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Evaluation of the potential to expand horticultural industries in Northern Australia

CRCNA Project International Market Report – Japan

Dr Shoufeng Cao

A/Prof Damian Hine

Professor Robert Henry

Professor Neena Mitter

CRCNA Project International Market Report – Japan Chapter

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Background and purpose of the desktop research

The Japanese market for fresh fruit and vegetables has traditionally been dominated by domestic suppliers, with imports limited to a narrow range of products (ATC, 2006). However, due to decreasing competitiveness in the domestic farm sector, global climate change, natural disasters and the opening up of the import market, Japan has steadily increased import volumes in order to secure sufficient supply to meet the country's demand (ATC, 2006). In 2017, total imports of fresh fruit to Japan were valued at US$ 2.14 billion, accounting for one third of fresh fruit demanded in the Japanese market (Motomura, 2018).

Japan is an important market for Australian fresh fruit, with the export increasing by 35.05% from 41,772 tonnes in 2015/16 to 56,009 tonnes in 2017/18 (AHIA, 2018). According to the Fresh Fruit & Vegetable Export/Import Statistics 2017/2018, Japan overtook Hong Kong by export volume in the 2017/18 financial year and became the second largest export destination for Australian fresh fruit. With the increasing export of fresh fruit to Japan from Australia, there would create opportunities for Australian mango, avocado and lychee exports to Japan. Australian mangoes have been approved for exports to Japan for a long time. However, Australia's mango export to Japan has decreased in recent years, dropping from 69,179 tonnes in 2015 to 36308 tonnes in 2018 (HIA, 2019). The reduction in export volume could be because the Japanese fresh fruit sector is highly competitive with other countries making some inroads to the market (Motomura, 2018). Australian avocados have recently gained market access in 2018 (AGDA, 2018), with the first shipment landed in December, while Australian lychees have not been approved for export to Japan. In this context, it is of importance to investigate market insights on mangoes, avocados and lychees in the Japanese market, which can potentially light the way for Australia to gain market competitiveness through innovative products emanating from mango, avocado and lychee industry

The Japan market desktop study has three purposes:

(i) Examine market insights on mangoes, avocados and lychees produced and imported into Japan, which could provide valuable insights on supplying innovative products valued by customers;

(ii) Investigate distribution and sales channels of fresh fruit in the Japanese markets, which could direct Australian suppliers to tap into the premium channels for their products;

(iii) Benchmark the performance of major supplying countries in the Japanese markets, thus indicating the position of Australian mangoes, avocados and lychees in the market.

1. Local production

1.1 Mango production

Local mango production in Japan has gradually increased between 2013 and 2016, though a peak occurred in 2015 (Table 1). Yet local production still accounts for about 25% of the total distribution volume in Japan. Okinawa, which is located around 1500 km south of Tokyo, is ideal for mango production is it is experiencing a transformation to a more subtropical climate. Mangoes produced in Okinawa are in-season from mid-June throughout to mid-August. Miyazaki has a famous premium brand of mango, which is widely known among Japanese consumers. The main variety of Mango produced in Japan is Irwin, whose characteristics are its red skin and the average weight at 400g.

Mangoes are also produced in green houses in the Japanese island of Hokkaido. According to Fresh Plaza (2016), a 750 square meter greenhouse in Tokachi, which is surrounded by snow but is heated using geothermal energy, has 50 mango trees producing some 2,300 pieces each year since 2014. Their fruit, sold under the brand "Sun in the snow", reach their peak in popularity around Christmas, when Japanese executives give and receive exclusive gifts as a sign of courtesy (Fresh Plaza, 2016).

Table 1 Local production for mango in Japan (Tonnes)

Prefecture	Variety	Seasonality	2012	2013	2014	2015	2016
Okinawa	Keitt, Irwin	May-Sep	1,277	1,597	1,931	2,035	1,297
Miyazaki	Irwin	Apr-Aug	1,140	1,126	1,244	1,188	1,097
Kagoshima	Irwin	Apr-Jul	375	446	451	421	407
Total	-	-	2,880	3,327	3,804	3,805	2,923

Source: the Ministry of Agriculture, Forestry and Fisheries.

1.2 Avocado production

Avocados have been produced in Japan since 2013 starting in Wakayama and Ehime prefectures, both with geothermal resources. Local production of avocados in Japan is shown in Table 2. Due to the short history of avocado production in Japan, local farmers are still developing cultivation methods and production know-how. Given that agricultural chemicals for avocado are not well developed, they are grown organically in Japan. The variety of avocados produced in Japan is Bacon, which is bigger than Hass in terms of the size. It is rarely found in a supermarket. Bacon flesh has a creamy and smooth texture.

Table 2 Local production for Avocado in Japan (Tonnes)

Area	Variety	Seasonality	2012	2013	2014	2015	2016
Wakayama	Bacon	Nov-Dec				4	7
Ehime	Bacon, Pinkerton	Nov-Dec			0.2	1	1
Total	-	-			0.2	5	6

Source: the Ministry of Agriculture, Forestry and Fisheries.

1.3 Lychee production

Local production of lychee is shown in Table 3. Local production ranged from 13 (2013) to 17 (2016) tonnes. This comprises only 5% of market share and is available just from mid-Jun to mid-July. Because of its scarcity, local lychee is sold as a premium variety. Lychees with weight over 50g and brix over 20 produced in Miyazaki, especially, has a high value. They are sold in a way where consumers can order directly from producers.

Table 3 Local production for lychee in Japan

Prefecture	Variety	Seasonality	2012	2013	2014	2015	2016
Kagoshima	龍眼 (Ryugan)	Jun	4	9	8	8	8
Miyazaki		Jun	2	4	4	5	9
Okinawa		Jun	0.1	0.1	2	0	0
Total		-	6.1	13.1	14	13	17

Source: the Ministry of Agriculture, Forestry and Fisheries, 2018.

2. Import regulation

2.1 Import protocol

Japan permits the import of fruit from countries that have signed protocol agreements. The supplying countries approved for shipping mangoes, avocados and lychees into Japan are given in Table 4.

Table 4 Countries approved for exporting mangoes, avocados and lychees into Japan

Fruit	Export county approved by Japan
Mango	Mexico, Thailand (1987), Peru (2010), Taiwan, Philippine, Brazil (2004), Pakistan, India (2006), **Australia**, USA, Vietnam (2015)
Avocado	Mexico, Peru (2015), USA, New Zealand (2001), Chile, China, **Australia** (2018)
Lychee	Taiwan (1980), China, Mexico, USA

Source: the Plant Protection Station.

As per the protocol, all mangoes for exports to Japan must undergo VHT as a phytosanitary measure for fruit flies (DAWR, 2017b). Though mangoes produced and sourced from all states and territories in Australia are permitted into Japan, only five mango varieties as shown in Table 5 are permitted for exports (DAWR, 2017b). Table 5 shows the varieties available in the Japanese market from the eight supplying countries.

Table 5 Varieties of imported mango distributed in Japan

Country	Variety
Mexico	Haden, Kent, keitt, Tommy Atkins
Thailand	Nam-Dorkmai, Mahachanok, Nang Klang Wan, ChokAnan, Pin Sane Mun, Rad, Kew-Sawai
India	Alphonso, Kesar, Banganpalli, Langra, Chausa and Malika
Philippine	Carabao, Irwin
Taiwan	Irwin
Australia	Kensington Pride, Keitt, Kent, R2E2, Palmer
Brazil	Haden, Kent, Tommy Atkins
Peru	Kent

Note: compiled from articles and website material.

Seven countries as shown in Table 4 have been approved to export avocados to Japan. Australia is the country that has recently signed a protocol for Hass avocados into Japan in May 2018 (AGDA, 2018). As per the protocol, only fresh avocado fruit of the 'Hass' cultivar meeting the "hard mature condition" can be packed for export to Japan, and growers and packhouses intending to export avocado to Japan must be accredited by the Department of Agriculture and Water Resources (DAWR) prior to export. Moreover, avocados must only be sourced from officially recognised areas free from Queensland fruit fly: Western Australia, Riverland (South Australia) and Tasmania. This means that Western Australia is the only state within the Northern Australia's boundary that has the official market access to Japan.

