
Appendix 8.11

**This case study forms part of the overarching
2017–19 ACIAR Mango Agribusiness Research Program**

Project: Opportunities and strategies to improve biosecurity, market access and trade for selected mango markets

Study: Australia

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1 Acknowledgement

This study report for the Mango Biosecurity project was prepared by Samantha Frolov from the Australian Mango Industry Association.

2 Case summary

Mango production in Australia has increased to an average of more than 75,000 tonnes over the past several seasons. The majority of produce is consumed fresh, with only around 10% of fresh mango exported. As a phytosanitary market, China demands that exporters comply with various import requirements that are costly and involve significant effort to achieve and maintain. This study aimed to identify factors that impede mango exporters when exporting to China.

Currently, the domestic market for the Australian mango industry provides higher prices and lower market access costs which, in turn, results in better returns with lower risks and greater convenience. In terms of convenience, personal relationships, as well as the language and cultural understandings, are factors under consideration. With regards to Chinese markets, a high percentage of Australian mango exports is opportunistic. Exporting becomes a favourable option for mango growers during the peak of the Australian mango season when production/harvest exceeds the domestic market demand and prices in Australia fall. It should be noted that, at this stage, lower prices during these periods of high mango production do not incentivise growers to invest in export market access or development at an individual farm/enterprise level.

Based on export data volumes, history shows Australian exporters have favoured the Hong Kong market over China. Hong Kong is still Australia's largest preferred export market and it is currently ten times larger than direct trade to the Chinese market.

Hong Kong is a non-protocol market and therefore growers are not exposed to extra costs associated with orchard preparedness for protocol markets such as China. However, last season export of mangoes to Hong Kong declined while direct trade with the Chinese market has been increasing every year (although it is coming off a low base).

Key areas for future research include:

Requirements for export

Different biosecurity requirements for domestic and foreign markets make it increasingly complex for growers to service multiple markets. Consequently, a review of requirements is recommended.

Effective communication and education

Encourage exports to phytosanitary markets among growers via training and education programs, including provision of a quality manual for export markets and application process workshops. Support producers with reduced audit times, as well as improved online services or applications.

VHT

Review protocol to gain a better understanding of other possible treatments that can be used instead of current VHT.

Market volatility

Reduce motivation for opportunistic trade by instigating of collaborative processes (similar to the US working group); also improved importer relationships.

3 Introduction

3.1 Project background

Mango production in Australia has increased to an average of more than 75,000 tonnes over the past several seasons. Of this, most of the produce is consumed fresh, with only around 10% of fresh mangoes exported. The major export countries for Australian mango crops include Hong Kong, New Zealand, Singapore and United Arab Emirates. While direct export of mangoes to China has increased and trade to Hong Kong is decreasing, Hong Kong is still Australia's largest export market. As a phytosanitary market, China demands that exporters comply with various import requirements that are costly and involve significant effort to achieve and maintain.

This paper examines the opportunities that are available for Australian exporters and highlights how they could improve direct export trade to China. Though identifying the current obstacles and hurdles that exporters face when exporting directly to China, this study will consider opportunities for Australian exporters to improve the existing situation.

3.2 Study objectives

This study aimed to identify technical, scientific and commercial constraints that may be impeding Australian mango exporters from fulfilling Chinese export market requirements.

A study to review published research and reports was undertaken to:

- investigate Australian exports to China
- document export market comparisons.

Research interviews with key stakeholders were conducted to:

- gain an understanding of the restraints that impede exporters
- investigate changing Chinese market requirements
- identify what alternative options are available for exporters.

3.3 Study methodology

Australia has been exporting mangoes to China for over a decade. This study will examine the current value chain for fresh mangoes exported to China, including technical, scientific and commercial issues. Australian growers who export directly, as well as Australian exporters who export on behalf of growers and facility owners were interviewed for this study to ensure that a balanced view of the constraints faced by exporters was achieved.

The research design included key informant interviews. Key stakeholders included growers who export fresh mangoes and treatment facility operators (including vapour heat treatment (VHT) and irradiation).

Five fresh mango exporters, three VHT facility operators and one irradiation facility operator were interviewed.

- Exporter A
 - Farms located in Katherine, Northern Territory and Kelso, Giru and Mutchilba, Queensland
 - Has its own VHT facility located in Giru, Queensland
 - Currently exports directly to China, South Korea and United States of America
- Exporter B
 - Located in Merinda, Queensland

- Currently exports to (through an exporter) China, South Korea and United States of America
- Exporter C
 - Located in Mareeba, Queensland
 - Currently exports mangoes directly China, Japan and South Korea. Also exports other products to the United States of America and will be exporting fresh mangoes next season
- Exporter D
 - Located in Mutchilba, Queensland
 - Currently exports (through an exporter) to China and Japan
- Exporter E
 - Farms located in Darwin, Katherine, Mataranka Northern Territory and Mareeba, Mutchilba, Dimbulah and Bundaberg Queensland
 - VHT facility located in Brisbane, Queensland
 - Currently exports directly to China, South Korea and United States of America
- Exporter F
 - Located in Mutchilba, Queensland
 - VHT facility that exports fruit directly and treats fruit for third-party companies
- Exporter G
 - Irradiation facility located in Brisbane

Assumptions and delimitations

The main respondents of this study included mango growers and exporters, treatment facilities who pack and export they own fruit and also facilities that contract 'treat' for export. Foreign inspectors and other important stakeholders such as mango importers were not consulted in this analysis. This study focuses on the export of fresh mangoes.

