



# Evaluation of the potential to expand horticultural industries in Northern Australia

## CRCNA Project International Field Study Report – Singapore

Dr Shoufeng Cao

A/Prof Damian Hine

Professor Robert Henry

Professor Neena Mitter

## CRCNA Project International Field Study Report – Singapore Chapter

### Contents

<b>Background and purpose of the international information gathering visit .....</b>	<b>1</b>
<b>Desktop research leading to the international visit .....</b>	<b>1</b>
<b>The Singapore field study.....</b>	<b>1</b>
Companies visited .....	1
Cold Storage, Fair Price Finest .....	1
General insights .....	2
<b>1. Market insights for imported fruit .....</b>	<b>2</b>
1.1 Import regulation .....	2
1.2 Singapore mango, avocado and lychee markets .....	2
1.2.1 Mango markets .....	2
1.2.2 Avocado markets .....	3
1.2.3 Lychee markets .....	4
1.3 Market positioning for Australian mangoes, avocados and lychees .....	5
1.4 Market preference .....	8
1.4.1 Preference for Australian mangoes .....	8
1.4.2 Preference for Australian avocados .....	9
1.4.3 Preference for Australian lychees .....	9
1.5 Challenges in sales of Australian mangoes, avocados and lychees .....	10
<b>2. Supply chain strategic orientation.....</b>	<b>11</b>
2.1 Overseas farm acquisition .....	11
2.2 Sourcing strategies .....	11
2.3 Modes of transport .....	12
2.4 Fruit storage and sales .....	13
2.5 Sales channel preference .....	15
<b>3. Supply chain operations .....</b>	<b>15</b>
3.1 Modes of procurement .....	15
3.2 Import and procurement challenges .....	16
3.3 Entry channels for Australian mangoes, avocados and lychees .....	17
3.4 Distribution channel .....	17
3.5 Sales region .....	18
<b>4. Channel positioning .....</b>	<b>18</b>
4.1 Supply chain structure .....	18
4.2 Retailing channels .....	19
<b>5. Benchmarking analysis.....</b>	<b>21</b>
5.1 Supply seasonality .....	21
5.1.1 Mango supply seasonality .....	21
5.1.2 Avocado supply seasonality .....	22
5.1.1 Lychee supply seasonality .....	22
5.2 Supply chain performance .....	23
5.2.1 Strategic performance .....	23
5.2.2 Operational performance .....	24



5.3 Market performance.....	<b>Error! Bookmark not defined.</b>
5.3.1 Mango market performance .....	<b>Error! Bookmark not defined.</b>
5.3.2 Avocado market performance .....	<b>Error! Bookmark not defined.</b>
5.3.3 Lychee market performance.....	<b>Error! Bookmark not defined.</b>
<b>6. Reference models for Australian exporters.....</b>	<b>25</b>
<b>7. Development strategies for Northern Australia’s fruit industry .....</b>	<b>27</b>
<b>8. Summary .....</b>	<b>28</b>
<b>References .....</b>	<b>30</b>

## Background and purpose of the international information gathering visit

The CRCNA project is designed to identify the optimal development strategies for three fruit industries in Northern Australia. The avocado and mango industries are well established in Australia, while the lychee industry is still emerging with a foothold in international markets.

Singapore operates under a free market without any tariff or quota on agricultural imports. It thus provides access to fruit imports worldwide (Kwek, 2019). Because it is a hub and major trans-shipment centre for much of the Southeast Asian region and the Indian subcontinent (ITA, 2018), Singapore re-exports around 60 to 75 per cent of the commodities imported from other countries (Kwek, 2018). Given that Singapore has a close trading relationship with Australia, it has become a major export destination for a wide range of Australian produce (Prowse, 2018).

Since Singapore does not impose any trade barrier on Australian fresh fruit, the export growth is highly dependent on the efficiency of the supply chain rather than regulations. Singapore has become the second largest destination for Australian avocados and mangoes with export volume at 668 tonnes and 1759 tonnes in 2018 (The Australian Horticulture Statistics Handbook, 2017/18). Meanwhile, a small volume of Australian lychees, ranging from 13 tonnes to 26 tonnes has been imported into Singapore from 2013 to 2017 (Trade Maps, 2018).

This field study has been conducted in Singapore with the following three aims:

- (i) Provide market insights on imports of mangoes, avocados and lychees in the Singapore markets, which support Australian suppliers in capturing market potential and expand supply into premium channels with innovative products;
- (ii) Assess the supply chain strategies and supply chain models adopted by Singaporean importers to enable Australian suppliers to better connect with customers for improved customer service;
- (iii) Highlight the sales channels and third country and city sales regions for Singapore (particularly for trans-shipment) and pinpoint the future direction of premium channels for Australian producers.

## Desktop research leading to the international visit

Singapore is a small nation-state with inadequate land for agriculture production, thus more than 90% of its food consumption relies on imports from other countries (AVA, 2017; ATIC, 2017). With a high level of disposable income, households in Singapore are more likely to demand premium products (Kewk, 2019), thus creating opportunities for Australian exporters to penetrate this highly competitive market. The total fruit import into Singapore reached 422,103 tonnes in 2017, with negligible fruit supplied by local farms (AVA, 2017). Though annual domestic fruit consumption in Singapore slowly decreased from 85 kg per capita in 2005 to 70 kg per capita in 2017, this reduction was offset by an increased vegetable consumption over the same period (AVA, 2015, 2016, 2017).

Despite the changing pattern of the Singaporean diet, import growth in mangoes (HS080450), avocados (080440) and lychees (HS080910) has been continuous from 2008 to 2017. Mango imports across the globe have almost doubled from 13160 tonnes to 23347 tonnes at that time. Meanwhile, Imports of Australian mangoes has increased quickly, up from 1856 tonnes to 4570 tonnes, making Australia the second largest supplier to the Singapore market. Though Singapore's imports of avocado started low (747 tonnes) in 2008, it has increased to 5737 tonnes in 2017. The supply from Australia reached 1524 tonnes in 2017, contributing one quarter of the total import into Singapore (Trade Maps, 2018). Lychee imports into Singapore has also increased, but with slow growth from 1050 tonnes to 1494 tonnes. Australia is a smaller lychee supplier in the Singapore market, where Australian lychees comprised less than 2% of Singapore's total supply. An investigation of market insights would help identify the market potential for Australian mangoes, avocados and lychees in the Singapore market.

Linked with the expanding middle class, considerations of health and wellbeing have been increasingly important to Singaporeans. Increasing attention has been given to labels containing information on ingredients, nutritional components and country of origin (Kwek, 2018). The increase of specialty retail stores selling premium and organic food is driven by local demand from those in the upper-middle-income bracket. Consequently, there is an emerging niche market for Australia's clean and quality fruit in the high-end market. This assesses the supply chain models for Australian mangoes, avocados and lychees and benchmark other competitors in the Singapore market.

Singapore is at the crossroads of major air and sea routes in the Asia Pacific region, which contributes to its position as a regional food showcase and headquarters for many major food and agricultural multinationals (ITA, 2018). Given that several food and agricultural multinationals are headquartered or have business branches in Singapore, it is valuable to analyse some multinationals who deal with fresh fruit in Singapore, which could create some insightful lessons or reference models for Australian suppliers.

## The Singapore field study

### Companies visited

The companies interviewed during the field study in Singapore include local importers/wholesalers, and retailers, as well as fruit companies from South America who are either headquartered or have sales branches in Singapore. Table 1 shows the companies interviewed by business name and the organisational type and whether the interviewed companies deal with and/or import Australian mangoes, avocados or lychees. Due to the availability of participants and tight time frames for this initial trip, five companies were interviewed, of which three are local companies in Singapore and two are multinationals. Only one of the companies interviewed sits in the Pasir Panjang Wholesale Centre, which is the main fresh fruit and vegetable wholesale market monitored by Singapore Food Agency (SFA, 2019).

**Table 1 Companies interviewed in Singapore**

No.	Companies Interviewed	Organisational type	Deal with Australian mango/avocado/lychee	Import Australian mango/avocado/lychee
1	Sheng Siong	Importer and retailer	Yes/Yes/No	Yes/No/No
2	Total Fresh	Importer and wholesaler	Yes/Yes/Yes	Yes/Yes/Yes
3	Locate & Grow	Singapore-based South American exporter	No/No/No	No/No/No
4	FC Bloxom	Singapore-based American exporter	No/No/No	No/No/No but planning
5	Fresh Mart	Importer and wholesaler	Yes/Yes/Yes	Yes/Yes/Yes

Two general merchandise stores and two high-end supermarkets were visited on-site as shown in Table 2. Fair Price and Sheng Shiong are the first and third largest grocery retailing in Singapore (ATIC, 2017). Cold Storage and Fair Price Finest are two popular high-end supermarkets. Cold storage owned by Dairy Farm International Holdings (source: [coldstorage.com.sg](http://coldstorage.com.sg)), while Fair Price Finest is an upmarket outlet that offers a wider range of products differentiated from other FairPrice outlets (Source: [fairprice.com.sg/](http://fairprice.com.sg/)).

**Table 2 Retailers observed onsite in Singapore**

Retailers observed onsite	
General merchandise store	High-end supermarket
Fair Price, Sheng Siong,	Cold Storage, Fair Price Finest

Secondary data sources were also used. The sources of secondary data are listed in the reference section. Cross referencing between primary and secondary data can contribute to the reliability of the results by avoiding potential data inconsistencies. Further analysis of primary and secondary data depicts the supply chain performance and the survey of two successful multinationals provides insightful reference strategies and models for Australian suppliers.

## General insights

The field study in Singapore was conducted from 25 April to 29 April 2019. Interviews with multinationals, wholesalers and retailers were pre-scheduled, and an interview protocol was developed to guide the interviews for collecting more insightful information. Supply chain strategies and operational models in importing and selling mangoes, avocados and lychees were gathered from the interviewees.

# 1. Market insights for imported fruit

## 1.1 Import regulation

The food import and export industry in Singapore is currently regulated and monitored by Singapore Food Agency (SFA), which since April in 2019 has taken over the responsibility of former government agency the Agri-Food and Veterinary Authority (AVA). With the purpose of turning Singapore into a “food transshipment hub”, SFA is encouraging food export from other countries through its legal functions such as issuing registration certificates or accreditation of food to eligible foreign suppliers; Neither facility registration nor tariffs are required for fresh fruit and vegetables imported from other countries (Kewk, 2019). As a result, Singapore attracts supply from many countries for a wide range of fruit and vegetables.

## 1.2 Singapore mango, avocado and lychee markets

### 1.2.1 Mango markets

Singapore imports mangoes (HS08045020 – Mangoes fresh or dried) from over 40 countries and regions, with major suppliers from the Asia-Pacific region. Thailand, Australia, the Philippines, Malaysia, India and Taiwan are the top 6 supplying countries, altogether supplying 92.59% of the five-year average volume imported into Singapore. Thailand is the dominant mango supplier, accounting for 53.78% of the total supply in Singapore. It is followed by Malaysia, with market share at 15.96%. Australia and India comprise 8.31% and 7.06% of the market supply respectively, ranking as the third and fourth largest suppliers. Taiwan and the Philippines are the next two largest suppliers, with respective market shares at 4.51% and 2.96%.

Singapore’s imports of mangoes in volume experienced slow growth from 2013 to 2017, increasing by 2.78% from 13677 tonnes in 2013 to 15163 tonnes in 2017. Figure 1 shows the changes in imports from the top 6 supplying countries. Imports from all supplying countries, except from Taiwan and the Philippines, have increased over the period, albeit at different rates. Australian mangoes have increased more than other countries, with the volume up from 686 tonnes in 2013 to 1738 tonnes in 2017.