Australian lychees have not gained market access to Japan. Currently, Taiwan, China, Mexico and the USA are the four countries and regions approved for direct exports into Japan.

2.2 Ports of entry

The Plant Protection Act rules that bulk importing of fresh vegetables and fruit into Japan is handled only at certain seaports and airports that are capable of sufficient plant protection measures to prevent diseases and pests from entering the country (JETRO, 2011). The ports of entry, including seaports and airports capable of conducting plant quarantines, are shown in Figure 1.

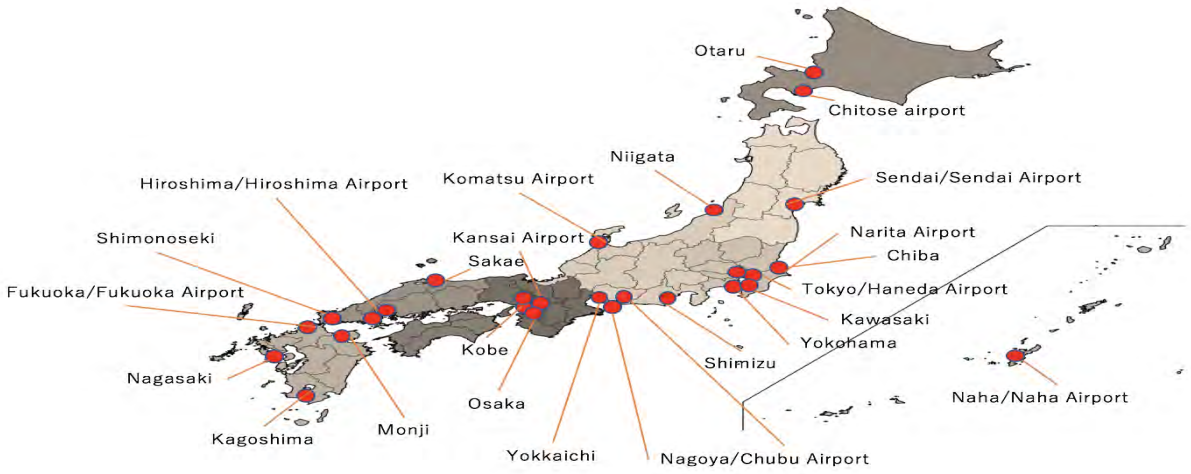

Figure 1 Major entry points for import fruit in Japan (Ministry of Health, Labor and Welfare, Japan)

The main ports of entry for mangoes, avocados and lychees are shown in Figure 2. Mangoes and lychees are typically airfreighted to Japan due to their limited shelf life. The Key airports for receiving mangoes are Narita and Haneda airport near Tokyo, while the key airports for receiving lychees are Narita airport, Haneda airport and Tokyo port. In contrast, avocados are mostly imported into Japan by ship, with Tokyo, Yokohama and Kobe being the major ports of entry. Though sea freight is used by some other countries for shipping mangoes and avocados into Japan, Australian mangoes and avocados are all air-freighted to Japan, where Narita airport is the only receiving port.

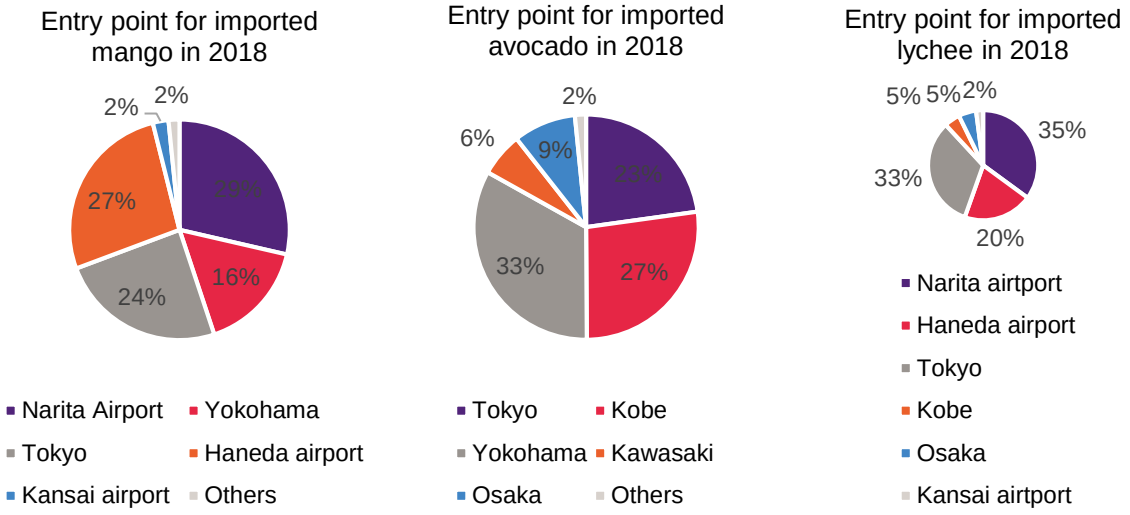

Figure 1 Entry points for imported mango, avocado and lychee in 2018 (Trade Statistics of Japan)

3. Import evolution

3.1 Mango imports

Figure 3 compares the import volume of mango by country origin from 2013 to 2018. The import volume of fresh mango has slightly decreased for the last five years, although mango related processed foods are very typical in japan e.g. sweets such as ice cream, cake, pudding, syrup, etc. The reduction in the import of mangoes could be because domestic products have been popular after Miyazaki prefecture developed their local brand. According to Ohta (2014), Miyazaki prefecture promotes the local brands to consumers by presenting its appearance and tastes, boosting their mangoes' presence in the domestic market. Mexico, Thailand, Philippines and Taiwan are the four major mango suppliers. Mexico is the largest mango supplier in the Japanese market, albeit with a slight reduction in the volume in recent years. Thailand is the second largest, with a slight increase in the volume because premium supermarkets are promoting other varieties imported from Thailand (Ohta, 2014). However, imports from the Philippines have dramatically decreased. In 2018, Thai mangoes had 26% of market share whereas Filipino mangoes had only 4.5% of market share. Australia is the smallest supplier, even smaller than Brazil and Peru, with 0.41% of market share of in 2018.

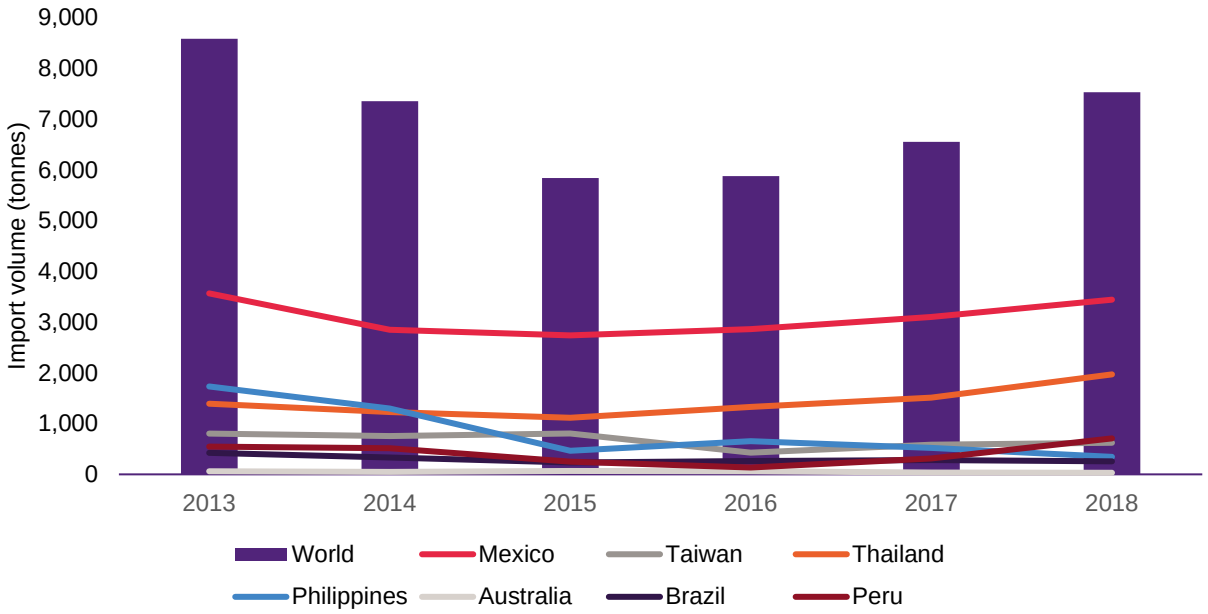

Figure 3 Import volume of mango in Japan from 2013 to 2018

Source: Trade Statistics of Japan (HS code: 0804.50.011)

3.2 Avocado imports

Avocados are not typical food in Japan. However, after its introduction to Japan, import volume has significantly increased in line with the global trend toward health and nutrition and the appeal of exotic products (Motomura, 2018). It is now no longer uncommon to find them in supermarkets or even in some local restaurants. Since Japan's production of avocados is negligible, Japan is wholly dependent on avocado imports for its national supply. Figure 5 shows the import volume of avocados by country of origin. Mexico is the largest supplier, contributing 85% of the market supply. Since the market access was gained in 2015, import volumes from Peru have been increasing, claiming the second position in the Japanese market ahead of the USA and New Zealand in 2018.

