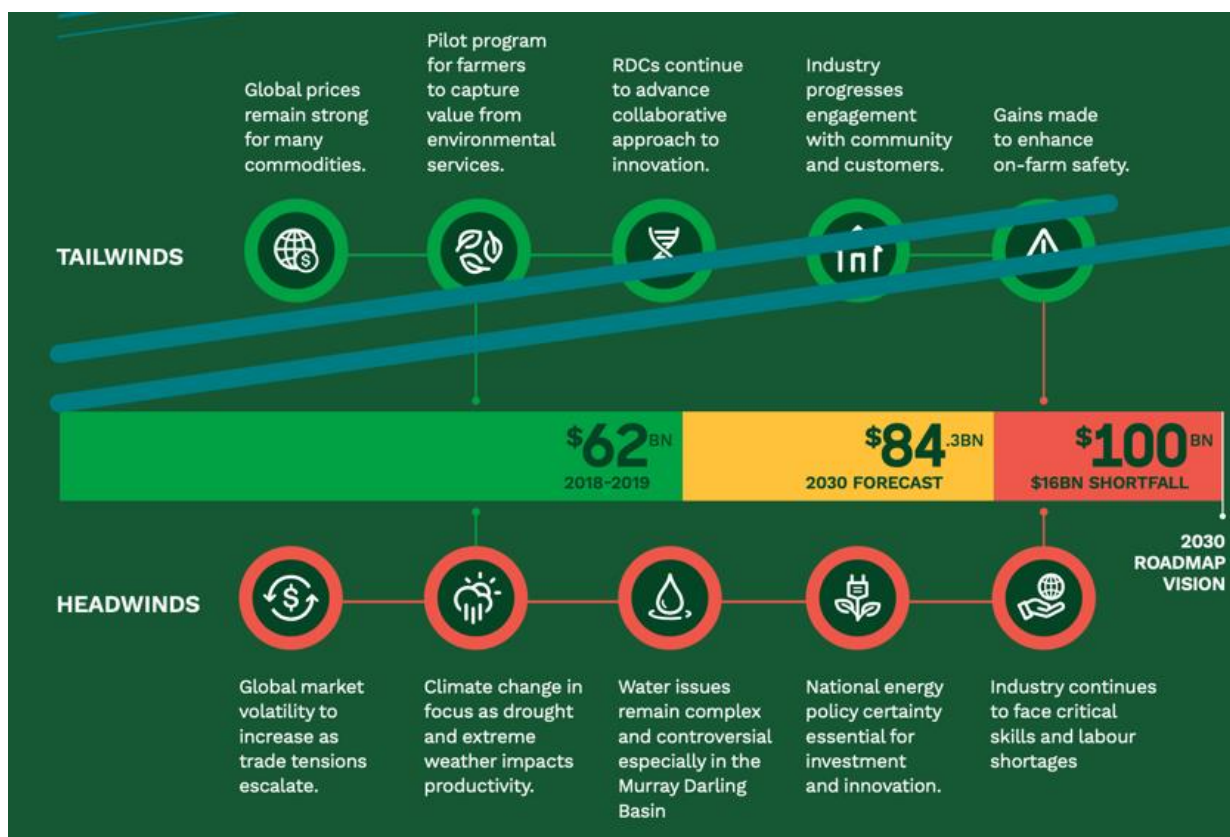


Figure 1 2030 Roadmap by National Farmers Federation (source: National Farmers Federation 2019)

Agriculture plays an integral role in the success of Australia. The Government has a commitment to strengthen the agricultural sector and ensure it continues to remain competitive within the global market. The Australian agriculture sector has world-class food safety and environmental credentials and possesses modern technology. The sector yields strong economic returns and employs skilled labour. In 2015, the Australian Government released the Agricultural Competitiveness White Paper, committing \$4 billion investment in farmers to build a more profitable, resilient and sustainable agriculture sector, including investments in infrastructure, improve international trade, R&D, better regulation and tax system as well as strengthening the approach to drought (Australian Government n.d.).

Agriculture has always played an important role in the success of the nation. The Government is committed to strengthening the sector and ensuring it remains as competitive as possible. The agriculture sector has world-class food safety and environmental credentials, possesses modern technology, has strong

economic returns and employs skilled labour. In 2015 The Australian Government released the Agricultural Competitiveness White Paper, committing \$4 billion investment in farmers to build a more profitable, more resilient and more sustainable agriculture sector. There were five priority areas outlined for action including investments in infrastructure, improve international trade, R&D, better regulation and tax system as well as strengthening the approach to drought.

1.3 Australian Horticulture Overview

The Australian horticultural industry operates in a highly competitive domestic and international market, is labour intensive and is mostly seasonal dependent. Australia's reputation as a sustainable producer of premium safe produce is primarily driven by the high standards set across all stages of the supply chain from farm to consumers. Although the industry mainly comprises of small-scale family farms, a growing trend towards medium to large scale operations is evident. Australian farmers are constantly adjusting farm operations and adopting new innovations and technologies to respond to emerging opportunities and challenges of agricultural production such as market price pressures, adverse seasonal conditions and increased competition from imported fresh and processed produce (DAWE 2019).