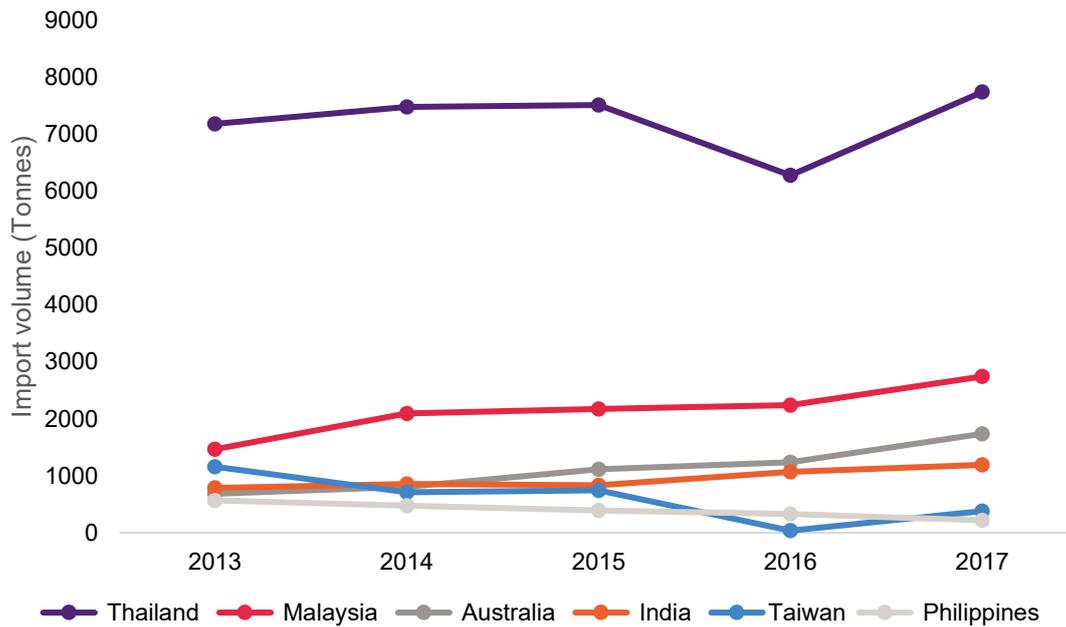


Figure 1 Changes in Singapore’s mango imports from the top 6 supplying countries during 2008-2017

Source: Trade Maps; HS08045020 (Mangoes fresh or dried)

### 1.2.2 Avocado markets

Singapore imports avocado (HS080440 – fresh or dried avocados) from over 30 countries and regions (Trade Map). Australia, New Zealand, USA, Thailand, South Africa and Kenya are the top 6 sourcing countries, accounting for 95.91% of the five-year average supply combined for 2013-2017. Australia and New Zealand are the two largest suppliers, comprising 27.12% and 23.55% of the total supply in Singapore respectively, followed by the USA (19.23%) and Mexico (16.19%). South Africa and Kenya are relatively smaller suppliers, making up 5.65% and 4.16% of the market supply.

Avocados have become popular in Singapore in recent years. The demand for avocados in the Singapore market has increased by 28.4%, up from 1691 tonnes in 2013 to 5737 tonnes in 2017. Figure 2 shows the changes in imports from the top 6 supplying countries. Australia is the largest supplier in the Singapore market, supplying 980 tonnes in 2013. However, Mexico has seen a rapid increase in volume since 2015 to become the leading supplier in 2017, at 1872 tonnes compared with Australia’s 1524 tonnes. New Zealand, the second largest supplier in 2012, has had fluctuating supply into Singapore over the period, ending as the fourth largest supplier in 2017. The USA and Kenya are the two suppliers with more stable growth over the period, ending with 1102 tonnes and 423 tonnes in 2017, although Kenya is a relatively small supplier. In contrast, South Africa is only a supplier without a noticeable increase in volume from 2013 to 2017.

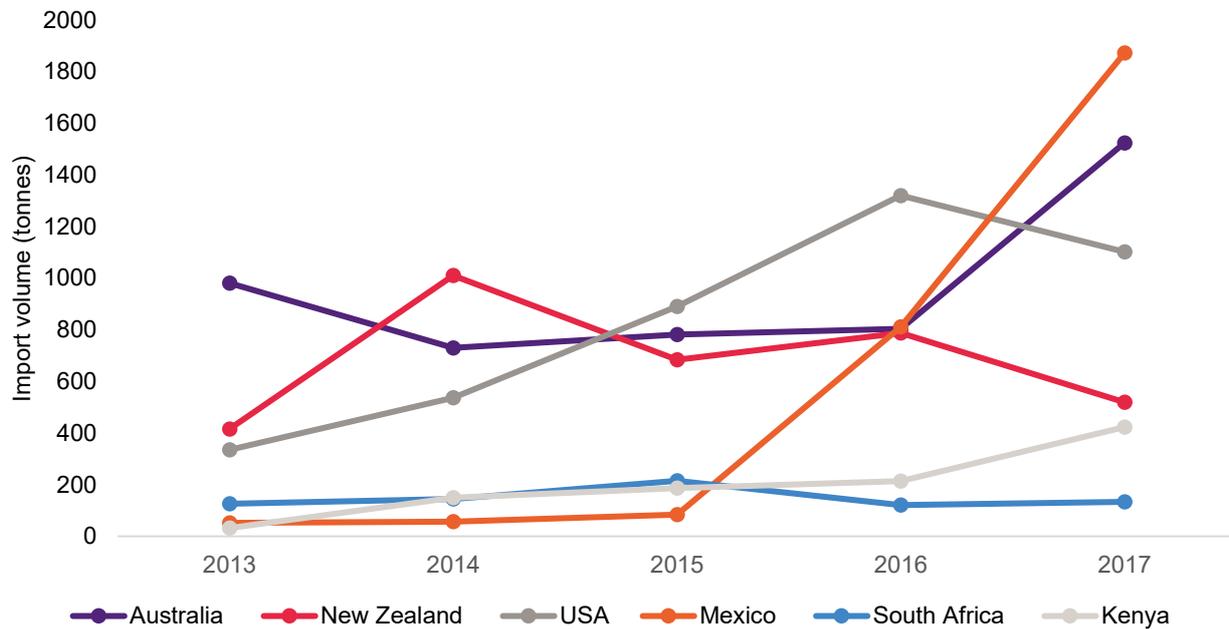


Figure 2 Changes in Singapore's avocado imports from top 6 supplying countries during 2008-2017  
 Source: Trade Maps; HS080440 (fresh or dried avocados)

### 1.2.3 Lychee markets

Though Singapore imports lychees (HS08109020 – Lychees fresh) from over 15 countries and regions worldwide, the top 6 suppliers, including China, Thailand, Taiwan, Malaysia, Australia and the USA contribute almost 100% of Singapore's market supply. China is the leading lychee supplier in Singapore, accounting for 79.64% of the five-year average supply. It is followed by Thailand (10.20%). The rest of the supplying countries only together contribute around 10% of the supply.

Lychee imports into Singapore have increased marginally by 5.26%, up from 1438 tonnes in 2013 to 1494 tonnes in 2017, albeit with fluctuations in some years. This may be because China is a major producer and buyer, so Singapore would be largely circumvented for the Chinese domestic market. Figure 3 shows the changes in imports from the top 6 supplying countries. China is the leading supplier in the Singapore lychee market; however, imports from China fluctuate over the period, with the lowest figure at 910 tonnes in 2016. In contrast, imports from Thailand have declined from 2014 to end at 144 tonnes in 2017. Imports from Taiwan have decreased rapidly, from 156 tonnes in 2013 to 4 tonnes in 2017. Imports from other countries are insignificant, though Malaysia and Australia are larger than the USA. Imports from Australia fluctuate from 13 tonnes to 26 tonnes between 2013 and 2017.

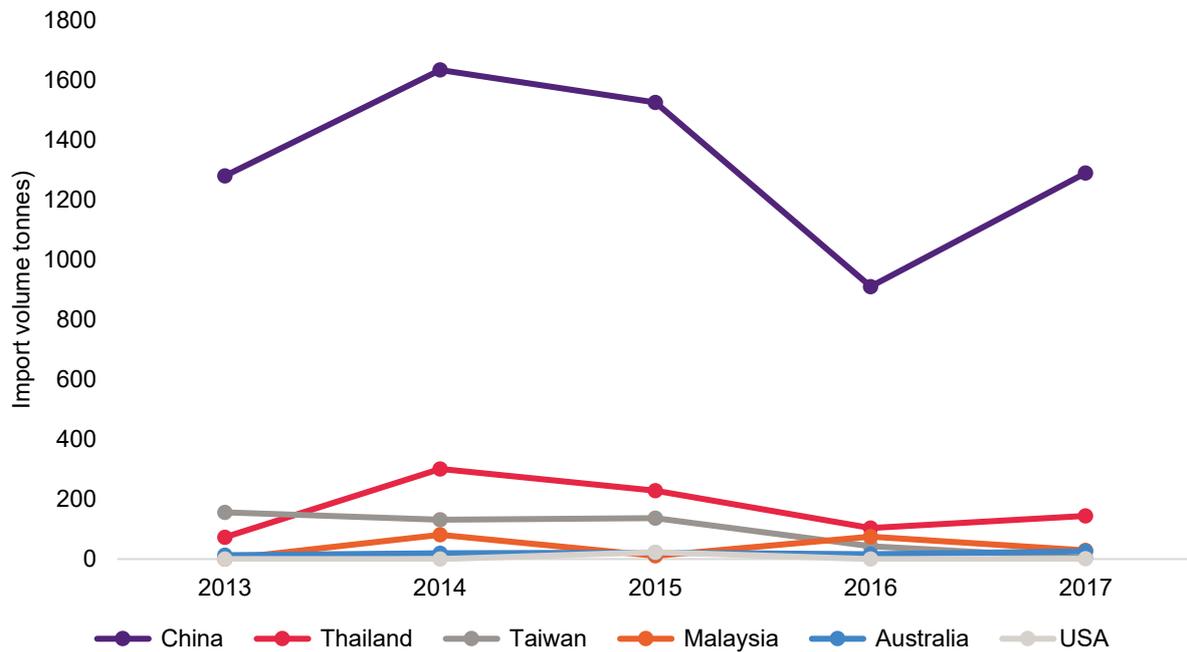


Figure 3 Changes in Singapore's Lychee imports from top 6 supplying countries during 2008-2017  
 Source: Trade Maps; HS08109020 (Lychees fresh)

### 1.3 Market positioning for Australian mangoes, avocados and lychees

**Mango** - A comparison of the top 20 mango supplying countries in the Singapore market in terms of the logged five-year average volume and the average CIF Singapore price in 2013-2017 is shown in Figure 4. The average CIF Singapore price for mangoes imported from the world is US\$1.6 /KG, which is much lower than the CIF prices from most supplying countries. Thailand and Malaysia are the two leading suppliers by volume; however, their CIF Singapore prices are recorded at only USD1.3 per Kg and USD 0.8 per KG, which are lower than the world average. 15 of the top 20 supplying countries have higher CIF Singapore prices than the world average. Australia has volume lower than Thailand and Malaysia, but its CIF Singapore price is higher than in most supplying countries. The Philippines, Netherlands, Israel and Sri Lanka are the four suppliers which have a higher CIF Singapore price than Australia, while their import volumes into Singapore are lower than Australia. In contrast, the Philippines is the only supplier with the highest volume and close CIF Singapore price to Australia.