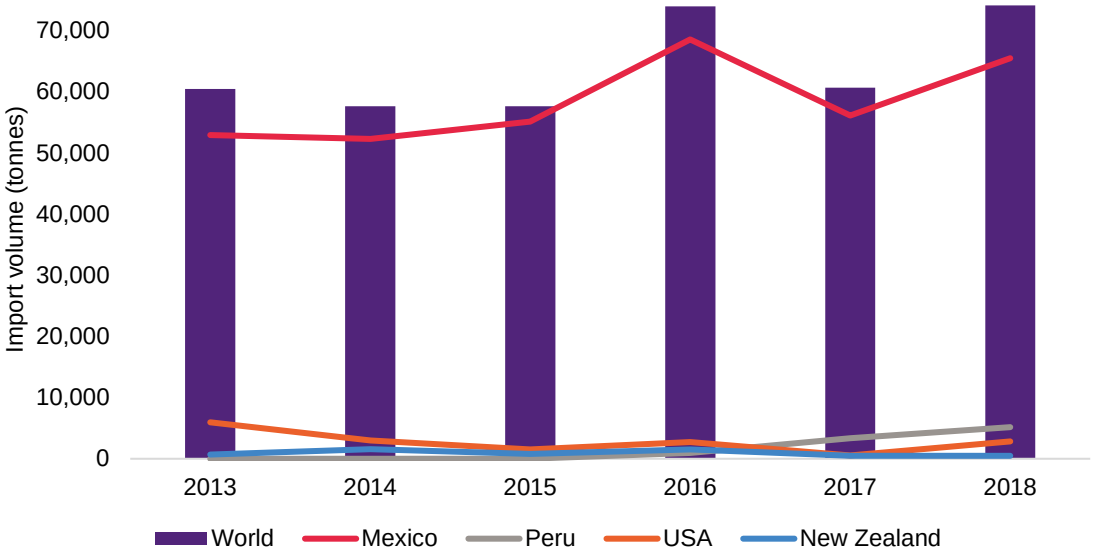

Figure 5 Import volume of Avocado in Japan from 2013 to 2018

Source: Trade Statistics of Japan (HS code: 0804.40.010)

3.3 Lychee imports

Lychee imports into Japan have gradually reduced, as shown in Figure 6, although there is little local production in Japan. Japan mainly imports lychees from Taiwan and China. Though China was the largest supplier in 2013, imports from China has decreased by 51.95%, from 256 tonnes to 123 tonnes in 2018. In contrast, imports from Taiwan have increased by 23.02%, overtaking China to be the largest supplier in 2018. Mexico is ranked third. The USA is the smallest supplier with fluctuating import into Japan, with its volume ranging between 0.6 tonnes and 0.15 tonnes.

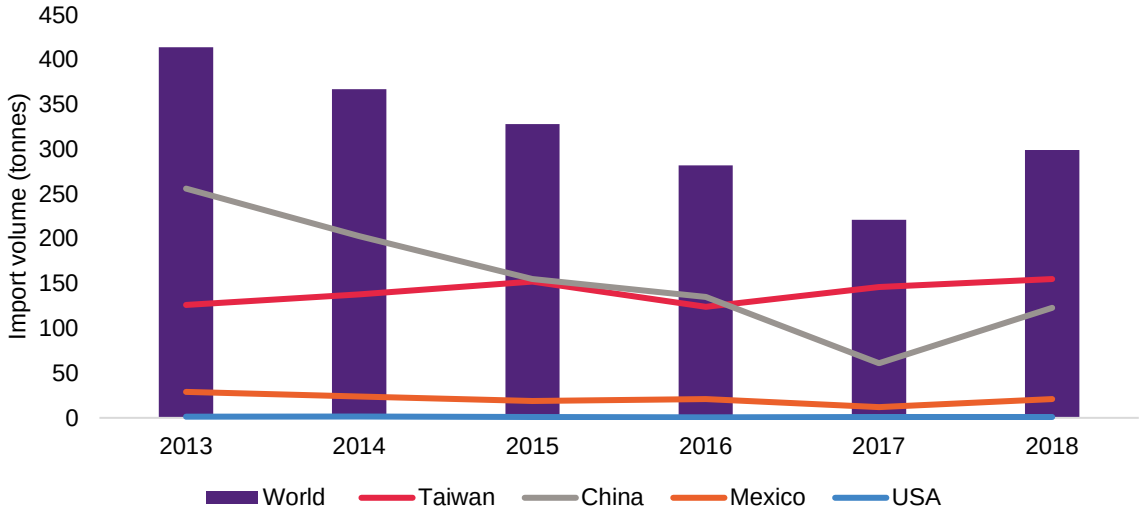

Figure 6 Import volume of lychee in Japan from 2013 to 2018

Source: Trade Statistics of Japan (HS code: 0810.90.210)

4. Market preference

4.1 Appearance

The appearance is one of the important criteria for food distribution in Japan as Japanese consumers prefer clean and safe products. If there is some damage, the prices drop significantly. Therefore, fruit distributed in Japan needs to be packed carefully for delivery to consumers. The fruit's skin must be free from any scratch, blemish or black marks. The imperfection on the fruit skin indicates that the fruit is damaged and regarded as low quality (Ohta, 2014).

4.2 Taste

The taste of a fruit is generally evaluated by its sweetness and acidity in Japan. Generally speaking, 'sweetness' is regarded as 'delicious', while 'sour' is not (Miyauchi & Perry, 1996). Consumers are focusing on brix levels before making a purchase. Fruit with a higher brix (greater than 15 – See Appendix One) is regarded as of higher quality and most preferred (Musa, 2010). Avocado is often called "butter of the forest" in Japan, which means creamy and butter-tasted avocado is expected from customers.

4.3 Fruit size

Consistency of the fruit size is important, particularly if they are sold for gift purposes. Mangoes should be weighed about 300g-400g per fruit (Musa, 2010). Since avocados distributed in Japan are mainly from Mexico, avocado weighted at 170g-200g is preferable in Japan.

4.4 Variety

Irwin mangoes are the most popular fruit from Mexico and the Philippines, while Nam-Dorkmai and Mahachano are the main mango varieties from Thailand. Japanese people are also relatively familiar with the yellowish Filipino mango with its small fruit size with sweet and sour tastes, and also of the Sunset and Apple mangoes from Mexico with red skin, yellow flesh, slightly strong aroma and mildly sweet taste (Panichsakpatana, 2013). In terms of avocados, Hass is the most accepted variety in the Japanese markets. Hishishou, the major variety of imported lychees from China, is widely known as a favourite food of Youkihi, a princess of ancient China.

5. Consumer insight

5.1 Consumer behaviour for fresh fruit

Fresh fruit is not only an important part of the Japanese diet but more importantly, fruit consumption is associated with its social and cultural practices. For instance, fruit is considered a luxury item and thus play important and elaborate ritual part in Japan's extensive gift-giving practices (IBER global, 2016). The Japanese consumers are generally not price-sensitive in the fresh fruit consumption and are willing to pay a premium

price for fruit (Haghirian and Toussaint, 2011). The word “cheap” is thus not a preferred marketing campaign among grocery retailers. (Agriculture and Agri-Food Canada, 2015).