For the year ending June 2019 Australian horticulture (excluding wine grapes) had farm gate value of \$14.37 billion. The major product groups had the following gross value of production in 2018-2019 (Hort Innovation 2020):

- Fruit: \$5.53 billion
- Nuts: \$1.16 billion
- Vegetables: \$4.72 billion
- Nursery, cut flowers and cultivated turf: \$2.96 billion

The major horticulture growing areas in Australia include (DAWE 2019):

- Goulburn Valley of Victoria
- Murrumbidgee Irrigation Area of New South Wales
- Sunraysia district of Victoria and New South Wales
- Riverland region of South Australia
- Northern Tasmania
- Southwest Western Australia and
- The coastal strip of both northern New South Wales and Queensland.

1.4 Trade analysis

Current trade analysis

Australia is in ideal position and is well connected within the growing global market, Australia has established trade channels and free trade agreements, and exports two-thirds of its agricultural production. Australia's top 10 agricultural export markets in order of export value are, China, Japan, USA, Indonesia, South Korea, India, Vietnam, New Zealand, Hong Kong and Singapore (Australia Trade and Investment Commission 2019).

In the past 20 years to 2018-19, the value of Australian horticultural exports grew rapidly, an increase of almost 3% per annum on average to \$3.4 billion. In 2018-19, Australia exported horticultural products to more than 30 countries, within that 14 were in Asia (Robertson and Eather 2020). The largest export region is Asia (68%), followed by Europe (13%), Middle East (9%), New Zealand (5%), North America(4%) and Africa (<1%). By states, Victoria contributed 46% of total export value, while Northern Territory currently accounted for 1% of horticulture export, indicating great growth potential in the region (Hort Innovation 2020)

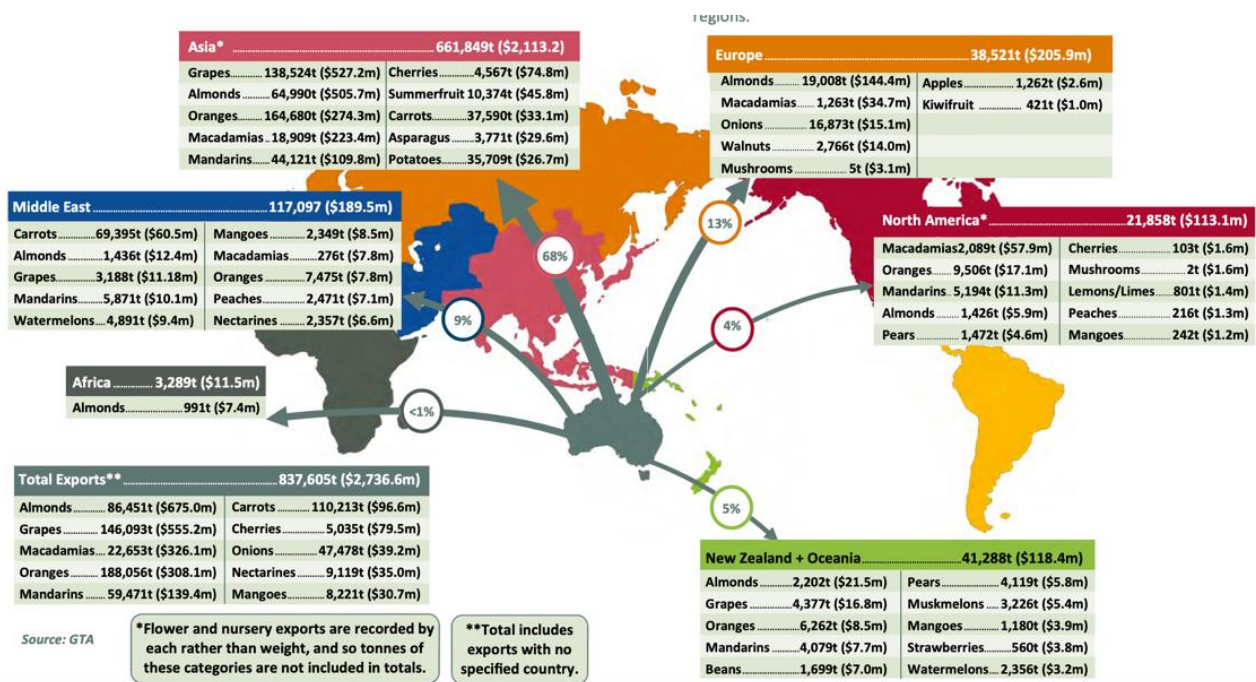


Figure 2 Exports of fresh horticultural products by region (source: Hort Innovation 2020)

Free trade agreements

By 2060, over one billion people will shift into the middle classes in the developing Asia region alone (Hajkowicz & Eady forthcoming). Future growth in global demand presents a significant opportunity for Australian agriculture, as populations and incomes increase in developing countries (Gray, Oss-Emer & Sheng 2014). Australia currently feeds around 60 million people globally each year (PMSEIC 2010). Australia produces far more food and fibre than can be consumed here in Australia.