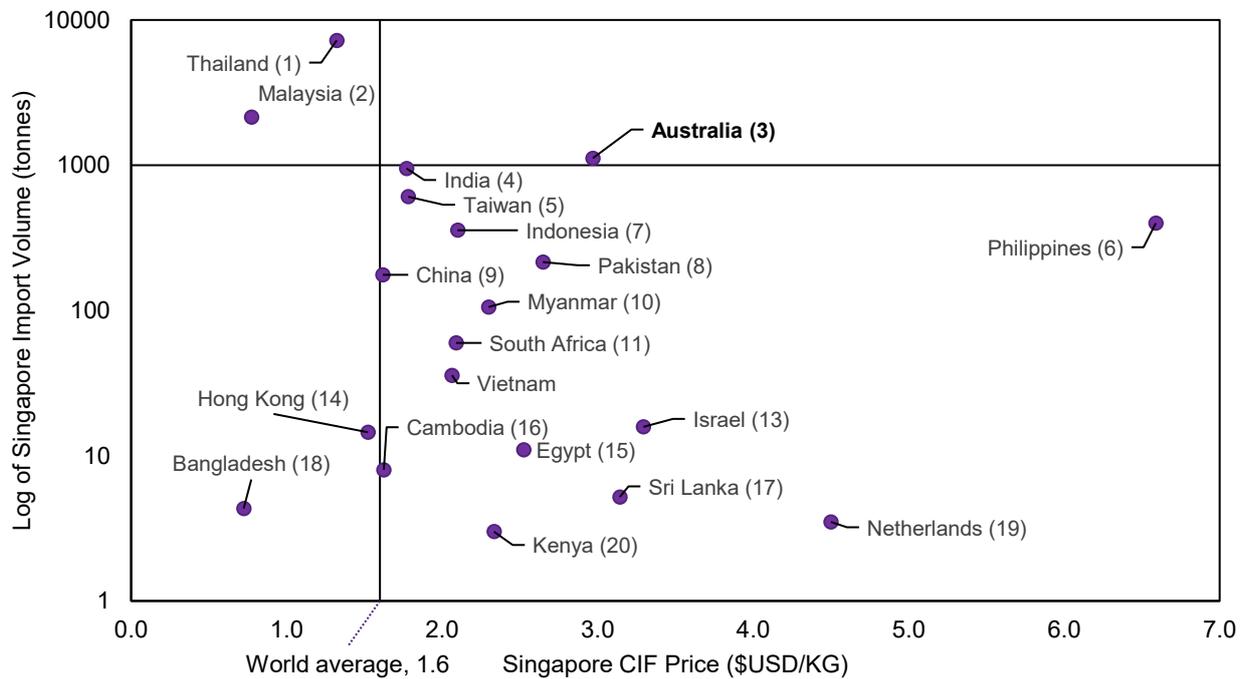


Figure 4 Singapore’s top 20 mango suppliers’ average volume and CIF Singapore price in 2008/17  
 Source: Trade Maps; Mangoes (HS08045020); Supplier ranking (in parentheses) by the average volume

**Avocado** - A comparison of the top 15 avocado supplying countries in the Singapore market in terms of the logged five-year average volume and the average CIF Singapore price in 2013-2017 is shown in Figure 5. The average CIF Singapore price for avocados imported from the world is US\$3.6/KG, which is higher than the CIF prices from most supplying countries. Australia and the USA are the top two suppliers by volume and their CIF Singapore prices are only lower than that of Spain and Netherlands in the Singapore market. Though imports from the Netherlands and Spain are lower than most supplying countries, their CIF Singapore prices are the top 2 highest, recording at 6.7 USD/KG and 4.7 USD/KG respectively. While Australian avocados’ CIF Singapore price (4.1 USD/KG) is slightly higher than the USA’s (3.9 USD/KG), Australian volume is higher than that of the USA. In contrast, New Zealand and Mexico are the two suppliers with CIF Singapore prices equal to or lower than the world average, but with volumes only lower than Australia and the USA.

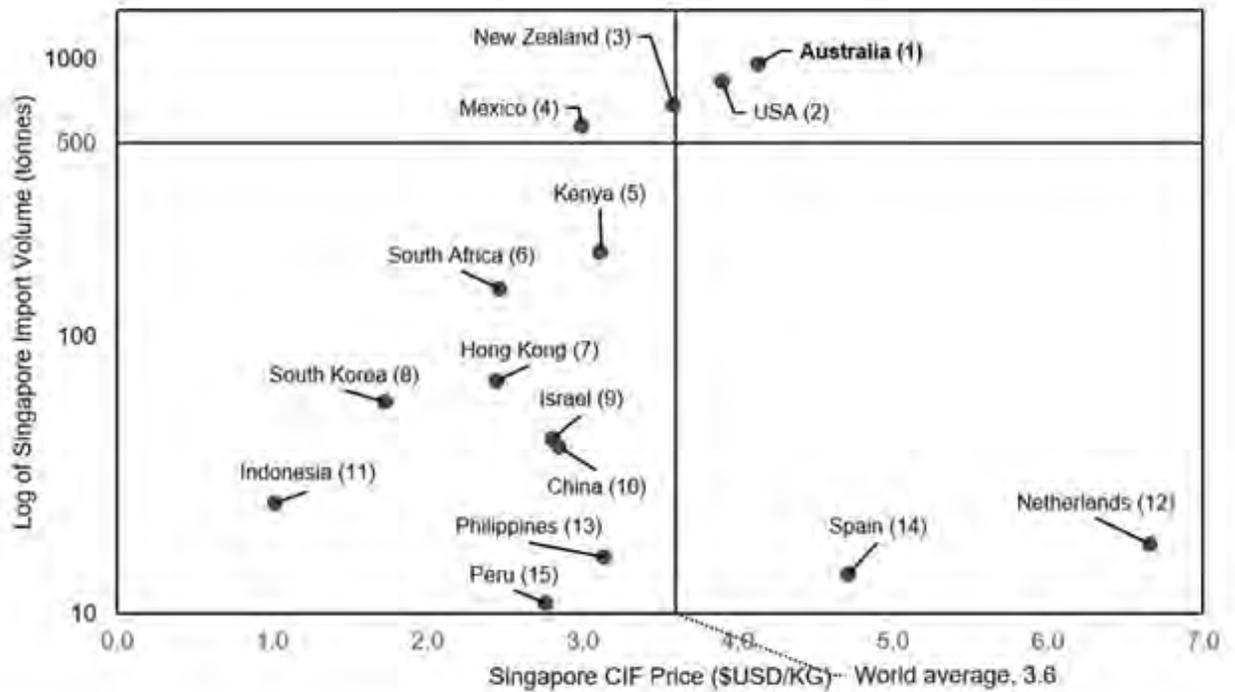


Figure 5 Singapore’s top 10 avocado suppliers’ average volume and CIF Singapore price in during 2008/17  
 Source: Trade Maps; Avocados (HS080440); Supplier ranking (in parentheses) by the average volume

**Lychee** - A comparison of the top 10 lychee supplying countries in the Singapore market in terms of the logged five-year average volume and the average CIF Singapore price in 2013-2017 is shown in Figure 6. China is the dominant lychee supplier in the Singapore market with the CIF Singapore price at US\$2.2/KG, which is equivalent to the World average. In contrast, Australia has the highest CIF price at US\$ 9.7/KG, while its volume is lower than China, Thailand and Malaysia. Thailand, Malaysia and Madagascar are the only three suppliers with the CIF Singapore prices lower than the world average. In contrast, the rest of the supplying countries have higher CIF Singapore prices than the world average. Among them, South Africa and the USA ranked as the 6<sup>th</sup> and 10<sup>th</sup> suppliers, have the second and third highest CIF Singapore prices at 8 USD/KG and 7.4 USD/KG respectively.

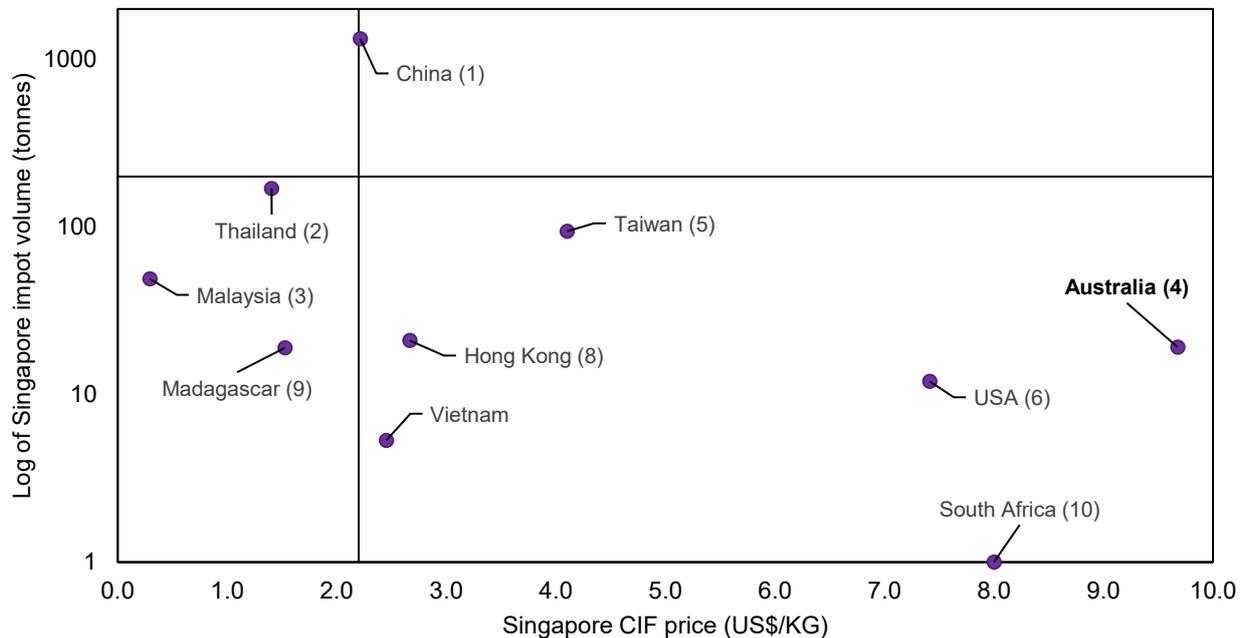


Figure 5 Singapore's top 10 lychee suppliers' average volume and CIF Singapore price in 2008/17  
Source: Trade Maps; Lychees (HS08109020); Supplier ranking (in parentheses) by the average volume

## 1.4 Market preference

### 1.4.1 Preference for Australian mangoes

Singapore is a diversified market for Australia mangoes, where several varieties and three grades of fruit are available in the market. There are five main varieties in the Singapore market, including R2E2, Calypso, Kent, Keitt and KP, albeit with a small volume of Keitt and KP. Calypso is a little more expensive than other varieties. Although its price is still affordable, it is not as preferred by general merchandise stores, including Sheng Siong and Fair Price. In terms of the grade of fruit, Singapore importers mainly import premium and Class 1 and occasionally Class 2 fruit. Premium fruit is mostly preferred by high-end supermarkets, although some are sold to wholesale customers. In contrast, class 1 fruit is most sought-after in the Singapore market. According to one wholesaler, their customers mainly look for Class 1 fruit without any blemish and black spot.

Both large and small fruit are preferred in the Singapore market. Grocery chain store retailers generally tend to work with smaller sizes (count 11-13) for R2E2 due to their customer segments. One grocery chain store retailer stated that they have to set a competitive price to please their customers because they are very popular and seen as value for money thanks to the brand perception they have built. In contrast, high-end supermarkets may choose larger sizes, such as count 7-8. Although grocery retailers generally pick small fruit and high-end supermarket choose big fruit, there is not a specific preference for size from a particular channel. According to a wholesaler and distributor, there is no one preferred size for certain sectors.

Singapore market generally does not have specific requirements on fruit colour, although good-looking fruit without any blemish and black spot is preferred. According to one wholesaler, only one supermarket in Singapore requires high colour, while the rest of the supermarkets are so concerned about the price more than the colour.

#### 1.4.2 Preference for Australian avocados

Singapore's avocado market is dominated by Hass, although Shepard variety is available. According to a grocery chain store retailer, Singapore importers generally do not take lots of Shepard as they only cater to very specific consumers. This is verified by two of the wholesalers interviewed. One wholesaler indicated that they only buy Hass variety from Australia, while the other said that they have Hass and Shepard from Australia, but mainly Hass. The grocery retailer further added that they do not sell Shepard variety in their supermarkets and the wet market may be the big market for Shepard.

Though large and small fruit is imported into Singapore, the demand for Australia avocado is usually small fruit, with size counts at 28-32. Premium and Class 1 fruit are mainly imported, but Class 2 fruit is also imported to cater for some food services. Small fruit in premium quality is most preferred by grocery chain stores, such as Fair Price and Sheng Siong because of the good value per piece. Though there are markets for large fruit, they sell slowly compared with Hass as noted by wholesalers. According to one wholesaler, they have premium and class 1 fruit with sizes 14 and 16 for different customers. High-end supermarkets are channels which prefer premium avocados in large size.