Avocados are especially popular among women as they are rich in vitamin E and minerals that are known to help keep skin smooth and moist and lower blood pressure. Moreover, avocado is gaining popularity due to the variety of recipes being shared on TV or social media (Ohta, 2017). As a result, consumers are increasingly eating avocados daily.

Although lychee flavoured juices, teas and snacks are relatively popular in Japan, Japanese people are not familiar with eating fresh lychees on a regular basis.

5.2 Health and safety

The Japanese are very concerned about the nutritional content of fruit since they are a very health-conscious society. Information about the nutrition value of the fruit must be comprehensively reported on the label (IBER global, 2016). The concern about the safety of imported products has been growing after a series of scandals about Chinese food. In order to ensure the safety and reliability of agricultural products in Japan, the introduction of GAP (Good Agricultural Practice) is being widely applied.

5.3 Preference for domestic fruit

Many Japanese consumers prefer domestic products given that domestic products are known to be produced to the highest standards of quality and farm practice. Figure 7 shows nearly 60 % of Japanese people will purchase locally produced fruit even though they are more expensive than imported fruit.

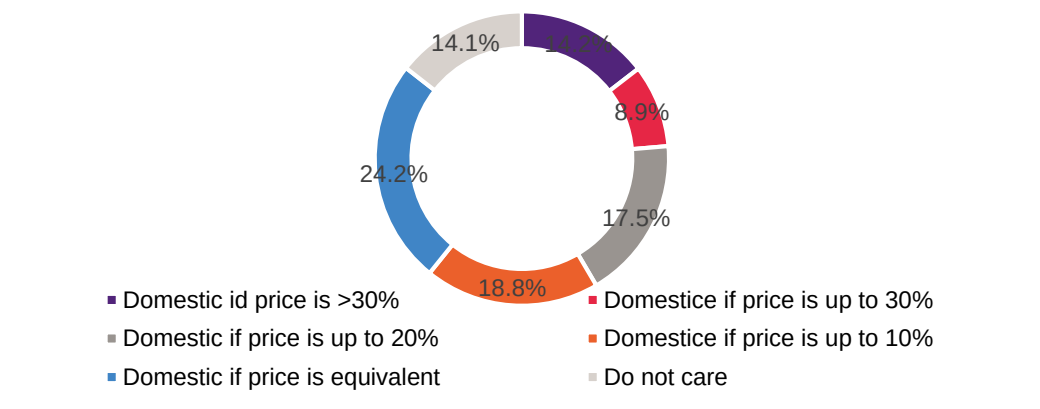

Figure 7 The proportion of purchase preference for domestic fruit among Japanese consumers

Source: the Ministry of Agriculture, Forestry and Fisheries

6. Channel positioning

6.1 Supply chain structure

The distribution channel for imported fresh fruit in Japan involves importers, wholesale markets, and retailers in reaching customers, as shown in Figure 8. The wholesale market is part of the fundamental infrastructure of Japan's system of food distribution, which is supervised by the MAFF or local authorities. There are 53 central wholesale markets for fruit in Japan. Prices are determined by auction as a basic rule, reflecting the day's supply and demand, believed to ensure fair pricing (Tokyo metropolitan central wholesale market, 2019).

The imported fruit is mainly transacted in Tokyo, Osaka, and Nagoya wholesale markets as these are the three largest markets, have high demand and are located near ports. Wholesale markets account for 60% of total fruit products. This is over 90% if domestic products included. Wholesale markets are maintaining their importance as a major pathway for the food distribution system in Japan. However, the volume and value of trade through the wholesales market has decreased due to the increase of direct transactions from trading firms and importers to retailers. The shortened supply chain makes it more feasible to provide consumers with fresh fruit and to sell imported fruit at an affordable price (Izumi 2014). Trading firms and importers play a role in controlling the quality of imported fruit, providing ripening services for mangoes and avocados. They have ripening and cooling rooms in their facilities. Avocados received unripe from ports are ripened to the level requested by each retailer before delivery.

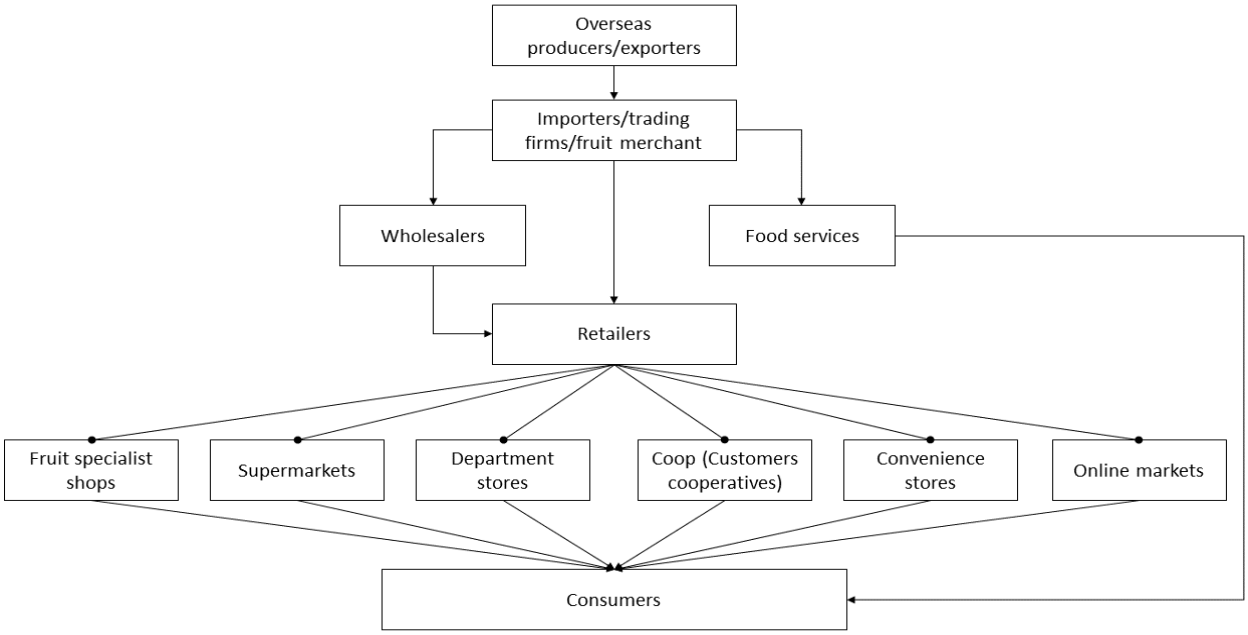

Figure 8 Supply chain structure for imported fresh fruit

The retail channels to consumers have been traditionally through supermarkets followed by small independent fresh produce retailers, department stores, and cooperatives. While sales of smaller food retailers have decreased, supermarkets remain the dominant venue and maintain their market share over fresh fruit retailers

(Motomura, 2018). Other small channels such as convenience stores and e-commerce have gradually increased their presences over recent years.