The Government aims to help open more international markets and enable exporters to sell their products overseas. This includes working to remove unnecessary barriers to trade including high customs duties (tariffs), subsidies and taxes, and fees on local and international transactions.

The Government can help by working closely with industry to negotiate the best possible commercial deal in bilateral and regional free trade agreements (FTAs). FTAs with Japan and the Republic of Korea have now entered into force, and Australia has signed FTAs with China and Indonesia. Building on the gains from these free trade agreements, the Government is negotiating trade agreements with other major trading partners, including India, and in our region, through the Trans-Pacific Partnership and the Regional Closer Economic Partnership Agreement (DFAT 2020). The Government will also remain active in the World Trade Organization to reform global agriculture trade rules and to reduce unfair subsidies provided to producers in other countries.

Australia's successful negotiations with partner countries has enhanced the country's market access for horticultural exports. The terms of agreements generally include agreed tariff reductions and protocols that set out the phytosanitary conditions that governs how products may enter a given market. Although there are potential compliance costs incurred by exporters, the protocols have enabled Australian producers to export a wider variety of products to expanded markets (Robertson and Eather 2020).

Australia Target Export Markets (ATEM) and Market Access

A group of countries has been defined as Australian target export markets (ATEM) and applied to assess the export opportunities in our market analysis. They are China, Cambodia, India, Indonesia, Hong Kong, Japan, South Korea, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Thailand & Vietnam. Hong Kong, Malaysia, Myanmar, Philippines, Singapore, Taiwan and Vietnam are protocol free countries for fresh produce from Australia. Market access to the ATEM countries by the crops that could be grown in the Western Davenport Region are shown in the table below.

Table 1 Protocols by country and crop

	Crops	Australia Target Export Markets (ATEM)												
		China	India	Indonesia	Hong Kong	Japan	Malaysia	Myanmar	New Zealand	Philippines	Singapore	South Korea	Taiwan	Thailand
1	Mandarin	√	√	√	√	√	√	√	√	√	√	√	√	√
2	Onions	x	√	√	√	x	√	√	√	√	√	√	√	x
3	Pistachios	x	√	√	√	√	√	√	√	√	√	√	√	√
4	Table Grapes	√	√	√	√	√	√	√	√	√	√	√	√	√
5	Oranges	√	√	√	√	√	√	√	√	√	√	√	√	√
6	Jujube	x	√	√	√	√	√	√	√	√	√	√	√	√
7	Avocado	x	x	√	√	√	√	√	√	√	x	x	√	x
8	Sesame Seed	x	x	x	√	x	√	√	√	√	√	√	√	√
9	Hay	√	√	√	√	√	√	√	√	√	√	√	√	√
10	Pumpkins	x	x	√	√	X	√	√	√	√	√	√	√	√
11	Mangos	√	x	√	√	√	√	√	√	√	√	x	x	x
12	LCh Stonefruit	√	x	√	√	√	√	X	√	√	√	√	√	x
13	Melon	x	x	√	√	x	√	√	√	√	√	√	√	√
14	Head Lettuce	√	x	√	√	x	√	√	√	√	√	√	√	√
15	Dried Grapes	√	x	√	√	√	√	√	√	√	√	√	√	√

1.5 Crop selection

Central Australia has great potential in horticulture due to a unique combination of sunshine, low humidity, cool winter temperatures and freedom from most pests and diseases.¹

There is a variety of crops that have been commercially planted in the Western Davenport Region. This section develops and applies crop selection criteria to identify crops that are deemed viable to produce and distribute from this location. A fuller more detailed analysis is then applied to the short list of crop options to better understand the target market size, level of distribution risk and provide the basis for financial forecasting.

Selection methodology

Based on the list of crops that could be grown in the Western Davenport Region, a shortlist of 12 crop options was identified as either being produced in the area or with potential. A set of assessment criteria were applied to crops as it brought a level of objectivity to the screening and selection. The criteria developed, and a relative value assigned, are as follows:

¹ https://dpir.nt.gov.au/data/assets/pdf_file/0007/426994/Invest-in-the-NT-June-2018-web-002.pdf

Table 2 Crop selection criteria and values

Crop selection criteria	Rating	Value
1. Can be grown in Western Davenport Region?	Filter	Y/N
2. Maturity to Harvest	Low	4
3. Labour requirements / Automation potential	Mid	5
4. Value adding potential	Low	4
5. Export potential	High	9
6. Domestic market volume fit	High	9
7. Need for additional facilities	Mid	5
8. Logistical risk	High	8
9. Advantageous seasonal window	High	9

Each crop was then rated out of 10 on each criteria and earned points through the equation of (Rating out of 10 X Value of component).