#### 1.4.3 Preference for Australian lychees

Australian lychees are mainly brought in the Singapore market by importers with relatively small volumes especially around Chinese New Year. The small import of Australian lychee could be the price issue as noted by a grocery chain store retailer. Due to their higher price, many importers naturally do not want to bring it in even out of the Chinese season. Of the interviewed companies, wholesalers import lychees from Australia. One wholesaler indicated that they have lychees with small seeds from Australia, while the other wholesaler said that they buy lychee only from Australia and import two varieties which are Kwai May Pink and Fay Zee Siu – a green variety.

Grocery chain store retailers generally do not prefer Australian lychees. One grocery chain store retailer who deals with lots of Chinese lychees, with the varieties of Guifei, Feizixiao, sell small seed lychees and sometimes Thailand lychees when the price is reasonable said that they have never bought lychees from Australia. They think that their customers' knowledge of lychee as being a fruit from China, with cold, red, wet, not brown appearance. The preference is inherited from residents with Chinese background, who largely determine the food culture in Singapore (Tortajada and Zhang, 2016). In contrast, Australian lychees

are sometimes brown with dried skin so that customers would think they are spoiled, even though the inside is fine.

## 1.5 Challenges in sales of Australian mangoes, avocados and lychees

As Singapore is considered an open market in the region without any import restrictions, fruit is often directed to Singapore if failed to enter a protocol market that was scheduled (Fresh Plaza, 2015). This could negatively impact the competitiveness and prices in the market given the small size of the market. A particular issue for Australia indicated by one wholesaler is that everyone can buy from the wholesale market in Australia and ship over. Given that people usually get a cheaper price when buying from the wholesale market, it could impact the Singapore market. A grocery chain store retailer confirmed that they sometimes can get cheaper fruit from the wholesale markets than import direct from Australia.

The Singapore avocado market is dominated by Fresh Mart – an importer and wholesaler who also acts as a distributor. Other companies are trying to develop expertise in avocados, but it is still a learning process. The involvement of these importers is impacting the market. Since the newcomers do not have consistent quality but sell at a cheaper price, the market price has been pulled down significantly in recent years.

Though Singapore has a good percentage of high-income customers willing to spend more on exotics and niche products (Fresh Plaza, 2015), the fresh fruit market is competitive, with extremely price sensitive retailers and consumers (ITA, 2018). Retailers often shop around to get cheaper fruit, which challenges wholesalers and distributors in supplying retailers. One wholesaler who supplies supermarkets said that their challenge in supplying supermarkets is that supermarkets would not tell you how much they want and would sometimes buy from others without notifying them.

Price, freshness, quality and service are the four key factors that determine the sales in Singapore, with price affecting the most. Because of the price sensitivity, most purchases are dependent on price. One grocery chain store retailer indicated that it is the price, not the variety of mango that determines the sales. They said that consumers come to the store and may have in mind they want a mango. However, they may change their minds when they find promotions on other fruit.

A grocery chain store retailer mentioned that the diet of Singapore consumers is quite different from consumers in other countries because they use fruit for cakes, smoothies and other fresh fruit ingredients. Because of this, they need to teach people how to cook the fruit rather than eating it fresh. Besides, people prefer easy-to-bring fruit, like fresh-cut, smaller apples for snacks. This is a challenge for mangoes as snacks unless dried or processed and frozen.

Retailers could have a big problem if an exporter sends bad fruit. A grocery chain store retailer indicated that it is a big issue once they receive fruit in poor quality since they cannot return the fruit to the exporters and

do not have a wholesale channel to move the fruit. Retailers often have challenges in handling fruit in-store. A grocery chain store retailer indicated that their front-line workers do not know how to properly manage and display the fruit, despite numerous training programs. Improper handling can damage the fruit. They have started to do repacking and putting messages with the fruit to cope with the handling issue.

## 2. Supply chain strategic orientation

### 2.1 Overseas farm acquisition

All the local companies interviewed in Singapore, including wholesalers and retailers, do not have overseas farms and do not have a current interest in farm acquisition in a foreign country. In contrast, the two multinationals either have farms in their parent countries or are planning to acquire farms in producing countries.

Singapore local wholesalers indicated that they prefer not to take on the risk of either acquiring a farm or making direct investments in farms. Because of a lack of farming knowledge, they prefer to concentrate on their core trading business. Though they have no interest in making direct investments in Australian farms, they would like to build long term partnerships with farmers. One interviewed wholesaler indicated that they signed a contract with farms in Australia for rockmelon. However, they have not yet developed partnerships with Australian mango, avocado and lychee growers. Their small import volume for mangoes, avocados and lychees from Australia are a key constraint for a partnership - as indicated by the three local companies.

### 2.2 Sourcing strategies

Singapore wholesalers tend to directly import mangoes, avocados and lychee from producing countries that they are familiar with to serve their customers from different channels, while retailers work to obtain products from different supplying countries via direct import and/or through local importers/distributors to realise year-round supply as much as possible. Some wholesalers have established their buying offices in major supplying countries to facilitate their direct sourcing. One wholesaler indicated that they have buying offices in South America, Australia and Korea. Wholesalers generally work with either growers, traders or brand owners for direct sourcing. Some wholesalers may also appoint consolidators in specific countries, including Australia to consolidate products they ordered in smaller volumes from different suppliers for a one-off shipment. One wholesaler pointed out that they source Australian mangoes from growers and traders but buy Calypso from a brand owner – Perfection Fresh who owns the brand “Calypso”. In terms of the number of suppliers, they prefer to work with a small number of suppliers for fruit in supplying countries.

As opposed to the sourcing strategies implemented by wholesalers, retailers generally have another business to look after their sourcing and dispatching. For example, one retailer indicated that they have two

business entities – one is their Supermarkets and the other is a marketing company, which handles the source on behalf of their supermarkets and looks after the logistics and dispatch to our stores. Even though some retailers are heavily involved in the direct sourcing, they often leave a purchasing gap for local procurement given that they sometimes can acquire for lower prices in the local market. One retailer mentioned that they generally source about 90% of our mangoes directly and leave the rest to procurement from the wholesale market. When sourcing from local suppliers, the shelf life should be 3 to 5 days after they receive them. In terms of direct sourcing, retailers also indicated that they prefer to work with a small number of suppliers for fruit in supplying countries.

Wholesalers generally do not require ripening services for mangoes in direct sourcing as they are often naturally ripened during sales. In contrast, retailers often request their overseas suppliers to assist with mango ripening. One retailer indicated that all their directly imported mangoes are usually ripened at the source. They further added that mangoes maybe 50% ripened when they buy from Australia. Additionally, retailers need reliable and consistent suppliers who do not send any bad fruit given the cost to deal with the problem is very high. Since avocados are sensitive fruit to handle and need proper ripening for good sale prices, retailers prefer to buy from local importers, rather than sourced directly from overseas suppliers. Fresh Mart has established a first-mover advantage in the avocado category, although some companies are trying to develop expertise in avocados. Given that Fresh Mart is the dominant avocado supplier in Singapore, they can ask different retailers for quantity and order together, provide proper ripening and storage as well as assisting with product awareness.

## 2.3 Modes of transport

Modes of transport are determined by several factors, such as the location of supplying countries, product and freshness. Mangoes are mainly shipped by air, but road transport and sea transport are respectively utilised for mangoes from some Asian-pacific countries, such as Thailand and Taiwan. Lychees are mainly transported by air, while lychees from China are mostly transported by sea, except for seedless lychees from Hainan transported by air. As opposed to mangoes and lychees, avocados from all supplying countries (Australia excluded) are mostly shipped by sea. One wholesaler indicated that 95% of their avocados are transported by sea compared to 5% by air.

Given that there is strong demand for fresh products in Singapore (ITA, 2016) and more demand for certain premium air-freighted fruit such as strawberries, plums, avocados, blueberries, raspberries and cherries (Export.Gov, 2018), several importers, including wholesalers and retailers prefer air freight over sea freight. One wholesaler pointed out “Price is an important factor in determining the mode of transport, but the issue we must consider is that we cannot sell for a higher price without good quality.” To ensure good quality upon arrival, several importers work to use air freight for shipping mangoes, avocados and lychees, which can ensure reliable quality assurance upon arrival. One wholesaler indicated that all their mangoes, avocados and lychees and are imported by air, even when they procure from the USA and Mexico.

All the local importers interviewed said that they prefer mangoes, avocados and lychees to be air freighted from Australia to Singapore as maximal freshness can be achieved. Almost all their mangoes, avocados and lychees from Australia are shipped by air. They indicated that the risk is quite low for air freight compared with sea freight so that they can receive fruit with freshness and sell at good prices. Since air shipment is done professionally from Australia, importers generally do not ask for Australian exporters to attach data loggers for temperature monitoring; however, when there is a sea shipment, they require a data logger to be put in the container to monitor temperature and humidity for their effects on quality.

## 2.4 Fruit storage and sales

Singapore has a highly developed and sophisticated cold chain distribution system (ITA, 2016). All three local companies interviewed have cold storage facilities and even one importer/wholesaler has adequate ripening facilities. Wholesalers generally use third party transport with refrigerated trucks to pick up the fruit upon arrival and transport to their cool rooms, which are situated in either the Pasir Panjang wholesale centre or other regions. Similarly, retailers have forwarders to pick up fruit from the port on arrival with cold trucks and place the product in their distribution centre for cold storage. Some wholesalers who also act as distributors have their fleet transport team for distribution to their customers. Retailers generally have their own distribution centres equipped with cold storage facilities. One retailer said that they have one major distribution centre for fruit storage and despatch due to the small size of the Singapore market.

Singapore wholesalers generally sell mangoes and avocados in original boxes without repacking, while lychees are often re-packed into a 500gram punnet. Singapore wholesalers generally do not have any sales or marketing promotion for mangoes and lychees. However, since avocados are dominantly handled by one wholesaler and distributor (Fresh Mart), Fresh Mart often helps their customers to build awareness of the product - assisting customers with in-market supports like tasting and education in stores as well as marketing programs.

Though Singapore retailers may employ different sales strategies for mangoes, avocados and lychees, mangoes and avocados are often sold in bulk loose whether in grocery retailing stores or high-end supermarkets. Figure 4 shows loose mangoes and avocados displayed for sale in one store of Cold Storage. One grocery chain store retailer indicated that they are targeting middle-income customers, rather than segmenting themselves as either a premium or a budget store, their mangoes are all sold in bulk loose. Some of their stores may provide more protection and pack fruit for sales in the stores when the fruit becomes less expensive, but this is not practised across whole stores. Australian lychees are mainly sold in a 500-gram punnet. On the other hand, Chinese lychees are mainly sold with branches and stick. But in the last couple of years, some retailers started cutting the branches and make it pack into a bag or box. Moreover, some retailers, particularly online retailers differentiate fruit imported by air or sea in their sales and post different prices given that some consumers are concerned about freshness.