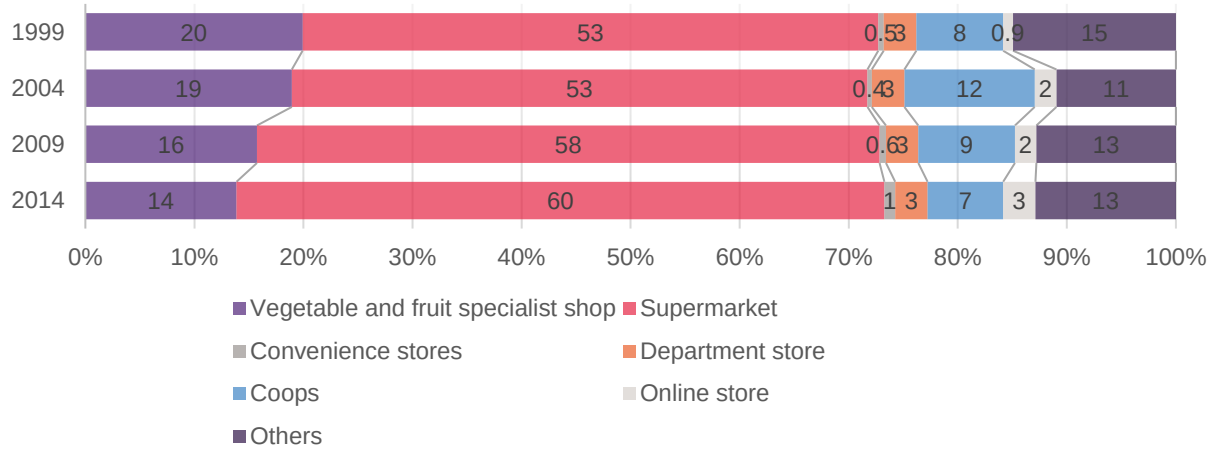

Figure 9 The ratio of retail channel for fruit in Japan

Source: the Ministry of Internal Affairs and Communications

6.2 Sales channels

Japanese prefer convenience, quality, and single-serving sizes to suit their lifestyle (Musa, 2010). According to the Tokyo Metropolitan government, an estimated 3.23 million people commute every day via a combination of train and walking into Tokyo, the world's most populace city. Therefore, convenience and accessibility of retailers are highly valued by Japanese customers who tend to drive less than many other developed county citizens.

6.2.1 Supermarkets

Supermarkets in Japan are a major place for consumers to purchase fresh food, including imported fruit, along with many selections of packaged food or frozen food. The purpose of purchase is for daily use rather than gifts (Fujimoto, 2007).

6.2.2 Convenience stores

Convenience stores continue to be a major retail purchasing choice. Due to limited shelf space, convenience stores can only hold a few brands per category. Because of this, product performance is continuously reviewed, and products with little or declining progress are quickly replaced, ensuring the highest turnover possible (Aoki, 2017). Convenience stores sell a diverse range of packaged grocery products including ready-to-eat packs of fresh fruit. (Agriculture and Agri-Food Canada, 2015). Pre-cut produce helps consumers eat fresh fruit with less effort.

6.2.3 Department stores/Fruit gift shops

Department stores usually import branded products, albeit typically in small quantities. Many of the items are packaged as take-out products due to their proximity to train stations and the premium nature of the products

means they are often used as gifts (Eurofresh Distribution, 2016). The high-quality mangoes are typically sold in high-end department stores or fruit gift shops such as Mitsukoshi, Sembikiya (Deloitte Australia, 2017)

6.2.4 Consumer Cooperatives (Co-ops)

Consumer cooperatives in Japan are well developed. Co-ops not only run the retail business but also provide other everyday living services such as health care and financial services. Co-ops are very close to their end-users. While they operate stores across the country, they also provide weekly home delivery services. Because of this, users of Co-ops are mainly families and elderly people (Aoki, 2017). Fresh fruit is packaged for single-serving size or family-sized serving.

6.2.5 E-commerce/ internet retailing

Although the online retailing for food and beverage is not a big segment as yet in Japan, it is developing rapidly (IBER global, 2016). Many major supermarkets now offer online grocery services in most parts of Japan, including rural areas. Amazon, which is the leading e-commerce site, followed by Rakuten and Yahoo! Shopping, launched its fresh fruit delivery service in Japan in 2017, following the US and the UK (Asia fruit, 2017). Thanks to developed logistics, online retailers can shorten delivery time to ensure freshness of the fruit. Top ranked products in each online site are mostly expensive fruit that are hard to buy at a supermarket. They are packaged with a fancy box for gift purposes. Imported fruit with some flaws and unattractive colour can also be sold through the online market, but at a discount price. Fruit in a large box (2 or 3kg) is also sold as heavy and bulky items are suitable for online shopping.

7. Benchmarking analysis

7.1 Supply seasonality

7.1.1 Mango supply seasonality

Japan imports mangoes throughout the year, although imports mostly occur between April and July (Table 6). Thailand is the only supplier with a year-round supply in the Japanese market. Mexico and the Philippines are the next two with a longer supply window (8 months). Although Australia, Brazil and Peru have shorter supply windows, they have counter-season production with Japan. As such, they can fill in the market when local production is out of season and major suppliers (i.e. Mexico and Thailand) have low supply.

Table 6 Mango's monthly import volume and seasonality in 2018

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mexico		4	39	374	843	727	926	400	129			
Thailand	72	95	214	535	543	199	51	29	58	48	50	74
Philippines	5	3	8	119	162	39	5	1				
Taiwan					4	288	331					
Australia	3	10									3	14
Brazil	8	14	7						39	73	88	24
Peru	126	211	259	64								47

Source: Trade Statistics of Japan (tonne)

7.1.2 Avocado supply seasonality

Mexico is the only country with a year-round supply of avocados in Japan. Peru and the USA have much longer supply windows compared to New Zealand, supplying the market from May to October and from March to August respectively. New Zealand supplies the Japanese markets between October and December only when Peru and the USA are in low supply (Table 7). Given that Australia recently received import permission into Japan in May 2018, the first shipment of Australian avocados landed in Japan in December.

Table 7 Avocado's monthly import volume and seasonality in 2018

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mexico	5,043	5,367	6,341	5,836	5,601	5,123	5,216	4,761	4,551	5,290	6,488	5,833
Peru					52	631	1,635	1,439	873	532		
USA			123	449	1,327	671	250	31				
New Zealand										170	243	90
Australia												1

Source: Trade Statistics of Japan (tonne).

7.1.3 Lychee supply seasonality

Japan imports lychees only in a few months in a year. Lychee imports from Taiwan and China mainly occur from May and July, when it is the producing season in China and Taiwan. Lycee imports from China and Taiwan by month are shown in Table 8.

Table 8 Lychee's monthly import volume, seasonality and variety in 2018

	Variety	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Taiwan	玉荷包 (Gyokukahou) 黒葉(Kokuyou)					48	105	1					
China	妃子笑(Hishishou)					34	76	11					

Source: Trade Statistics of Japan (tonne).

7.2 Import price

7.2.1 Mango import price

The Freight, cost and insurance (CIF)-based import price of mangoes from major supplying countries to Japan in 2018 is compared in Figure 10. Australian mangoes have the highest landed price in Japan, recording at $13.34/kg. Taiwan mangoes are the next close, at $12.97/kg. Brazil and Thailand are the next two suppliers with much higher CIF prices, standing at $7.68 /kg and 7.34/kg respectively. In contrast, Mexican mangoes have the lowest landed price, at $4.97/kg, which is cheaper than Philippines mangoes ($6.48/kg) and Peru mangoes ($5.38/kg).

Mangoes from Thailand, Australia and Taiwan have much stable CIF prices in 2018. The CIF price of Thailand mangoes starts with $8.73/kg in January and ends at $9.09/kg in December, albeit with fluctuations throughout the year. Australian mangoes are more expensive, with the price at over $14/kg in November and December,

but being a bit cheaper in January and February. Taiwan mangoes are only imported between May and July when the price ranged from $12.31/kg to $13.64/kg. In contrast, the Philippines, Mexico, Brazil and Peru have seen significant changes in the landed price of their mangoes in Japan. Mangoes from the Philippines, Mexico and Peru generally have decreasing CIF prices over the supplying season, although Philippines mangoes have seen an increasing price in July and August. Brazil mangoes have an increasing price since September, but then the price decreased from November to March, ending at $6.48/kg.