After the criteria were applied the following analyses was undertaken to guide the crop selection:

- Screening by the mid-point attractiveness score.
- Screening by domestic market size of >50,000 tonnes.
- Screening by domestic market impact from a 400 Ha planting.
- Screening at \$20,000 income per Ha at maturity.

Crop Attractiveness Assessment

Based on the screening criteria summarised above, the crops that warrant more detailed analysis were Mandarin, Table Grapes, Dried Grapes, Avocado, Onions, Rockmelon and Jujube.

Table 3 Score of crop attractiveness

	Crops	Attractiveness Score	Annual wholesale \$ at maturity per Ha	Domestic Fresh Market Volume (t)
1	Mandarin	33.9	92,800	96,206
2	Onions	32.5	47,040	209,075
3	Pistachios	32.3	15,441	4,479
4	Table Grapes	32.1	72,364	83,450
5	Oranges	31.7	56,350	140,784
6	Jujube	30.7	62,500	800
7	Dried Grapes	30	24,000	15,000
8	Avocado	27.7	86,155	86,155
9	Sesame Seed	26.5	3,225	5,300
10	Muskmelon	25.5	31,484	29,463
11	Hay (Fodder)	25.3	6,750	100,000
12	Pumpkins	25.1	14,811	113,777
13	Mangos	23	73,920	70,548
14	Stonefruit	22.2	14,000	15,000
15	Watermelon	21.1	29,432	162,683
16	Head Lettuce	21	23,290	138,471



Figure 3 Screening of crops

Priority Crop Analysis

Based on the screening criteria summarised on previous pages, the crops that warrant more detailed analysis are Mandarin, Table Grapes, Dried Grapes, Muskmelons, Onions and Hay/Fodder. Avocado and Jujube are identified as stage 2 crops that require further production validation. More detail for each crop follows.


	<p>Mandarin Scored high in advantageous seasonal window and high export potential, Mandarin are a mature high- volume export crop with scope for further export growth.</p>
<p>Production and domestic market</p>	<p>The domestic market distributed 95,962 tonnes of Mandarins in 2018 and has generated a volume CAGR of 8.4% over the last 5 years. The wholesale value of the volume supplied to the domestic market was \$231.3m in 2018 and has generated a value CAGR of 7.8% over the 5-year period. This reflects a small \$/kg reduction over the 5 years.</p>
<p>Export markets</p>	<p>Mandarins have enjoyed strong export market development over the past five years, with the percentage of Australian production destined for exports lifting from 29.9% in 2014 to 36% in 2018. The Australian export growth over this five-year period has increased from 29,742 to 55,348 tonnes, experiencing a volume CAGR of 13.3% and a value CAGR of 18.4%.</p> <p>The major destinations for Australian mandarin exports in CY 2018 by value were China 32%, Thailand 16% and Hong Kong 13%.</p> <p>When compared to the top 5 exporters into the ATEM in CY 2018 Australia's achieves a premium of CIF price at \$2.78 per kg, when compared to China's \$1.59 and South Africa's \$1.66, indicating that Australia is acknowledged as an exporter of higher value product.</p> <p>The annual average price per kg into the ATEM for the last five-year has ranged from \$1.79 in 2015 to \$2.40 in 2018. The five-year average export price into ATEM is \$2.10 (FOB).</p>
<p>Apparent opportunities</p>	<p>To take advantage of the export market demand for Australian mandarins and the multi-country access arrangements already in place.</p>
<p>Key risks</p>	<p>Increasing competition in supplying the export target markets from low cost countries (e.g. South America, South Africa) could reduce overall export \$/kg. Excess volume flowing into the domestic market that could result in supply pressure and downward pressure on prices.</p>



Table Grapes

Scored high in advantageous seasonal window and high export potential, Table Grapes are a mature high-volume export crop with scope for further export growth.