4 Australian mango export industry

4.1 Australian mango industry overview

The Australian mango industry is comprised of approximately 800 growers, as well as a wide cross section of other industry stakeholders such as exporters, processors, retailers, and wholesalers. Mango production is principally located in northern Australia – namely Northern Territory and Queensland – with other smaller (yet significant) production regions throughout Australia. Key production areas include Gingin, Carnarvon and Kununurra in Western Australia; Darwin, Katherine and Mataranka in the Northern Territory; Mareeba/Dimbulah region, Townsville, Burdekin/Bowen region, Rockhampton/Yeppoon region and Bundaberg in Queensland; and northern New South Wales (see Figure 1). There are also growers who are currently developing small orchards in the Mildura region of Victoria.



Figure 1. Mango growing regions of Australia

Source: Google maps, 2019

Traditionally, the mango harvest season in Australia commences in late August and progresses through until March. Although mangoes are harvested outside this production period, 75% of production usually occurs during the months of October, November and December (see Figure 2 and Figure 3). It is important to note that during the November and December period numerous mango growing regions (including Katherine, Mataranka, Townsville, Burdekin/Bowen and Mareeba/Dimbulah) are involved in harvest.

AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR
1%	10%	20%	25%	30%	10%	3%	1%

Figure 2. Average production volumes by month (as shown by percentage)

Source: Author's analysis



Figure 3. Australian mango, weekly dispatch to market versus average wholesale price, 2018–2019

Source: Author's analysis and internal pricing data, AMIA

Note: Based on Sydney pricing, weekly price of Kensington Pride, Class 1, average size 14-16

In Australia, there are nine varieties of mango in commercial production. The most abundant variety is Kensington Pride, which accounts for around 45 per cent of Australian production. Other varieties include B74 (Calypso), Honey Gold and R2E2, green-eating varieties such as Keow Savoey and Nam Doc Mai, as well as late-season varieties such

as Brooks, Keitts, Palmers, Kents and Pearls. Other mango varieties are also produced in smaller volumes.

Calypso and R2E2 are popular in export markets and, more recently, the Honey Gold cultivar. The skin colour of Calypso mangoes makes it visually appealing to consumers and its long shelf life is also advantageous. R2E2 is traditionally favoured for its consistently larger size profile which is appealing for the fruit gift box market.

4.2 Australian export market overview

Australian mangoes are exported to more than twenty-five countries throughout the world. Four of these countries – Hong Kong, Singapore, New Zealand and the United Arab Emirates – account for 80% of our mango exports. Each of these markets has its own requirements with regard to varieties, quality and maximum residue limits (MRLs). However, overlying these requirements are the quarantine or market access specifications of each country/market.

There are essentially two types of markets: (1) markets with phytosanitary protocol requirements ('phyto' markets) and (2) markets with no phytosanitary protocol requirements (open markets). Examples of open markets are Hong Kong and Singapore. Mangoes exported to these markets do not require any specific treatments by the grower or exporter. Other markets have no specific treatment specifications but they do require a phytosanitary certificate to attest that the consignment has been checked and is free of pests and other extraneous material (e.g. dirt, weed seeds).

Phyto markets are those that have specific conditions in relation to mango exports. For example, the United Arab Emirates has a phytosanitary protocol which requires a cut test to demonstrate that a consignment is freed from mango seed weevil. Likewise, Japan requires mango exports to receive a vapour heat treatment for fruit fly. Exports span from January to December. During the 2018/19 season a total 8,700 tonnes were exported worldwide versus national production of 77,000 tonnes (over 10%) (see Supporting document 8.1). Volume of mango exports for 2018–19 (July–June) season was 9,820 tonnes versus a national production total of 77,000 tonnes (13%).

Further volume distribution details for mango exports show:

- 8% by volume were exported to VHT markets, including 304 tonnes to South Korea and 403 tonnes to China
- 9% by volume were exported to grower registration markets
- 72% by volume were exported to Singapore, Hong Kong, United Arab Emirates and New Zealand, which is a reduction from previous years and suggests that exports are diversifying
- 25% by volume were exported to the Middle East.

4.3 Export treatments

All Australian mangoes for export to the Chinese market must undergo one of the following phytosanitary treatments approved by General Administration of Quality, Supervision, Inspection & Quarantine of the People's Republic of China (AQSIQ):

- Vapour heat treatment (VHT)
- High temperature forced air (HTFA)
- Hot water immersion (HWI).

These treatments are applied to the fruit to mitigate the risk of fruit flies which are a quarantine concern to China.