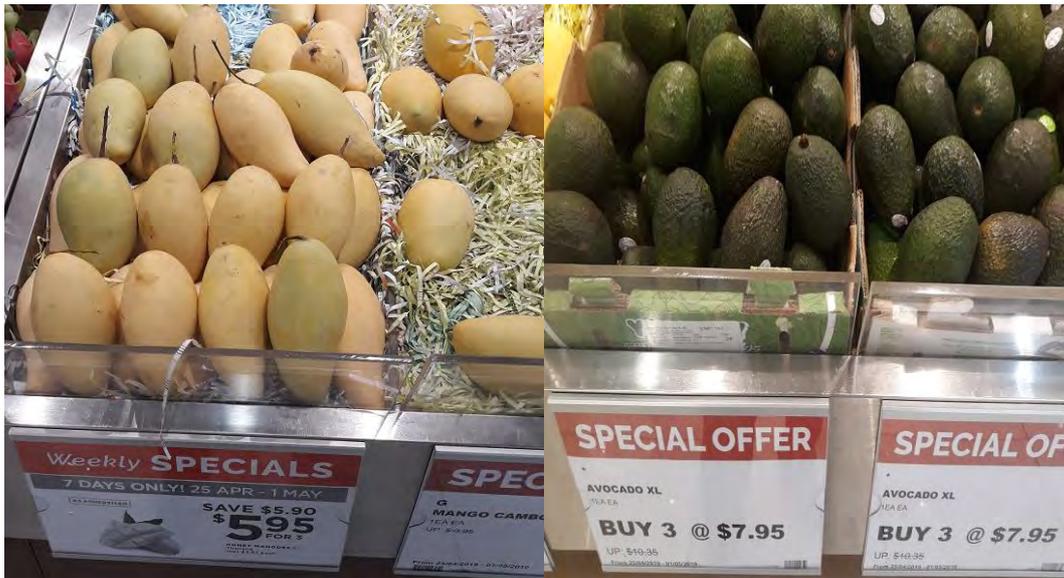


Figure 4 Mangoes and avocados displayed for sales in one store of Cold Storage

Since the Singapore market is quite small and acts as a re-export platform for fresh fruit, several wholesalers and retailers have expanded their sales regions beyond the Singapore market. Though the two wholesalers interviewed only focus their sales in Singapore, one retailer stated that “Our first overseas store in Kunming, China has opened for business in November 2017. We will continue to build our brand in Kunming and will widen our market coverage by opening a second store in the third quarter of 2019”.

Street stalls and kiosks selling fresh-cut fruit have become increasingly prevalent in shopping malls. Some retailers have started to sell fresh-cut mangoes. Fresh cutting stations and fresh-cut mangoes have been observed in one store of Cold storage as shown in Figure 5.



Figure 5 Fruit cutting station and fresh-cut mangoes in cold storage

## 2.5 Sales channel preference

Australian mangoes, avocados and lychees are sold to supermarkets, food services, e-commerce and secondary wholesalers. One wholesaler indicated that supermarkets are their dominant channel, while they also sell to food services and secondary wholesalers. The other wholesaler pointed out that their sales channel includes secondary wholesalers, food services, supermarkets and E-commerce. Though the two importers and wholesalers did not express their preferences for any channel and stated that each channel is quite important for their business, one wholesaler mentioned that wholesaling and e-commerce are their high-valued channels compared with other channels.

Customers' preference for any variety of fruit can determine the selection of sales channels. For example, Australian Hass avocados are mainly sold to supermarkets in Singapore. On the other hand, Australian Shepard avocados mainly cater to specific consumers. As noted by one interviewee, the wet market is the dominant channel for Shepard.

## 3. Supply chain operations

### 3.1 Modes of procurement

Singapore importers, including wholesalers and retailers, do not like to have a supply program for seasonal products due to the fluctuation of price and supply during seasons. All three local companies indicated that their procurement prices for Australian mangoes and lychees are not stable. As such, they generally do not have a supply program with their Australian suppliers for mangoes and lychees. Their procurement of mangoes and lychees often starts with a periodic or weekly quotation from their suppliers. After receiving the quotation, importers make a purchasing decision based on quoted Cost & Freight (CNF) price and their sales forecast. One wholesaler indicated that their Australian suppliers generally ask them for a quantity order every week and then arrange the shipment." Since Singapore importers want to maintain competitiveness in the Singapore market, they sometimes have to compare the prices when the supply price is high. One grocery chain store retailer pointed out: "Unless our suppliers are willing to put their trust in us to get the best return, our procurement has to be based on the best price."

The procurement of avocados from Australia is quite consistent compared with mangoes and lychees. The largest avocado importer and wholesaler indicated that they have a more or less fixed program or volume for Australian avocados. Generally, they make a forecast on the requirement, and then everything is fixed on a weekly basis. However, they generally do not buy a lot from Australia as Australian avocados are quite expensive. The wholesaler mentioned that Australian suppliers generally price themselves for the market and their price is quite high given Australia's strong domestic market for Avocados. In addition to Australian avocados, New Zealand avocados can also be brought in from their Australian suppliers. The wholesaler

also added that it is difficult to depend on a fixed program for mangoes as they buy R2E2 and KP mangoes from several Australian growers who are scattered in different areas across Australia.

### 3.2 Import and procurement challenges

A summary of challenges in the import and/or procurement of Australian mangoes, avocados and lychees stated by the three interviewed companies are presented as follows:

Australian mangoes and lychees fluctuate greatly in price during seasons. Though the price generally starts high and then comes down quickly, the Cost & Freight (CNF) Singapore price for R2E2 mangoes could be AUD 20-40 more by air, while the CNF Singapore price for small seed lychees (the variety of Kwai May Pink) could be AUD 20-30 or more.

Quality issues in Australian mangoes could come from some producing regions. For example, one wholesaler noted that mangoes from the Northern Territory generally do not have a nice colour. Quality variation also occurs if the fruit comes from different growers and packers. One wholesaler pointed out that quality variation depends on the grower and packer. Another issue is that a lot of suppliers tell you they have the best producers, but sometimes the things do not conform to the buying specification that we have sent.

Australian mangoes, avocados and lychees are mostly imported via the traders, rather than the grower exporters. Traders often pick mangoes from one region and move to another region for sales. It is probably because they do not have good communication with growers across different regions, traders might still sell the product from one region while products from another region are ready for sales. As such, fruit might stay in the pack house for too long which leads to short shelf life in the Singapore market.

Australian fruit, including mangoes, avocados and lychees are exported mainly through Sydney, Melbourne and Brisbane. Although this is good for market competition, the export price is different across different ports. The price is also different from one orchard to another. Another issue is the packing style and colour, which is the key to the sales price in the Singapore market. Even though the quality of Australian fruit is very good, the packing is very bad. For example, the generic packing style for 7kg in Australia would make the same product look very different.

Supermarkets are trying to buy directly from the sources; however, supermarket buyers have very little time or the capability to manage everything. Sometimes Australian exporters send them something that is not up to the quality standard. One retailer indicated that when the product does not comply with their specifications, they do not know what to do as they cannot send the fruit back to the exporters. In the case of quality issues, retailers have to ask for a credit note. Even worse, they have to get a surveyor to examine the fruit if the fruit is really bad. This greatly increases their operating costs. Also, once the mango is 70-80% ripened, retailers have a shorter time to sell and often need to discount to move the fruit.

The challenge as a buyer is that they need more information about the fruit to plan ahead - as indicated by one retailer. One retailer mentioned that when sourcing from local markets, the importers in Singapore only tell what they want them to know and that is very short-term planning. When retailers cut the middle person out to go into more direct sourcing, they can plan ahead a more as they have more information to go on.

Conversations between growers and retailers are important as indicated by retailers because growers need to know the right product to grow and how they position their fruit. As such, retailers work to import as directly as possible, but the supply chain is still quite long. Though the retailer works to bypass an importer and wholesaler in Singapore, there is an exporter who is a trader, rather than the most upstream. Although they prefer to source directly from growers, one grocery chain store retailer indicated that they sometimes found that farmers are only interested in farming and prefer to leave their fruit for someone who does sales as they do not want the headache of selling and marketing.

### 3.3 Entry channels for Australian mangoes, avocados and lychees

Pasir Panjang wholesale centre is Singapore's main wholesale market and distribution point for imported fruit and vegetables (Valluvar, 2017). It is estimated that about 40 per cent of all fruit and vegetable imports in the country pass through the centre, while the remaining 60 per cent is handled by independent retailers and other importers, some of whom have their own facilities (Valluvar, 2017).

Since only three local importers were interviewed – one is in the Pasir Panjang wholesale centre, while the other two have cold storage facilities outside the centre. The percentage of Australian mangoes, avocados and lychees that enter the wholesale centre and other independent importers cannot be identified. However, it can be confirmed that Australian mangoes, avocados and lychees are air freighted to Changi airport, from where they are transported with refrigerated trucks to the importers located in the wholesale centre or other importers who have their own facilities in other parts of Singapore.

### 3.4 Distribution channel

Australian mangoes, avocados and lychees imported into Singapore by importers and wholesalers are distributed to secondary wholesalers (wet market), food services, supermarkets and e-commerce. One wholesaler located in the Pasir Panjang Wholesale Centre indicated that they sell their Australian mangoes, avocados and lychees fruit in the wholesale Centre. Although big retailers and supermarkets are one of their distribution channels, they rarely supply direct to the supermarkets. In contrast, another wholesaler located outside the wholesaler centre indicated that the dominant distribution channel for their Australian mangoes, avocados and lychees is supermarkets, despite being a supplier for food services sometimes and dealing with a little bit wholesale market.

The distribution channel varies for Australia Hass and Shepard avocados in Singapore. Hass avocados are mainly sold to supermarkets and some to food services, while Shepard avocados are mainly distributed to the wet market, where there is demand for the Shepard variety from specific consumers.

Many of these issues point to the need and opportunity to shorten the supply chain and achieve a closer, more direct, communication between the two groups who know their product best – growers and retailers.

### 3.5 Sales region

Mangoes, avocados and lychees imported into Singapore are dominantly consumed in the local market; however, some fruit is re-exported from Singapore due to its unique location in the centre of several international trade flows (ITA, 2018). Singapore’s re-exports of mangoes, avocados and lychees by the market in 2018 are shown in Table 3. Mangoes, avocados and lychees re-exported from Singapore stand at 703 tonnes, 241 tonnes and 46 tonnes respectively, accounting for 4.11%, 4.75% and 2.93% of their total imports. Malaysia is the largest market for mangoes, avocados and lychees re-exported from Singapore, bringing in 79.80%, 70.12% and 63.04% of Singapore’s export respectively. Hong Kong, Brunei and Indonesia are the second largest markets for re-exported mangoes, avocados and lychees respectively, with the import share at 16.5%, 24.07% and 32.61%.

**Table 3 Singapore’s re-export of mangoes, avocados and lychees in 2018**

	Re-export in tonnes	Re-export percentage						
		Malaysia	Hong Kong	New Caledonia	Brunei	Cambodia	Indonesia	others
Mango	703	79.80%	16.5%	1.14%	1.00%	-	0.71%	0.85%
Avocado	241	70.12%	-	-	24.07%	4.98%	0.41%	0.41%
Lychee	46	63.04%	-	-	2.17%	-	32.61%	2.17%

Source: Trade Maps; Note: Product: HS 08045020 (Mangoes fresh or dried); HS 08044000 (Avocados Fresh or dried); Lychees fresh (08109010).

## 4. Channel positioning

### 4.1 Supply chain structure

Fresh fruit is brought into Singapore by larger wholesalers, supermarkets, food services and e-commerce retailers. Given that supermarkets may nominate their local agents for importing fresh fruit, importers may also act as import agents for some supermarkets. Most imported fresh fruit is sold for fresh consumption as a small proportion of imported fresh fruit and vegetables is used for domestic food manufacturing (Flanders investment & trade, 2016). Figure 6 shows the supply chain structure for fresh fruit into Singapore starting from either overseas growers, exporters or consolidators.