Production and domestic market	<p>The domestic market distributed 69,699 tonnes of Table Grapes in 2018 and has generated a CAGR of -5.2% over the last 5 years. The wholesale value of the volume supplied to the fresh market was \$281.3m in 2018 and has generated a CAGR of -.04% over the 5-year period.</p> <p>The majority of the crop being exported. Less than 40% to be distributed into the domestic retail and food service channels.</p>
Export markets	<p>Table Grapes are the largest Australian fresh fruit export category and one of a few select categories where higher volumes are exported than sold domestically. Table Grapes are consumed as a fresh fruit snack and solid demand is reflected in their being one of the highest traded volumes of fresh fruit globally.</p> <p>Australian table grape exports have increased over this 5-year period from 80,065 to 110,087 tonnes in 2018 and generated a volume CAGR of 6.6% and a value CAGR of 11.0%. This reflects an increase in \$/kg over the 5 years.</p> <p>The major destinations for Australian exports in CY 2018 by value were China 38%, Indonesia 15%, Japan 10% and Hong Kong 7%.</p> <p>When compared to the top 5 exporters into the ATEM in CY 2018, Australia achieves a price premium with a CIF price of \$3.88 per kg, favourable compared to Chile's \$2.95, Peru's \$3.14 and the United States' \$3.62.</p> <p>The annual average price per kg into the ATEM for the last five-year has ranged from \$2.88 in 2014 to \$3.53 in 2017. The five-year average export price into the ATEM is \$3.23 (FOB).</p>
Apparent opportunities	To supply the current Australian export markets with timing and product quality that complements current exports.
Key risks	Inability to produce in a seasonal window that is welcomed by existing Australian table grape export markets.



Dried Grapes


Sunbeam Foods Pty Ltd is looking to secure long term supply of dried grapes for its processing plant in Mildura
Main varieties for dried grapes include sultanas, currants and raisins.


Production and domestic market	<p>Grapes grown for drying are predominately grown in Victoria and New South Wales with Sunraysia being the major producing area.</p> <p>68,616 tonnes of fresh grapes were produced for drying, which after drying accounted for 15,248 tonnes of dried grapes, of which 65% supply domestic markets and 35% export.</p> <table border="1"> <thead> <tr> <th rowspan="2">Year Ending June</th> <th colspan="2">2017</th> <th colspan="2">2018</th> <th colspan="2">2019</th> </tr> <tr> <th>Value</th> <th>Value</th> <th>% YoY</th> <th>Value</th> <th>% YoY</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Dried Production (t)</td> <td>15,000</td> <td>16,953</td> <td>+13%</td> <td>15,248</td> <td>-10%</td> <td></td> </tr> <tr> <td>Production (\$m)</td> <td>\$ 27.0</td> <td>\$ 30.6</td> <td>+13%</td> <td>\$ 29.2</td> <td>-4%</td> <td></td> </tr> <tr> <td>Production area (Ha)</td> <td>-</td> <td>3,840</td> <td>-</td> <td>3,774</td> <td>-2%</td> <td></td> </tr> <tr> <td>Dried Export Volume (t)</td> <td>4,484</td> <td>4,553</td> <td>+2%</td> <td>5,368</td> <td>+18%</td> <td></td> </tr> <tr> <td>Dried Export Value (\$m)</td> <td>\$ 18.7</td> <td>\$ 19.8</td> <td>+6%</td> <td>\$ 25.1</td> <td>+27%</td> <td></td> </tr> <tr> <td>Dried Import Volume (t)</td> <td>21,940</td> <td>22,189</td> <td>+1%</td> <td>20,817</td> <td>-6%</td> <td></td> </tr> <tr> <td>Dried Import Value (\$m)</td> <td>\$ 46.6</td> <td>\$ 43.7</td> <td>-6%</td> <td>\$ 55.3</td> <td>+26%</td> <td></td> </tr> <tr> <td>Dried Supply (t)</td> <td>32,456</td> <td>34,589</td> <td>+7%</td> <td>30,696</td> <td>-11%</td> <td></td> </tr> <tr> <td>Dried Supply Wholesale Value (\$m)</td> <td>\$ 92.0</td> <td>\$ 91.0</td> <td>-1%</td> <td>\$ 109.1</td> <td>+20%</td> <td></td> </tr> <tr> <td>Supply per Capita (kg)</td> <td>1.32</td> <td>1.39</td> <td>+5%</td> <td>1.22</td> <td>-12%</td> <td></td> </tr> </tbody> </table> <p><i>Sources: AC; CFVIWA; DFA; GTA; MP & DD (Freshlogic Analysis)</i></p>	Year Ending June	2017		2018		2019		Value	Value	% YoY	Value	% YoY	Value	Dried Production (t)	15,000	16,953	+13%	15,248	-10%		Production (\$m)	\$ 27.0	\$ 30.6	+13%	\$ 29.2	-4%		Production area (Ha)	-	3,840	-	3,774	-2%		Dried Export Volume (t)	4,484	4,553	+2%	5,368	+18%		Dried Export Value (\$m)	\$ 18.7	\$ 19.8	+6%	\$ 25.1	+27%		Dried Import Volume (t)	21,940	22,189	+1%	20,817	-6%		Dried Import Value (\$m)	\$ 46.6	\$ 43.7	-6%	\$ 55.3	+26%		Dried Supply (t)	32,456	34,589	+7%	30,696	-11%		Dried Supply Wholesale Value (\$m)	\$ 92.0	\$ 91.0	-1%	\$ 109.1	+20%		Supply per Capita (kg)	1.32	1.39	+5%	1.22	-12%	
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Export markets	Key processors export to a range of key destinations in both Europe and SE Asia, with demand increasing																																																																																			
Apparent opportunities	To be a key and major supplier with alignment to one of Australia's major dried fruit processors, packers and exporters, already with established international value added brands. HoA already in place for Singleton with a major processor and exporter																																																																																			
Key risks	Low cost supplier countries expanding quality product range to compete with Australia																																																																																			