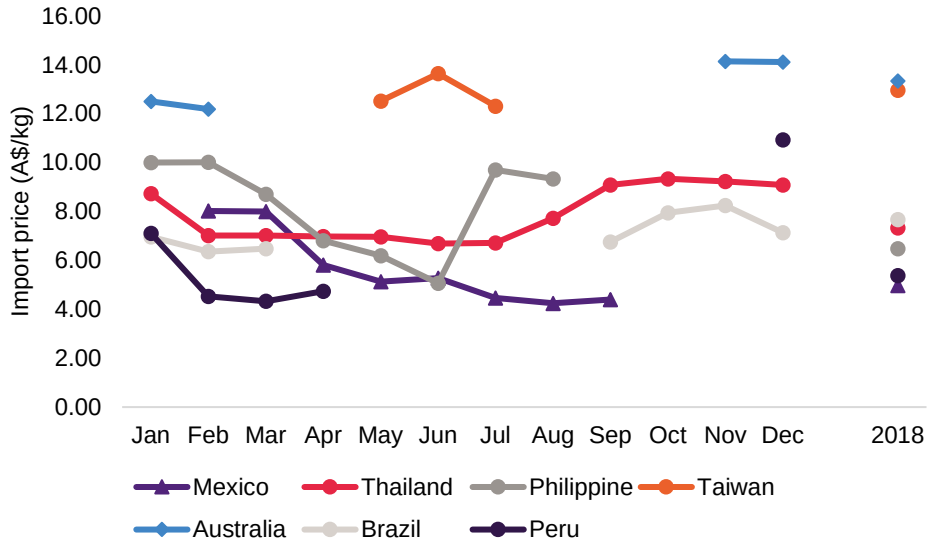

Figure 10 Japan's mango import price from major supplying countries in 2018

Source: Trade Statistics of Japan (calculated with the exchange rate at A$1=75.8 Yen)

7.2.2 Avocado import price

The CIF-based import price of avocados from major supplying countries to Japan in 2018 is compared in Figure 11. Australian avocados have the highest landed price in Japan, recording at $8.73/kg, which is 41.5% more than New Zealand's ($5.11/kg) – the supplier with the second highest CIF price in Japan. The highest price of Australian avocados could be because all avocados are air freighted to Japan, while other supplying countries mainly ship avocados to Japan by sea. USA is ranked as the third in terms of the CIF price, at $5.04/kg. Avocados from Mexico and Peru are much cheaper compared with other supplying countries. They are about 50% cheaper than Australian avocados, at $4.25/kg and $4.38/kg.

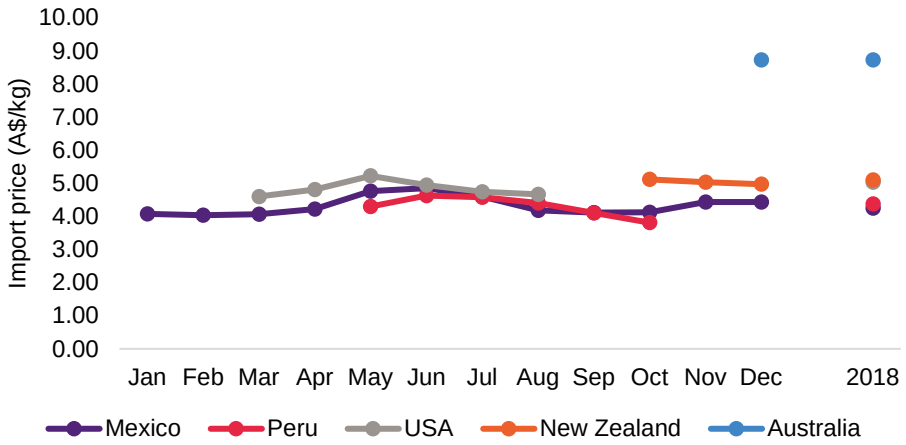

Figure 11 Japan's avocado import prices from major supplying countries in 2018

Source: Trade Statistics of Japan (calculated with the exchange rate at A$1=75.8 Yen)

The CIF price of avocados from the four supplying countries (Australia excluded due to the recent market access and sales in December only) was much stable through the supplying season in 2018. New Zealand avocados have a slightly decreasing price from October to December, ending at $4.97/kg. Mexican avocados have a slightly fluctuating price throughout the year, starting with $4.08/kg in January and ending at $4.43/kg in December. Landed prices of American avocados and Peru avocados show a slight upward trend before decreasing to $4.67/kg in August and $3.81/kg in October respectively.

7.2.3 Lychee import price

Due to the very small import volume, the import price of lychee is not officially available.

7.3 Wholesale performance

7.3.1 Mango wholesale price

The wholesale price of imported mangoes on average has decreased from 2015 to 2018. The reduction is because mangoes from all the major supplying countries (Mexico excluded) have experienced decreasing wholesale prices, as shown in Figure 12.

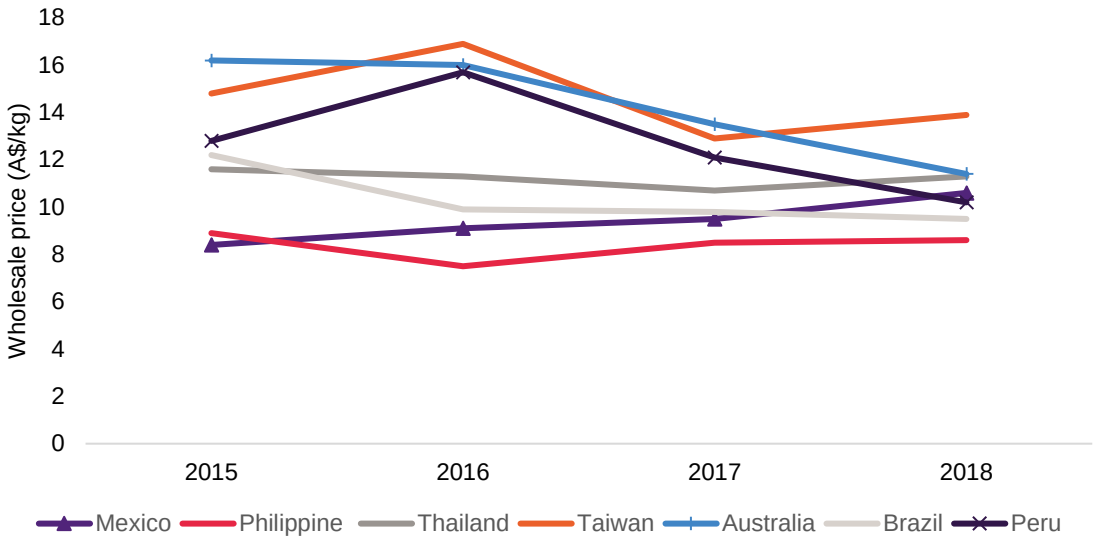

Figure 12 Wholesale price of mango by country from 2015 to 2018

Source: the Tokyo Wholesale Market (Exchange rate at A$1=75.8 yen)

Australian mangoes had the highest wholesale price in 2015, but show the most significant price reduction, decreasing from $16.2/kg in 2015 to $11.4/kg in 2018. Taiwan mangoes were the second expensive after Australian mangoes in 2015; however, it had become the most expensive mangoes in 2018, at $13.9/kg. Mangoes from Peru, Brazil and Thailand had almost the same wholesale price in 2015, around $12/kg. However, their wholesale prices generally had decreased over the years, of which Brazil mangoes had a significant price reduction, dropping from $12.2/kg to $9.5/kg. In contrast, Mexican mangoes had seen an increase in the wholesale price, climbing up from $8.4/kg in 2015 to $10.6/kg in 2018. Because of the changes in the wholesale price over the past four years, the price gap among major supplying countries became smaller in 2018 compared to 2015.

Locally produced mangoes are generally more expensive than imported. Mangoes produced in Japan are valued as a premium mango due to a unique production and strict quality control. For example, farmers control the quality by placing a small net under each mango, so that it would not drop after it is ripened. Mangoes cultivated in Miyazaki prefecture are widely known for the high quality with a rich sweetness and scrumptious aroma. As a result, the wholesale price for Miyazaki mango is normally from $50 to $90 per kg, but was even recorded over $5,000/kg (Japan today, 2017). Moreover, mangoes are produced even in Hokkaido, which is located in the northern part of Japan. The wholesale price for the Hokkaido mango harvested in winter is also high, from $55 to $85 (Fresh Plaza, 2016).

7.3.2 Avocado wholesale price

The wholesale price of imported avocados had slightly decreased from 2015 to 2018. Changes in the wholesale price of avocados from four major supplying countries are shown in Figure 13. Avocados from Mexico which is the largest avocado supplier in the Japanese market had a stable wholesale price from 2015

to 2018, at around $6/kg. In contrast, wholesale prices for avocados from other supplying counties, including Peru, the USA and New Zealand, had fluctuated over the same period. American avocados had experienced the most significant fluctuation in the wholesale price, ranging from $4.7 to $7.5/kg. Although New Zealand's avocado recorded the lowest wholesale price ($4.6/kg) in 2016, most of their wholesale prices stood at over $6/kg. The wholesale price of Peru avocados had also fluctuated; however, there is generally an upward trend, with the wholesale price up from $3.8/kg in 2015 to $5/kg in 2018.