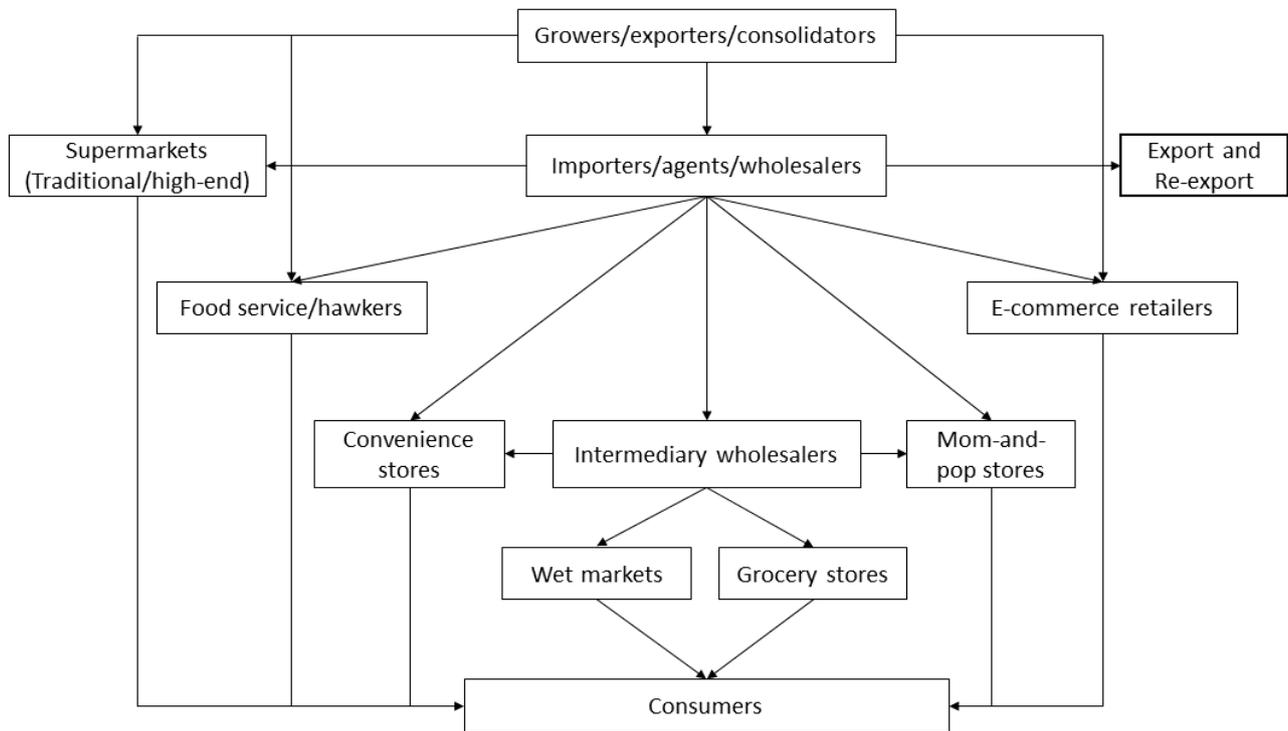


Figure 6 Supply chain structure for fresh fruit in Singapore

The main supermarket chains, including NTUC FairPrice, Dairy Farm International and Sheng Siong Group, obtain fresh fruit via the direct import or through local importers/distributors (Export.Gov, 2018). Importers and wholesalers within and/or outside the Pasir Panjang wholesale centre import direct and serve different businesses in Singapore, including supermarkets, food services, intermediary wholesalers and e-commerce retailers. The larger wholesalers who may also act as distributors usually have their own facilities to handle fresh fruit and have the capabilities for re-packing and distribution to their customers (ITA, 2018). In addition to supplying domestic markets, some importers and wholesalers also involve the export business, with fruit re-exported to surrounding countries and regions, including Malaysia, Hong Kong, Brunei and Indonesia. Intermediary wholesalers also play an important role in fruit distribution in the Singapore market. They buy fruit from larger importers and wholesalers and distribute to the wet markets, small grocery and mom-and-pop stores (ITA, 2018). Foodservice companies, like hotels and restaurant groups, may import products themselves, but mostly depend on local distributors for supplies due to small volumes (Export.Gov, 2018).

## 4.2 Retailing channels

The retailing channel for Australian mangoes, avocados and lychees in Singapore mainly includes traditional and high-end supermarkets, wet market, grocery (specialty) stores, Mom-and-Pop store and e-commerce retailers.

NTUC FairPrice, Dairy Farm International and Sheng Siong Group are the three supermarket chains, which dominate Singapore’s grocery retail sector (Kwek, 2018). NTUC FairPrice is the leading player in grocery

retailing in Singapore which has opened its upmarket outlet named FairPrice Finest to cater to the changing tastes of Singaporeans (Source: fairprice.com.sg/). With the inclusion of various convenience store, supermarket and hypermarket retailing formats, NTUC FairPrice can cater to both price-conscious and higher-income consumers. However, supermarkets are divided across the Singapore market. Some supermarkets particularly cater to high-end consumers, while others target more medium incomes (Fresh Plaza, 2015). Cold Storage and Market Place supermarkets which are operated under Dairy Farm International in Singapore cater to mid-range to high-end consumers, whereas Giant hypermarkets and supermarkets, including Sheng Siong, cater to price-sensitive consumers (Export.Gov, 2018).

Wet markets are traditional markets in Singapore, which are not necessarily cheaper, but whose products are perceived as fresher (Fresh Plaza, 2015). Wet markets used to dominate the retailing of fresh fruit and vegetables. However, more consumers prefer to shop for fresh food in supermarkets than in wet markets in recent years due to the longer operating hours and wider product range in supermarkets (Flanders investment & trade, 2016).

Family-owned stores and specialty retail stores which carry premium products targeting the niche and higher-end consumers are fragmented in Singapore compared to supermarket chain stores. With more consumers opt for sustainably sourced, sustainably farmed and non-GMO products, the number of specialty retail stores offering premium and/or organic and natural food products are increasing (Kwek, 2018). It should be noted that there are a number of them that are Australian-linked such as Little Farms, Farm 'N Pantry and The Fishwives (Export.Gov, 2018).

E-commerce and direct to consumer deliveries of temperature-sensitive products find excellent opportunities in the Singapore market due to the relatively lower overhead and real estate costs of operation and the ability to cater to consumers that do not have time to shop at a retail store (ITA, 2016). RedMart is the largest online grocery retailer in Singapore, which is owned by Alibaba-backed Lazada (Export.Gov, 2018). Honestbee and Amazon's grocery are the two recent entrants which started operations in 2015 and 2017 respectively (Kwek, 2018). With the development of online retailing, supermarkets have also integrated online sales with their in-store sales through establishing online grocery shopping platforms. One retailer indicated that they are excited about the online retailing service due to the saving of expensive rent. Additionally, they are working to expand their sales regions in Singapore.

### 4.3 Foodservice

The foodservice industry is another important market segment for fresh food exporters given that Singapore is considered as a transportation and tourism hub (Flanders Investment and Trade, 2016). According to Singapore's Department of Statistics, there are approximately 7,260 Food and Beverage establishments in

Singapore, including restaurants, cafes, snack bars, food courts, fast food restaurants, food caterers, etc (Export.Gov, 2018).

## 5. Benchmarking analysis

### 5.1 Supply seasonality

#### 5.1.1 Mango supply seasonality

Singapore imported mangoes (HS08045020 – Mangoes fresh) year-round. Figure 7 shows the changes in imports from the world by volume and supply seasonality by the supplying country. During 2016-17, the highest import volume at 2138.5 tonnes occurs in May, while the lowest import volume at 652 tonnes happens in October. Moreover, imports into Singapore tend to increase from January to May and decrease from June to October.

Thailand and Malaysia are the two largest mango suppliers with year-round supply in Singapore, accounting for 48.93% and 15.50% of the average monthly market share respectively. India, Indonesia and the Philippines supply Singapore almost year-round; however, their average monthly market shares are relatively lower, at 6.77%, 2.53% and 2.31% respectively. Though Australia is the third largest supplier in terms of the average monthly market share (13.04%), it supplies the market from September to April only. The peak supply from Australia is between November and January when Thailand and Malaysia are the two major competitors.

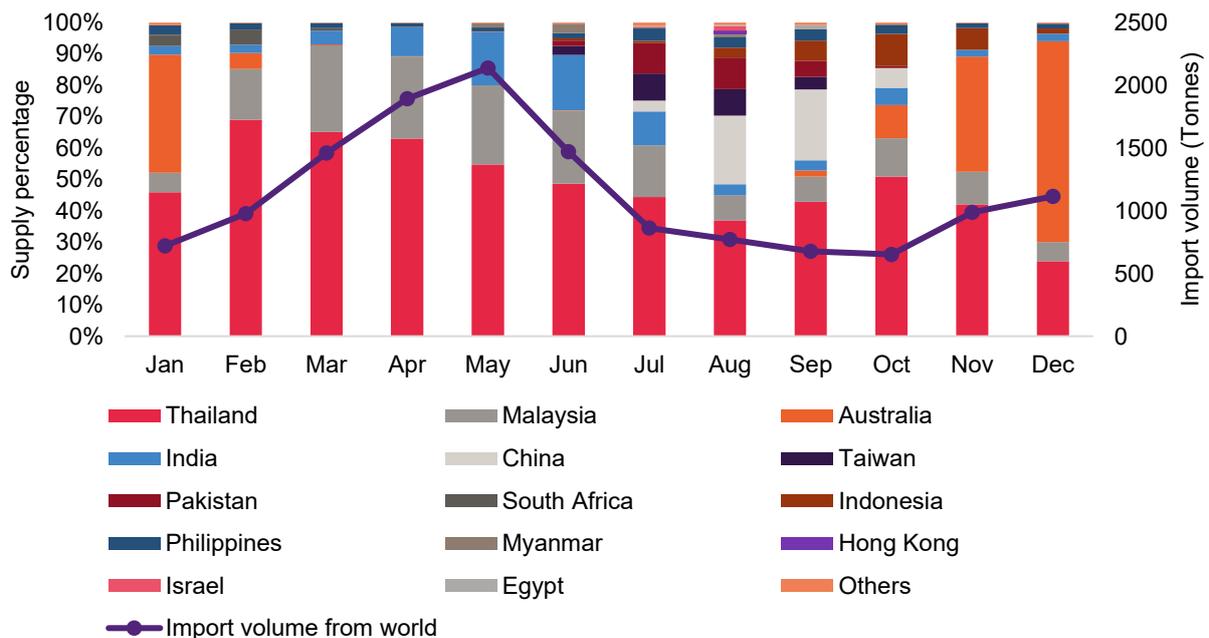


Figure 7 Singapore's mango import seasonality by country (2016-17 average)

Source: Trade Maps; Product: HS08045020 (mangoes fresh or dried)

### 5.1.2 Avocado supply seasonality

There is a year-round supply of avocados (HS080440 – fresh or dried avocados) in the Singapore market. Figure 8 shows the changes in imports from the world and supply seasonality by the supplying country. While the Singapore market has the highest supply in November (434.5 tonnes) and the lowest supply in February (247.5 tonnes), its import volume is relatively flat and fluctuates around 350 tonnes for each month.

A consistent competition exists among Mexico, the USA, Kenya and Australia in the Singapore market due to the year-round supply. During 2016-17, Mexico and the USA comprise a higher average monthly market share at 28.61% and 24.79% which are higher than Australia's (19.06%). Though Australia has a year-round supply in Singapore, the peak supply is between May and August when the USA also makes up a relatively larger market share. In contrast, New Zealand ships more avocados from September to February than Australia; however, it does not supply the Singapore market from March to June.