	<p>Hay/Fodder Score relatively high in low logistic risk and automation production, Hay is selected as good alternative cash crop. Hay fits into most of the accepted cropping rotations and helps reduce weed seed banks, overcomes herbicide resistance and provides a break from traditional chemical regimes.</p>
<p>Production and domestic market</p>	<p>The Hay/Fodder market has been highly volatile over the past five years. Varying rainfall has presented some challenges to industry operators but overall, weather conditions have positively affected the industry. Severe drought in New South Wales and parts of Queensland and South Australia created a surge in demand for hay as pasture conditions in these regions deteriorated. Many producers could not keep pace with rapidly increasing demand, resulting in hay shortages that pushed up prices. Hay prices in many regions reached 50-year highs over the three years through 2018-19. However, industry revenue declined in 2017-18 due to a significant decrease in output.</p>
<p>Export markets</p>	<p>\$212 million industry exports by 2020. Export destinations have shifted over the past five years. Japan is the primary destination, followed by US, Saudi Arabia, and New Zealand.</p> <p>Although Australian hay has a positive reputation for quality, strong domestic demand has discouraged industry producers from selling to export markets over the past five years.</p>
<p>Apparent opportunities</p>	<p>Establishment of export markets: growers that can achieve higher crop quality may gain access to growing export markets, which can significantly boost revenue.</p> <p>Economies of scale: hay growers with economies of scale have lower production costs and are therefore more profitable.</p> <p>Output is sold under contract – incorporate long-term sales contracts: industry farmers that have supply contracts in place with wholesalers or processors can sell crops at predetermined price during low quality or low – yield harvest seasons.</p>
<p>Key risks</p>	<p>Weather dependent Downstream demand</p>

	<p>Muskmelons (Rockmelon) Scored high in maturity time and moderate in export potential, Muskmelons are a modest volume export crop with scope for export growth in a “mini-melon” size.</p>
<p>Production and domestic market</p>	<p>Muskmelons, which include Rockmelons and Honeydew, In 2018, 43,233 tonnes were produced, which was a 35% reduction on the average for the previous 4 years of 67,750 tonnes. A significant 12,923 tonnes or 30% of 2018 production was exported.</p> <p>The retail and foodservice channels in the domestic market distributed 29,463 tonnes in CY 2018 and an average 45,000 tonnes per annum for the previous 4 years.</p>
<p>Export markets</p>	<p>Australian total exports of muskmelons to all destinations have averaged 12,975 tonnes over the last 5 years and generated a volume CAGR of 5.8%.</p> <p>The major destinations for Australian Muskmelons into the AU target markets by volume were Singapore 48%, New Zealand 30% and Hong Kong 10%.</p> <p>Australian exports are a material 11% portion of the 88,338 tonnes exported into AU export target markets in 2018. The supply into these markets is dominated by China, Mexico, Malaysia, Australia and US, who combined to supply over 88% of the annual volume in 2018.</p> <p>Australia product receives a price premium in the ATEM compared to other top exporters, with an average price of \$1.96 per kg in CY 2018 at CIF value. Prices for top exports vary significantly ranging from \$0.66 from Malaysia and \$1.17 from Mexico to \$1.85 from China.</p> <p>The annual average price per kg into the ATEM for the last five-year has ranged from \$1.42 in 2014 to \$1.66 in 2017. The five-year average export price into the ATEM is \$1.56 (FOB).</p> <p>Australia does not have the scale to dominate the supply of Muskmelons into these markets, so the targeted servicing of niche markets becomes the default and appropriate approach.</p>
<p>Apparent opportunities</p>	<p>To Service the export market with a smaller higher value mini melon that is positioned to “sell by the each”.</p>

	<p>Muskmelons (Rockmelon) Scored high in maturity time and moderate in export potential, Muskmelons are a modest volume export crop with scope for export growth in a “mini-melon” size.</p>
<p>Key risks</p>	<p>Exposure to the open market pricing of Singapore & Hong Kong. The impact of additional supply volumes flowing into the domestic market is expected to have an adverse impact on wholesale price.</p>