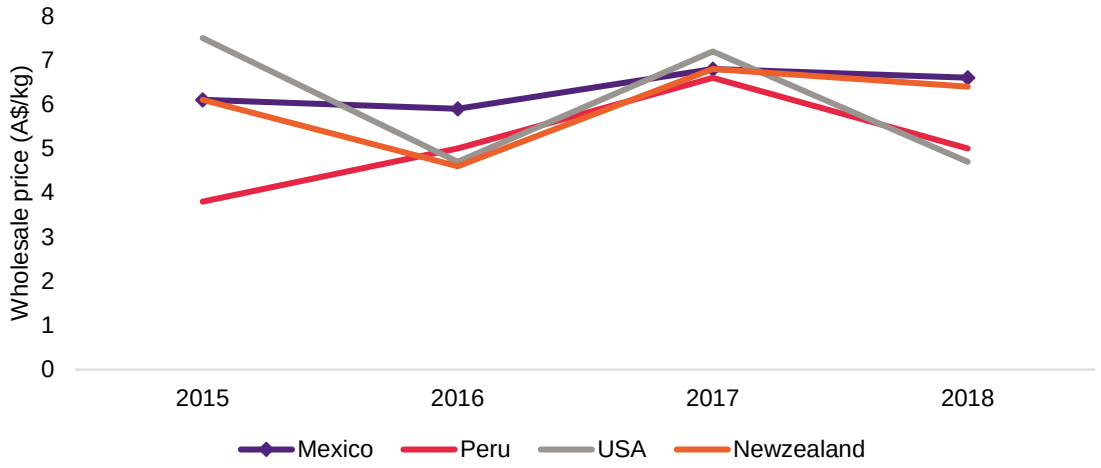

Figure 13 Wholesale price of avocado by country from 2015 to 2018,
Source: the Tokyo Wholesale Market (exchange rate at A$1=75.8 yen)

Locally produced fresh produce tends to be expensive than the imported in Japan, and there is no exception in avocados. The average price of avocados from Okinawa and Ehime was $11/kg and $17/kg respectively.

7.3.3 Lychee wholesale price

Transaction period for imported lychees in the wholesale market is very short, from May to Jun. Due to a very small import volume, the wholesale price of lychee is not officially available.

7.4 Retailing performance

7.4.1 Mango retail price

Imported mangoes are usually sold either by piece or by bag pack in traditional retailing channels, such as supermarkets and independent small fruit shops. Mangoes in the supermarket are normally displayed on the shelf with protective packages. In contrast, department stores mainly sell mangoes in a gift pack for gift purposes. Product details and instructions are also attached to the packaging, including storage advice, nutrients for adding value. The packaging is mostly designed for the small size of a typical Japanese family. Japanese people consume mango by neatly cutting its fresh into dice shapes, so advertisements for mangoes are often as shown in Figure 14-(8).

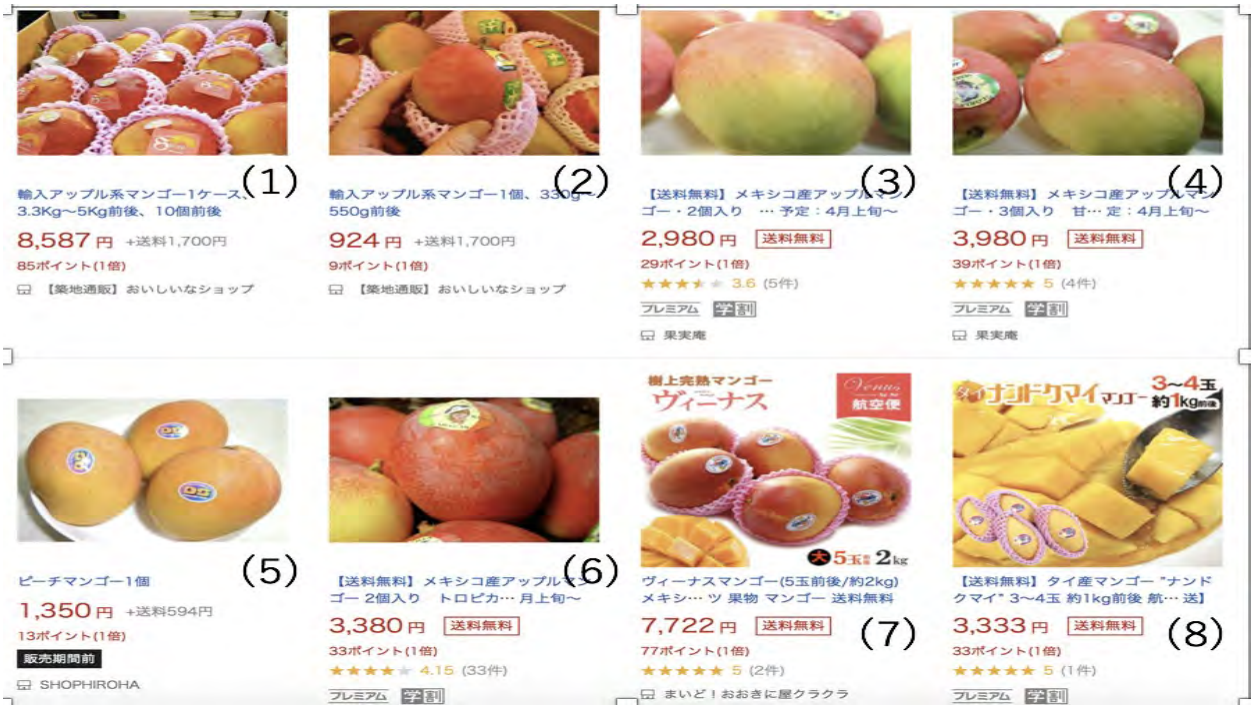

Figure 14 Online retailing price for imported mangoes in Rakuten.com (Dated on 6 May 2019)

Figure 14 shows the sales price posted by different online sellers on the Rakuten.com site. The price may vary from one seller to another. The retailing price for 2 pierces (about 0.6kg-1kg) mangoes from Mexico is about $37-$45 (Figure 14-(3), (6)), while the price for a 2kg tray with size counts 5 is $101 (Figure 14-(7)) and for 3.3-5 kg tray with size counts 10 is $115 (Figure 14-(1)). Thailand mangoes are also sold on this site. The retailing price for Nam DorcMai is $45/kg (Figure 14-(8)). Kensington Pride from Australia is sold at $17/piece (Figure 14-(5)). Some retailers sell imported mango online without indicating the origin of production. They just mention the type of mango by colour or appearance. For example, apple mango refers to Haden, Kent, Tommy Atkins from Mexico and Brazil as their skin is reddish, looking like apple. Peach mango refers to Kensington Pride from Australia as its skin is peach coloured. Yellow mango refers to Carabao from Philippine. Mango varieties sold by retailers are generally those that can be found in the wholesale market (Figure 14-(1), (2)).

Generally, the retail price for locally produced mango is much higher than the imported. Since imported mangoes have diminished quality due to the vapour heat treatment, domestic producers differentiate their produce from the import and emphasise their high quality in advertisements. Figure 15 shows two domestic premium brands. One premium mango, called Taiyo no Tamago (Egg of the sun), is sold at $65 per two pieces (Figure15-(2)). According to the Miyazaki Agricultural Economic Federation, mangoes sold under the brand ‘Taiyo no Tamago’ must meet strict criteria: weight at least 350 kg each, process a high sugar content and have more than 50 percent of their skin covered in a bright red hue. Its main supplying season is between mid-May and mid-June. Another premium mango from Hokkaido, branded at “Sun in the snow” is sold at $220 for two pieces (Figure 15-(1)). The mangoes grown in Hokkaido have slightly higher sugar levels than those

produced in other regions due to the island's particular climate (Fresh Plaza, 2016). The reason for its highest price is mainly because they are produced in the greenhouse, surrounded by snow. (Fresh Plaza, 2016).