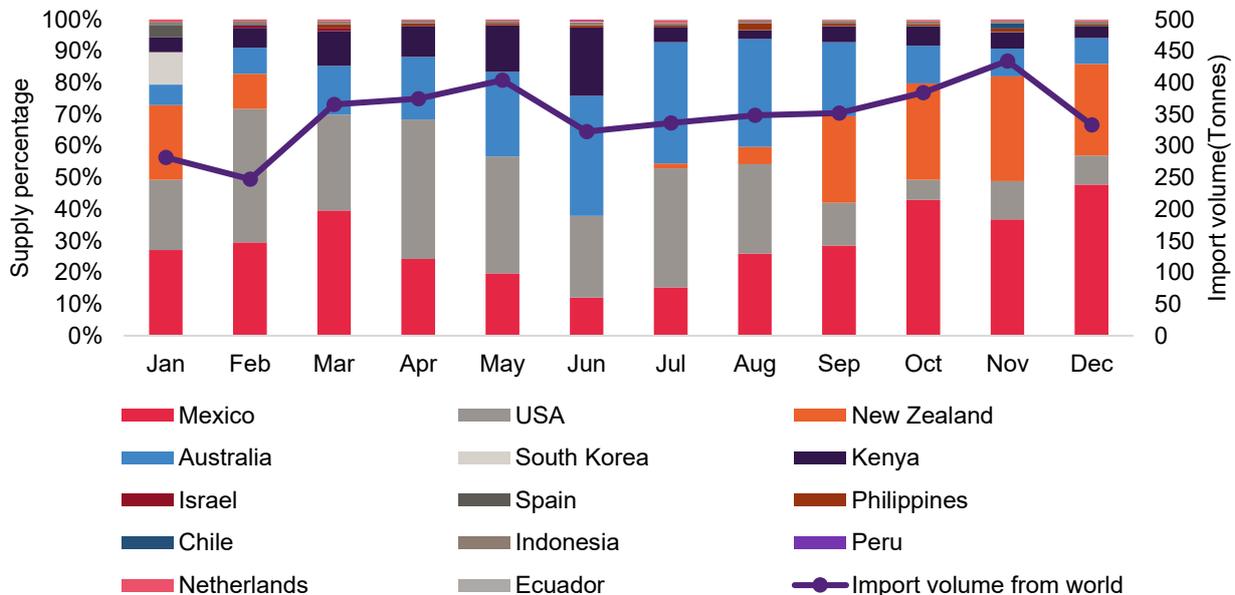


Figure 8 Singapore's avocado import seasonality by country (2016-17 average)

Source: Trade Maps; Product: HS080440 (fresh or dried avocados)

### 5.1.1 Lychee supply seasonality

Lychees (HS08109020 – Lychees fresh) are only available in some months throughout the year in the Singapore market. Figure 9 shows the changes in imports from the world and supply seasonality by the supplying country. The highest supply happens between May and June when Chinese lychees are right in the season.

China dominates Singapore's lychee markets from May to August, when lychees are also available from Malaysia and Taiwan. Due to the counter-seasonal production with China, Australia dominates the Singapore lychee market from November to February. However, imports from Australia are very small,

ranging from 1 tonne to 8 tonnes for each month during the period. Moreover, Australia faces competition from Madagascar which can supply the Singapore market in December.

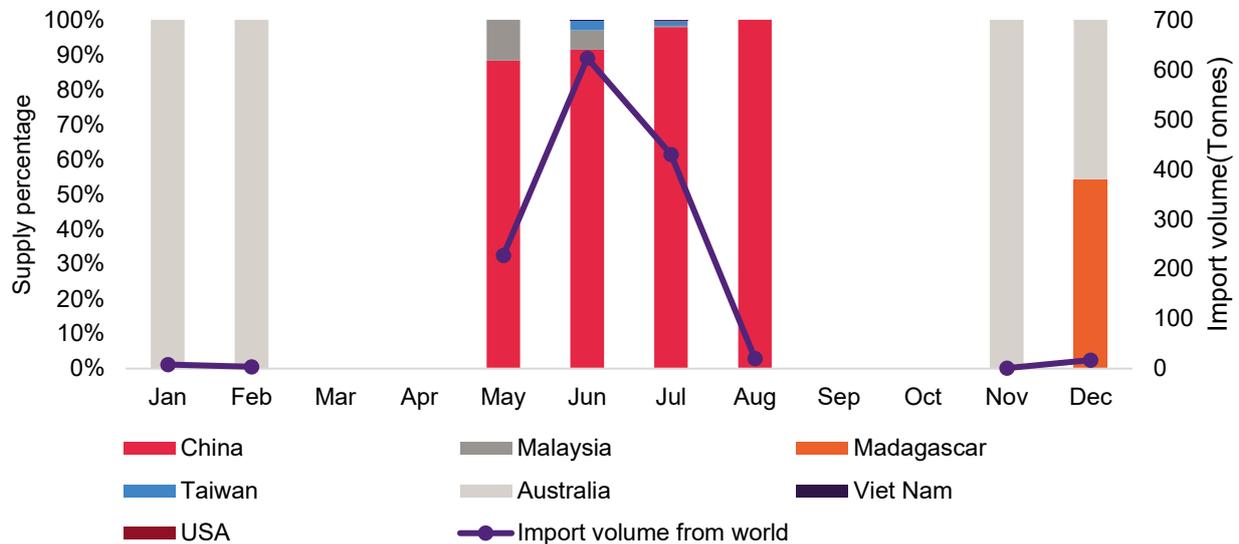


Figure 9 Singapore's lychee import seasonality by country (2016-17 average)  
Source: Trade Maps; Product: HS08109020 (Lychees fresh)

## 5.2 Supply chain performance

### 5.2.1 Strategic performance

Singapore importers source mangoes, avocados from several countries. One wholesaler indicated that they import mangoes from Australia, India, Pakistan and Thailand and avocado from the USA, Mexico, New Zealand and Australia. While they buy avocado avocados from Australia, they do not buy a lot from Australia due to the higher procurement price. Another wholesaler mentioned that they buy avocados from the USA, Mexico, Kenya and Australia. Differently, Singapore importers import lychees from a few countries. Two wholesalers indicated that they only import a small volume from Australia, while the retailer said that they only import from China. Singapore retailers generally import mangoes and lychees directly, albeit with some procurements from local wholesalers. However, as avocados are a kind of sensitive fruit and need the ripening service, they mainly rely on Fresh Mart which is a dominant local avocado supplier in Singapore for supplies.

Though Singapore importers prefer to work directly with growers, they mainly rely on Australian exporters/traders for supplying mangoes, avocados and lychees. One wholesaler indicated that other supplying countries, including Thailand and Malaysia, mostly have a direct supplier for mangoes. However, given that many orchards do not do direct export, there are not many direct suppliers in Australia. As such, they mainly source Australian mangoes from exporters/traders, most of whom are located in the wholesale markets in Sydney, Melbourne and Brisbane. In contrast, the mango supply chain from Thailand is very strict as there are a few big exporters who work with lots of growers to supply the fruit.

Singapore importers generally work with one to two suppliers for sourcing mangoes, avocados and lychees. For example, one wholesaler indicated that they buy Australian avocado only from 1, maximum of two suppliers and Australian lychee from only one supplier. Another wholesaler also indicated they only work with Avolution for Australian avocados and Sun lychee for Australian lychees. Retailers also adhere to a few supplier strategies. For example, one retailer indicated that they usually have one supplier in every country to work with. However, when sourcing Australian mangoes, they usually have to work with more suppliers – 2 or 3 exporters. This is because they want to obtain a competitive price by comparing suppliers due to the fluctuating price in procuring Australian mangoes during seasons. One wholesaler who imports directly from Australian growers indicated that they have to work with more than two mango suppliers in Australia given that mangoes suppliers (growers) are located in different regions.

Singapore importers do not trade with consignment unless their supplier has lots of troubles. They generally buy the fruit and pay later. One wholesaler indicated that they usually pay their Australian exporters between 14 to 30 days after receiving the fruit. They basically follow the same payment method for all suppliers across the world. This is the same case for local sourcing, retailers also make the payment from 14 to 30 days after receiving the fruit. In terms of the in-market supports, the Australian government and suppliers generally do not provide Singapore importers with any support. In contrast, one wholesaler indicated that authorities from other countries sometimes provide some supports, such as subsidies to promote their fruit. Moreover, one retailer indicated that some exporters from Taiwan, South Korea and China do offer them in-market supports, such as working with them on marketing and help them to promote new products.

### 5.2.2 Operational performance

Because of the geographic location and supply chain strategies, Singapore importers accept different modes of transport for shipping mangoes, avocados and lychees from supplying countries. The comparison of supply chain lead time from major supplying countries to Singapore is shown in Table 4.

**Table 4 Comparison of supply chain lead time from origin to Singapore**

Departing country	Port of departure	Mode of transport	Shipping time	Freight cost (Australian Dollars)		
				Airfreight		Sea freight (40ft Container)
				AKE	PMC	
Australia	Brisbane	Air	Same day	850-880	1105-1300	
	Sydney	Sea	Approx.20 days			1,470-1,620
USA		Air	2-3 days			
	Los Angeles	Sea	Approx.30 days			1593-1756
Mexico		Air	2-3 days			
		Sea	30 days+			
New Zealand	Auckland	Sea	30 days+			2648-2929
Taiwan		Sea	7 days			
Thailand		Road	2-3 days			
Philippines	Manila	Sea	Approx.12 days			760-840

Source: Interviews and secondary data (<https://moverdb.com/shipping-to-singapore/>).

Note: exchange rate (1USD=1.42 AUD; 1 NZD=0.95 AUD; 1 PHD=0.028 AUD).

Mangoes from Thailand are shipped by truck, which takes about 2-3 to days to Singapore, while mangoes from Taiwan are shipped by sea, about 7 days. Avocados from Mexico, the USA and New Zealand are mostly shipped by sea. Although the sea freight is much cheaper, one wholesaler indicated that the quality is sometimes not stable upon arrival due to the lengthy trip by sea. Australia has the cost advantage than New Zealand by sea; however, Singapore importers import Australian avocados mostly with airfreight given that the air freight cost is acceptable. More importantly, as indicated by one wholesaler, fruit can arrive on the same day by air, which can ensure the maximal freshness consumers demand. On the other hand, it could take about 20 days by Sea from Australia to Singapore.

## 6. Reference models for Australian exporters

### 6.1 Case 1 – Locate & Grow

The international company Locate & Grow is devoted to the export of fresh produce from South America to the world. However, it has a clear strategic focus on Asia, where it competes fiercely with the big players from the Southern Hemisphere, such as Australia, New Zealand and South Africa. Locate & Grow is grown in Peru, Chile, Argentina and Uruguay, supplying grapes, apples, pears, citrus, cherries, blueberries, kiwifruit, avocado and asparagus, but keep developing more produce to their customers' needs. While the company has a strong background in South America, it is headquartered in Singapore, where about 5% of its business is concentrated.

#### 6.1.1 Supply strategy

- (i) All their fresh produce comes from South America as they want to specialise in South American produce.
- (ii) They mainly focus on banana, citrus, grapes, while mangoes and avocados account for a very small proportion of their business, at about 5% for each.
- (iii) They operate farms in Peru, and also have contract farming with growers. Moreover, they buy from other producers. As for mangoes and avocados, they currently buy from growers; however, they are planning to buy farms as they want to control the supply chain. They also are looking for acquiring some mango and avocado farms in Columbia to extend their supply windows. They work to fulfil their commitment and ensure supply continuity by integrating own production and procurement from other suppliers.
- (iv) They endeavour to create relationships with their suppliers. Although they are headquartered in Singapore, they have staff in South America working with their producers, which helps producers feel much more comfortable dealing with them.
- (v) They have somebody in their procurement farms to monitor their operations in order to ensure their procurement efficiency and fruit quality.

#### 6.1.2 Market strategy

- (i) They have sales branches in most of the markets they operate.

- (ii) China, Japan and Korea are their major markets for mangoes and avocados. They send Kent mangoes to China, Japan and Korea, while they send Hass avocados to China and Japan basically from February to July, which is Peru's harvesting time.
- (iii) They generally do not handle imports in their target markets and just sell to other people, mostly wholesalers in China and Japan. These people collect fruit upon arrival and sent to their own warehouse. However, they do direct imports in Korea and transport the fruit to their rented warehouse for sales after going through the customs.
- (iv) They do not ship mangoes and avocado to South East Asia. This is because mangoes and avocados could be damaged due to the long-distance travel by sea from South America.

### 6.1.3 Supply chain strategy

- (i) They have teams in both production regions and markets to integrate their supply and market demand.
- (ii) Mostly mangoes are shipped by air from Peru, while avocados are shipped by sea. The mangoes can be ready to eat as they are ripened when they come all by air.
- (iii) Their customers for mangoes and avocado are mostly wholesalers, which is the core of their operations. They also distribute banana, grapes and citrus to some supermarkets in South East Asia.
- (iv) They use generic brands for mango and avocado. Given that mangoes and avocados are a small percentage of their business, they do not invest in branding. However, they have brands for grapes and banana.
- (v) They are close to their customers and speak their languages, which can simplify their operations in sourcing.
- (vi) The dominant trade mode in China is called MC (minimum commission). After selling the fruit, their Chinese customers collect their commission and send them the rest, which is very common in China for South America's produce.