	<p>Onions Scored high in export potential and low logistical risk, Onion is a mature low growth category with a solid domestic market demand generating a 5-year volume CAGR of 2.4%.</p>
<p>Production and domestic market</p>	<p>The domestic market distributed 259,430 tonnes of Onions in 2018 and has generated a modest CAGR of 1.7% over the last 5 years. The wholesale value of the volume supplied to the fresh market was \$183m in 2018 and has generated a CAGR of 3.3% over the 5-year period.</p>
<p>Export markets</p>	<p>Australian exports have decreased over this 5-year period from 40,750 tonnes to 32,589 tonnes in 2018, or 12.8% of total Australian production. Exports fell to a low of 26,051 tonnes in 2017, before increasing to 32,589 in 2018, suggesting a return to normal export activity. The major destinations for Australian exports were Taiwan 16%, Japan 11%, the United Arab Emirates 9% and Thailand 9%. The supply into these ATEM is dominated by China, India and Netherlands, who combined to supply 87% of the annual volume in CY 2018. Compared to top exports, Australian product generates a price premium, with an export price of \$0.97 per kg at a CIF value, compared to an India’s low \$0.39, and the \$0.79 China achieves for its category dominating volume. Australia supplied a minor 13,810 tonnes, 0.9% of the ATEM for CY 2018. Over this period 50% of AU exports went to EU markets. Onion demand in these markets is stable on a by-month basis, indicating low dependence on a specific supply window.</p>
<p>Apparent opportunities</p>	<p>To supply export ATEM markets in an arrangement with existing Onion exporters. The current export proportion of supply from each state is Tas 45%, WA 28% & SA 27%.</p>
<p>Key risks</p>	<p>Inability to strike an arrangement with the major exporters of onions, especially given that only 32,589 tonnes were exported out of Australia in CY2018. Production flows into the domestic market cause supply pressure that lowers prices to unviable levels.</p>

	<p>Avocado Scored high in advantageous seasonal window and low logistical risk, Avocado is a high value domestic crop with scope for import substitution and export growth.</p>
<p>Production and domestic market</p>	<p>The domestic market distributed 93,728 tonnes of Avocados in 2018 and has generated a CAGR of 6.0% over the last 5 years. The wholesale value of the volume supplied to the fresh market was \$607m in 2018 and has generated a CAGR of 9.6% over the 5 year period. Retail channel dominates distribution taking the 71% of the volume in 2018. The growth of food service channel over this same period has been significant, lifting from 12% to 21% volume share of fresh market volume.</p>
<p>Export markets</p>	<p>Australian exports have increased over this 5 year period from 1,210 tonnes to 4,335 tonnes in 2019, or >4% of total Australian production The major destinations for these Australian exports were Malaysia, Singapore and Hong Kong. This supply is dominated by the Central and South American producers, Mexico, US, Peru & Chile who supplied over 95% of the annual volume in 2018. Over this period Australia supplied 1.5% of the total volume to these AETM.</p>

	<p>Avocado Scored high in advantageous seasonal window and low logistical risk, Avocado is a high value domestic crop with scope for import substitution and export growth.</p>
	<p>The average price of the top exporters is significantly lower than Australia's, with Mexico, Peru & Chile achieving a CIF per kg price of \$4.02, \$3.78 and \$3.52 respectively in CY 2018. Australia's 2018 price at CIF level was \$6.80 (\$5.89 in 2019), which is a premium to the comparable New Zealand product.</p> <p>Australia does not have the scale to dominate supply into these markets so the targeted servicing of niche markets becomes the default and appropriate approach.</p>
<p>Apparent opportunities</p>	<p>Supplying early (Aust) fruit at the end of the NZ season, Jan – Mar.</p> <p>To supply into the target export markets and take leverage off the AU industry resources investments, albeit at a gentle pace, in further market development.</p>
<p>Key risks</p>	<p>Being able to grow variety of Avocados can be produced at Singleton station to deliver a harvest window that follows the NZ window.</p> <p>That export market growth can be delivered.</p>

	<p>Jujube /Dates Scored high in advantageous seasonal window, low logistical risk and high export potential, Jujube is a crop grown in rapidly expanding plantings in China that invites counter seasonal southern hemisphere production are a versatile date like fruit that can be consumed in a fresh, dried or candied form.</p>
<p>Production and domestic market</p>	<p>Jujubes are a relatively new crop in Australia but are showing great potential to be a profitable and sustainable industry. Western Australia is currently leading jujube production in Australia with around 40 growers with an estimated 12,500 trees on 20 ha, producing around 25 tonnes of fresh fruit in 2014.</p>
<p>Export markets</p>	<p>The quality of export produce is generally higher than that for the other markets. Export sales will be targeted to Singapore, China and the UAE.</p> <p>The net price is estimated to be \$4.58 for export, \$5.63 for domestic Grade 1 and \$2.93 for domestic grade 2.</p>
<p>Apparent opportunities</p>	<p>Counter seasonal supply into the northern hemisphere markets, especially China, that have experienced consumption developed by expanded plantings in recent years. Jujube is also considered to be in high demand during festivals in January and February, when only southern hemisphere producers are able to supply fresh fruit.</p> <p>Capturing development leverage from research investments and recent advances.</p> <p>China has generated improved varieties and propagation techniques.</p> <p>WA Agriculture and the Jujube Australia have developed a series of grower guides and assessed which Chinese varieties are best suited to Australian conditions.</p>
<p>Key risks</p>	<p>Confirming that production is viable at the Singleton location, which is expected to be directly influenced by climate.</p> <p>That access to export markets, especially China is available when any larger volume is produced, as domestic markets are too small to cope with substantial volume.</p>