Figure 15 Online retailing price for domestic premium mangoes (Dated on 6 May 2019)

Organic mangoes produced in Japan are sold with JAS certificated seal at $129 for a 4kg box (Figure 16-(1)). Some imported mangoes are sold as an organic mango product in the form of canned mango or dry mango. Figure 16-(2) shows dried mango processed from Nam-Dorkmai in Thailand is sold at $38.

Figure 16 Online retailing price for organic mangoes (Dated on 6 May 2019)

7.4.2 Avocado retail price

Imported avocados are normally sold by the piece or in a pack in traditional retailing stores. Avocados are carefully wrapped with foam bags and sold at a supermarket (Ohta, 2014). As opposed to mangoes for gift purposes, avocados are rarely seen in gift packs, but some high-end fruit shops offer avocados in a gift pack attached with cooking instruction and storage information (Fujimoto, 2007). Some retailers started to sell avocados based on the maturity of the fruit. They highlight the level of ripeness on their advertisements so that customers get informed that the fruit will be ready for consumption within the next 2-3 days. Frozen avocados sliced into small size for meals are also available via online shopping (Figure 17-(3)).

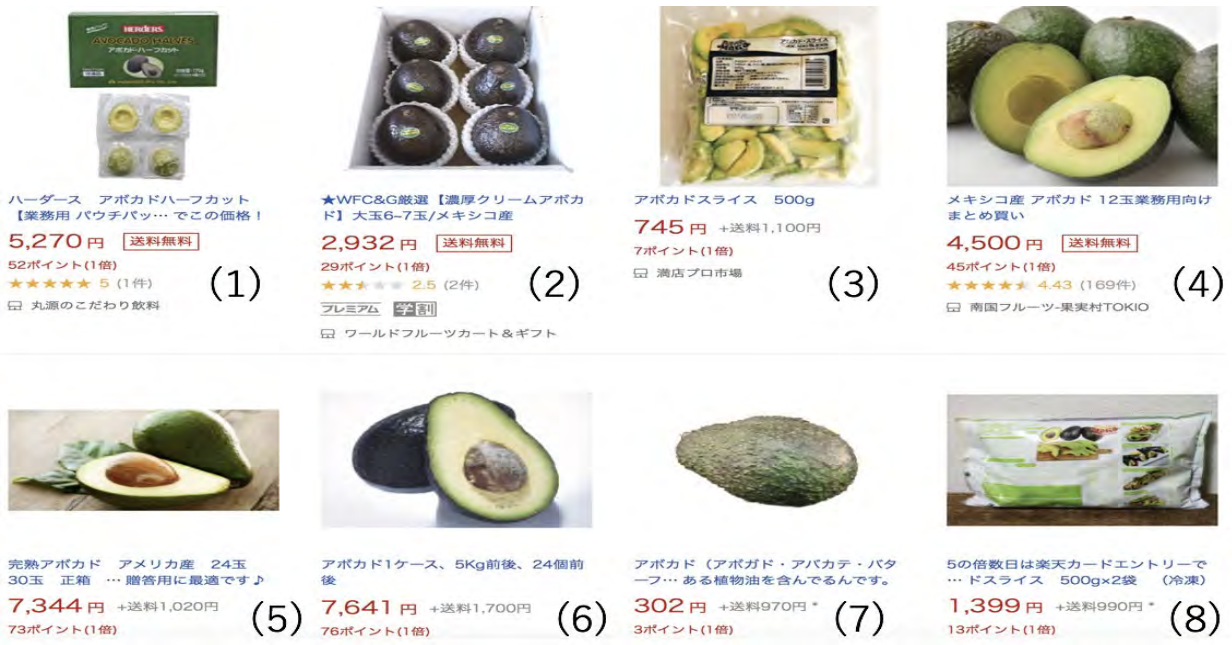

Figure 17 Online retailing price for imported avocado in Rakuten.com (Dated on 6 May 2019)

Figure 17 shows the sales prices posted by retailers in Rakuten.com. The retailing price for avocados from Mexico varies from $2 to $4 per piece based on their size and appearance (Figure 17-(2), (4), (7)). Whereas, the retailing price for avocado from the USA is much cheaper, at $1 per piece (Figure 17-(5)). Hass is the only variety sold in the online platform. Local avocados are so rare to be seen in the market due to the low production. However, some farmers have built online sites to accept orders from aspirational customers.

7.4.3 Lychee retail price

Since imported lychees are mostly frozen, they are sold in the form of bag packs at a supermarket. Fresh lychees are mainly imported from Taiwan and China. Gyokukahou and Kokuyou are two major lychee varieties imported from Taiwan. Gyokukahou is sold online at about $45 per1 kg (Figure18-(1)), whereas Kokuyou is sold at $65 per 3 kg (Figure 18-(6)). Hishishyo, a major variety imported from China, is sold at about $35, $65 and $85 per 1kg, 2kg and 3kg respectively (Figure 18-(2), (3), (5)). Some retailers sell Taiwan lychees via pre-order – lychees are imported after receiving customers' order (Figure 18-(1)).

Locally produced lychees are also considered as premium fruit due to the small production in Japan. Japanese lychees are sold for just one month only, from mid-June to July. The price for Japanese lychee varies based on its appearance and quality, ranging from $79 to $250 per 1kg (Figure 18-(4) and (8).

Figure 18 Online retailing price for lychees in Rakuten.com (Dated on 6 May 2019)

8. Indications for Australia's export development

Australian mangoes account for less than 1% of the total imported mangoes in Japan. Australian mangoes are expensive than others imported mangoes and have overlapped supplying windows with Brazil's and Peru's, which are combined to result in lower supply compared with other major supplying countries. Mexico maintains its strong position in Japan's imported mango market, comprising 45% of market share. Mexico, Brazil and Peru supply the same mango varieties, which are popular and familiar for Japanese people, whereas the varieties from Australia are not well known among Japanese consumers. To improve the recognition of Australian mangoes in the Japanese market, Australian suppliers need to educate customers about how Australian mangoes differentiate from other imported ones. A successful case is that Thailand has grown in the market by supplying its unique varieties into the premium supermarket, building the brand image that attracts Japanese customers. It is also essential to consider locally grown mangoes which are highly valued by the Japanese. The growing local production would pose potential challenges to Australian mangoes. However, Australian would benefit from learning production practices in Japan as Japanese farmers have spent considerable time and energy in improving their products based on taste, appearance and development of production methods to supply out of season produce.

The Japanese avocado market continues to grow, and there is a market opportunity for Australian avocados, which gained market access into Japan in 2018. The entry into Japan means that Australia has to compete with established suppliers, including Mexico, Peru, the USA and New Zealand. Mexico has been by far the largest avocado supplier in Japan given its ability to land fruit at a consistently lower price than other supplying countries throughout the year. Since Mexico can supply avocados year-round with stable volumes, Australia

would not have counter-seasonable advantages in supplying avocados and have faced continuous competition with Mexico. However, Australia may have competitive advantages compared with Peru and the USA which do not supply year-round. As New Zealand avocados are cheaper than Australia's, Australia faces high competition with New Zealand. To compete with New Zealand avocados, Australia needs to identify a market segment and provide value that worth paying a higher price.

Fresh lychees are not the usual consumption in Japan. Increasing market awareness for Australian lychees would create demand for Australian lychees; however, market access is an issue given the strict import permission into Japan. The major suppliers, such as China and Taiwan, have an advantage thanks to the geological proximity to Japan, so they can supply the market for a short delivery time and respond to customer demand quickly. In contrast, Australia is distant from Japan. Australian lychees must establish a distribution system to deliver fresh lychees in a responsive time given the short shelf life of lychees.

To improve market competitiveness and expand market share, Australia needs to understand the Japanese consumer's preferences and improve packaging or marketing for further value adding. More importantly, Australia needs to identify an area where they can appeal its innovative products to customers, thereby differentiating their products from other competitors. Moreover, Australian suppliers need to build strong connections with chain actors, including logistics providers and importers, along the supply chain, which can ensure quality consistent products delivered to end-consumers.

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THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Contact details

AUSTRALIAN INSTITUTE FOR BUSINESS & ECONOMICS
T +61 7 **3343 1076**
E enquiries@aibe.uq.edu.au
W aibe.uq.edu.au

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