## 6.2 Case 2 – FC Bloxom

FC Bloxom Company is an American company based in Seattle, USA. Their trading includes buying and selling in Alaska, Hawaii, Hong Kong, Singapore, Korea, Guam, Japan, the Philippines, Malaysia, Saudi Arabia, Costa Rica, Puerto Rico, Venezuela, Colombia and Panama as well as many South American countries. The company has developed long-term relationships with growers, shippers, packers, and shipping lines, which enables them to meet the challenging demands of diverse clients across the globe. FC Bloxom was established with the brokerage function but began to evolve into a more service-oriented warehousing and distribution function. Their procurement service involves review and inspection of lots for consistency and repacking or reconditioning them if necessary.

### 6.2.1 Supply strategy

- (i) They work with mango and avocado growers in South America. In Asia, they are currently working with 1 mango growers in India. They are also seeking to deal with Australian fruit, like oranges and mangoes.

- (ii) Procure fruit from many different countries and regions so that they can serve their customers with a year-round supply.

### 6.2.2 Market strategy

- (i) Their main markets for mango and avocado are Japan, Korea and China in Asia. However, given that the market capacity is small and not much room for premium products, they do not focus on Singapore and Hong Kong.
- (ii) They are working to develop the Australian market for Indian mangoes. They have brought some Indian mangoes into the Australian markets.
- (iii) They have some people in their markets or sales regions, for example, they have a market development manager who is based in Singapore. They work closely with customers and understand their needs and provide the best service we can offer.

### 6.2.3 Supply chain strategy

- (i) They work with suppliers in the form of an agreement to ensure a stable price.
- (ii) They work to promote growers/suppliers' brands.
- (iii) They provide their suppliers with transactional transparency. They only charge a portion of commissions and let their suppliers know their transaction prices with their customers. This is what they create sustainable relationships with their suppliers.
- (iv) Their major customers for mangoes and avocado are mostly international supermarkets. They also work with some wholesalers
- (v) They work with a supply program with their customers and offer their retailing customers the marketing support or promotion.
- (vi) They, as a marketer and service provider, work to make the business simple for their suppliers and customers. They can arrange their logistics partners to pick up the produce from our suppliers, and ship to international trading partners' facilities in major ports and even deliver to their customers' warehouse.

## 7. Development strategies for Northern Australia's fruit industry

- 1) Work to improve market competitiveness by offering innovative products, maintaining quality superiority, and educating the market on how Australian fruit can stand out from their competitors.
- 2) Support collaborative marketing companies to coordinate growers from different ranges for a uniform export. This effort not only can stabilise the export price but also ensure a longer supply window throughout the year.
- 3) Build and promote an individual or a collaborative brand by a larger exporter or a collaborative marketing company for value adding, rather than using the generic Australian Brand, and work to ensure quality consistency under a single brand, which could help Australian fruit stand out from their competitors.

Avolution and Sun lychee are good examples for the avocado and lychee industry respectively. This may also benefit the mango industry in the Northern Australian if implement.

- 4) Support existing exporters to play the role of consolidators to collect small orders from different suppliers/growers and arrange all fruit for one shipment together. This can resolve the issue of minimum order quantity and reduce the Singapore CIF price.
- 5) Adopt new technology and supply chain practice to improve supply chain transparency by providing accurate supply chain details in production and harvest, which can support Singapore wholesalers and particularly retailers to make optimal decisions on how to handle and sell the fruit, thereby differentiate existing suppliers and competitors from other supplying countries.
- 6) Work closely with larger importers in Singapore, such as Fresh Mart to deliver quality avocados into the Singapore markets given Singapore retailers rely on local larger importers for supply.
- 7) Support larger fruit companies to educate and understand market conditions better by establishing a sales office in Singapore or having a salesperson in the market and further take Singapore as a service platform to serve customers from other surrounding markets.

## 8. Summary

Although Australian mangoes, avocados and lychees are more expensive compared with most other supplying countries, they have already well-established in the Singapore market, where Australia is ranked as the 3<sup>rd</sup>, 1<sup>st</sup> and 4<sup>th</sup> largest supplier for mangoes, avocados and lychees respectively between 2013-2017. As a leading supplier of mangoes, avocados and lychee to the Singapore market, Australia needs to maintain market competitiveness and expand market share by offering innovative products, maintaining quality superiority, and educating the market on how Australian fruit can stand out from their competitors.

The Singapore market is quite small, and the fresh fruit market is competitive, with extremely price sensitive retailers and consumers (ITA, 2018). Price, freshness, quality and service are the four key factors that determine the sales, with price affecting the most. However, they are emerging niche markets for fresh and quality fruit. Since Australian mangoes, avocados and lychees are more expensive, freshness and quality become two important selling points. As such, almost Australian mangoes, avocados and lychees are shipped to Singapore by air to ensure the freshness as much as possible. Moreover, the sales of Australian fruit in the Singapore market could be disturbed given that everyone can buy cheap fruit from the wholesale markets in Australia and ship over to Singapore.

Singapore is a diversified market for Australia mangoes, where five main varieties, including R2E2, Calypso, Kent, Keitt and KP in different grades and sizes are available in the market. Hass and Shepard are the two major varieties preferred by Singapore importers. Hass is the dominant variety mainly sold to supermarkets, while Shepard would be mainly sold in the wet markets to cater to some specific customers. Australian lychees have its advantage due to the counter-seasonal production with China. As indicated by interviewed companies, two varieties (i.e. Kwai May Pink and Fay Zee Siu – a green variety) are mainly imported from

Australia into Singapore. Considering Singapore customers' knowledge of lychee as fruit is from China and prefer cold, red, wet, not brown appearance, Australia needs to educate consumers the differentiation of Australian lychees which are fine, although they sometimes turn into brown with dried skin.

Since Singapore is an unregulated market for fresh fruit, local wholesalers and retailers can import mangoes, avocados and lychees directly from overseas suppliers. Larger wholesalers generally import mangoes, avocados and lychees directly and may also act as distributors usually have their own facilities to handle perishable goods and capabilities for re-packing and distribution to their customers (ITA, 2018). Singapore retailers generally import mangoes and lychees directly, despite some procurements from local wholesalers. However, given that avocados are a kind of sensitive fruit and need the ripening service, retailers mainly rely on Fresh Mart which is a dominant local avocado supplier in Singapore for supplies.

Singapore importers have no current interest in farm acquisition or making direct investments in Australia. However, they would like to build long term partnerships with Australian growers. None of the companies interviewed have developed partnerships with Australian mango, avocado and lychee growers, although one interviewed wholesaler has worked with a contract with farms in Australia for rockmelon. Small imports are the main constraint for a possible partnership with Australian mangoes, avocados and lychees suppliers.

Singapore importers, including wholesalers and retailers, do not really prefer a supply program for seasonal products due to the fluctuating price and supply during seasons. Because of the significant fluctuation in the procurement price for Australian mangoes and lychees, they generally do not have a supply program with their Australian suppliers for mangoes and lychees. In contrast, the procurement of Australian avocados is quite consistent compared with mangoes and lychees. Fresh Mart, the largest avocado importer and wholesaler, indicated that they have a more or less fixed program or volume for Australian avocados. However, due to the strong market performance for avocados in Australia, Australian suppliers generally price themselves for the market and their price is quite high given. As such, Singapore wholesalers generally do not buy a lot from Australia.

Though Singapore importers prefer to work directly with growers to reduce costs and get more information on fruit. However, given that there are not many direct suppliers in Australia, they mainly source Australian mangoes from exporters/traders, most of whom are in the wholesale markets in Sydney, Melbourne and Brisbane. Some wholesalers have established the direct import of mangoes from growers. However, they normally have to work with several geographically distributed growers for a longer supply window, while they prefer to work with a small number of suppliers. Australia's exports of mangoes, avocados and lychees tend to be passively driven by the demand from the Singapore markets, rather than driven by Australian growers and exporters. In contrast, some companies from other countries, such as Locate & Grow, and FC Bloxom are more active to serve their customers by expanding their business into the market. Australian exporters may benefit from these movements if learning from these cases.

## References

- Agri-Food & Veterinary Authority, (2015). Corporate Report 2015/2016. Available at <https://www.sfa.gov.sg/docs/default-source/publication/annual-report/ava-ar2015-16.pdf>
- Agri-Food & Veterinary Authority, (2016). Corporate Report 2016/2017. Available at <https://www.sfa.gov.sg/docs/default-source/publication/annual-report/ava-ar-2016-17.pdf>
- Agri-Food & Veterinary Authority, (2017). Corporate Report 2017/2018. Available at <https://www.sfa.gov.sg/docs/default-source/publication/annual-report/ava-ar-2017-18.pdf>
- Export.Gov (2018). Leading sectors for U.S. exports in Singapore. Available at: <https://2016.export.gov/singapore/doingbusinessinsingapore/leadingindustrysectors/index.asp>.
- Flanders Investment & trade (2016). Fresh fruits & vegetables in Singapore, available at: [https://www.flandersinvestmentandtrade.com/export/sites/trade/files/market\\_studies/sgp\\_veg.pdf](https://www.flandersinvestmentandtrade.com/export/sites/trade/files/market_studies/sgp_veg.pdf)
- Fresh Plaza (2015). Singapore: A good destination for quality niche products, available at:
- Horticulture Innovation Australia, (2017). Australian Horticulture Statistic Handbook 2017/18. Available at <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/australian-horticulture-statistics-handbook/>  
<https://locatengrow.com/index.php/en/10-news/55-enrique-barcelli-is-interviewed-by-freshplaza>
- ITA (2016). 2016 Top Markets Report Cold Chain Country Case Study Singapore, 2016 ITA Cold Chain Top Markets Report.
- ITA (2018). Singapore – Agricultural Sectors. Available at: <https://www.export.gov/article?id=Singapore-Agricultural-Sectors>, Published on 7/18/2018.
- Kewk, A. (2018). Singapore Retail Foods 2018. USDA Gain Report (Report number: SN8002) 29 June 2018. Available at [https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Retail%20Foods\\_Singapore\\_Singapore\\_6-29-2018.pdf](https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Retail%20Foods_Singapore_Singapore_6-29-2018.pdf)
- Kwek, A. (2019). Singapore exporter guide – Annual 2018. Gain report (Number: SN9002), 30 January.
- Prowse, W. (2018). Fresh Fruit & Vegetable Export/Import Statistics 2017/18. Australian Horticultural Exporters' and Importers' Association. Available at [https://www.ftalliance.com.au/data/news\\_attachments/1808%20ahea%20statistics\[363944\].pdf](https://www.ftalliance.com.au/data/news_attachments/1808%20ahea%20statistics[363944].pdf)
- Singapore Food Agency, (n.d.). Wholesale Markets. Available at <https://www.sfa.gov.sg/wholesale-markets>
- Tortajada, C., & Zhang, H. (2016). Food policy in Singapore. Food sciences. Elsevier, 1-7. Available at [https://www.researchgate.net/profile/Hongzhou\\_Zhang2/publication/315539061\\_Food\\_Policy\\_in\\_Singapore/inks/59dc7a35a6fdcc1ec8a6f738/Food-Policy-in-Singapore.pdf](https://www.researchgate.net/profile/Hongzhou_Zhang2/publication/315539061_Food_Policy_in_Singapore/inks/59dc7a35a6fdcc1ec8a6f738/Food-Policy-in-Singapore.pdf)
- Valluvar, R. (2017). AVA to take over Pasir Panjang Wholesale Centre management from 2018, available at: <https://www.straitstimes.com/singapore/ava-to-take-over-pasir-panjang-wholesale-centre-management-from-2018>.

## Contact details

### AUSTRALIAN INSTITUTE FOR BUSINESS & ECONOMICS

T +61 7 3343 1076

E [enquiries@aibe.uq.edu.au](mailto:enquiries@aibe.uq.edu.au)

W [aibe.uq.edu.au](http://aibe.uq.edu.au)

CRICOS Provider Number 00025B