1.6 Distribution Options

The cost and functional responsibility that flows from the various distribution options is profiled below in Figure 4. The percentages listed under each stage are the indicative gross margins earned and expressed as a percentage of the selling price from that stage of the supply chain. The Distribution to consumer is set at 35% with the balance available to Production and Wholesaling. The production income in all models is the residual left after the costs of other stages.

Model A is the conventional fresh fruit & vegetable wholesale distribution model, with wholesale margins that are 15%. Model B reflects the intermediary acting as broker at 5% margin and more functions being managed by an expanded production set up. Model C reflects an expanded wholesaling function into a

wider management role and all logistical functions. The core functions that can be managed by different stages are CRM, Packing & Packaging, Road Transport, Air & Sea Transport and Ripening.

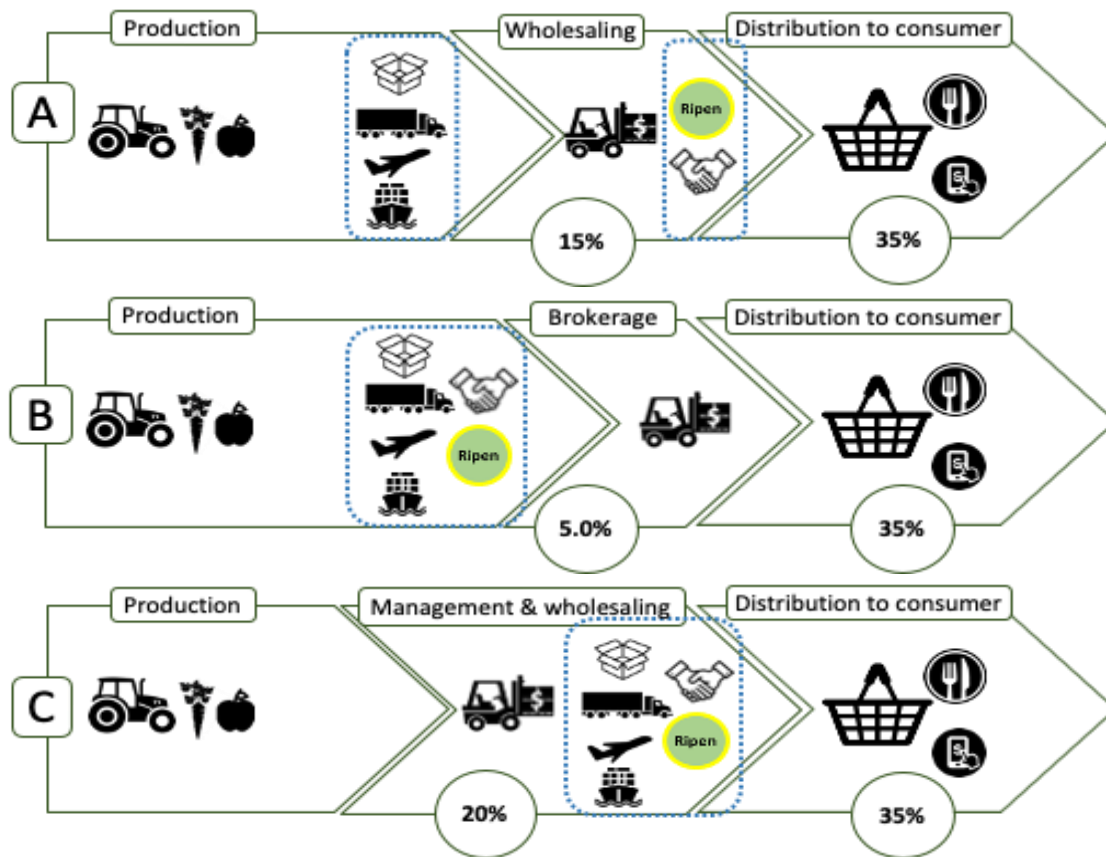


Figure 4 Distribution options (FreshLogic)

Preferred Option

The preferred option is to put in place an on-farm sales support resource to manage packaging, storage, loading and delivery to the farm gate. Intermediaries will be used to manage in-market logistic and price setting, and service key accounts including direct supermarket supply. FAFM will maintain direct “top to top” relationships with Tier 1 clients. Option B shown in Figure 4 reflects this model.

1.7 Long Term Supply Agreements

To market and distribute produce from Singleton Horticulture Project, FAFM has already negotiated Heads of Agreement with major produce distributors for more land 70% of the anticipated production.