Figure 4. Current operational VHT facilities across Australia

Source: Google maps, 2019

Currently, Australian has three approved and registered operational VHT facilities for domestic and export mango markets (see Figure 4). A summary of each of the VHT facility capabilities is listed below.

- VHT A acts predominantly as a service provider to growers and exporters. It also participates in some exporting activities; however, this takes place with other markets and not China specifically.
- VHT B is a privately-owned enterprise and has a long-standing relationship with export markets. It predominantly exports its own produce; however, it does act as a service provider at certain times throughout the season.
- VHT C is privately owned and was commissioned mid-way through last season. It predominantly exports its own produce; however, it has the capacity to provide a service to other mango growers who require it.

In 2018–19 season, export volumes remained similar to the previous four seasons yet VHT throughput (to export markets) more than tripled (see Table 1).

Table 1. Australian mango exports to VHT markets by weight, 2015–2018

	2015 (tonnes)	2016 (tonnes)	2017 (tonnes)	2018 (tonnes)
China	111	73	132	403
South Korea	83	124	61	304
Japan	81	66	35	78
VHT total	275	263	228	785
Total exports	8292	8133	8230	9820

Source: Author's analysis

Note: July–June dataset

5 Phytosanitary requirements

5.1 Grower export procedure summary

There are specific requirements associated with exporting to China, including orchard approval, crop monitoring requirements, as well as specific inspections and end-point treatments (see Figure 5).

An overview of the grower requirements when exporting to a phytosanitary country such as China include:

- Orchard registration
- Record keeping
- Crop monitoring
- Auditing
- Treatment facility
- Transport
- Arrival inspections (in China)

Country	Orchard/pack house approval by DAWR (approved annually)	Approved crop monitoring program (approved annually)	Vapour Heat Treatment (Fruit Fly)	Irradiation (Fruit Fly and other arthropod pests)	Mango Seed Weevil (Freedom)
Indonesia (subject to accessing Import permit)*			yes	yes	
Japan			Yes		
Malaysia				Yes	
New Zealand				Yes	
People's Republic of China	Yes	Yes	Yes		Yes
Republic of Korea	Yes	Yes	Yes		Yes
United States of America	Yes	Yes		Yes	
United Arab Emirates					Yes

Figure 5. Phytosanitary requirements – key markets

Source: Author's analysis

Growers and exporters that trade with China are required to follow specific protocols and work plans. The work plan is provided by Australian Government's Department of Agriculture and Water Resources (DAWR) and incorporates the formal requirements of the protocol agreed between the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) and DAWR for exporting mangoes (*Mangifera indica*) to China. These resources are made available through the Department of Agriculture and Water Resources (DAWR) MICoR website.

A summary of the orchard requirements as specified in the Guide for Australian Mango growers and exporters (2017) for trade with China is outlined on the MICoR website:

<http://micor.agriculture.gov.au/Pages/default.aspx>

Export process

1. Log into the DAWR MICoR website and apply for a username and password. Then download a copy of the operating work plan (OWP) for each market.
2. An application is required for approval from DAWR of an orchard prior to flowering (depending upon your region, this could be May, June, July). The appropriate forms are available from AMIA.
3. Ensure the pest scout who undertakes the monitoring of the crop has the associated training and has passed the assessments. Ensure the approved contact is noted on the list held at DAWR.
4. Ensure the crop is monitored in accordance with the OWP by the approved crop monitor
5. Ensure the crop monitor records the presence and, importantly, the absence of any pests and diseases that are of quarantine concern on forms in line with DAWR requirements.
6. If pests or diseases of quarantine concern are present, take the appropriate management action. Refer to the OWP, plus follow good agricultural practice.
7. Be prepared for a DAWR audit prior to the season commencing. During the audit, you may need the following:
 - Crop monitoring records from an approved person (who has completed the training course)
 - Spray diary
 - Management of seed weevil - Cut test (or systems approach) - how you worked out how many fruits need to be cut from size of orchard etc.
 - Ensure that you have a copy of current OWP on hand and stipulate the source i.e. industry body, Micor etc.
 - Accurate farm map
 - Must have crop monitor person from approved list who should also should be present at audit
 - Farm records from flowering onwards, with pest monitoring for all species and remedial action taken
 - Harvest hygiene protocols
 - Fruit receipt and inspection records
 - Daily program for removal of damaged fruit
 - Traceability from harvest to VHT facility
 - Separation procedures for export fruit
 - Method of securing unused packing material from vermin and bait records. Packing line cleaning process and records
8. There is a fee associated with the DAWR audit. Following the audit, you will receive an invoice. Costs are based on the time spent on the audit, plus some travel expenses
9. Ensure that you or your exporter has commercial access to a VHT facility (China/Korea) or irradiation facility (USA) for the end-point treatment process.

The presence of orange fruit borer (OFB) (*Isotenes miserana*), bacterial black spot (BBS) (*Xanthomonas campestris* pv. *Mangiferae indica*) and mango seed weevil (MSW) (*Sternonchetus mangiferae*) are of major concern to Chinese authorities. The Australian mango industry complies with this work plan to ensure Australian mangoes meet Chinese export requirements. Pests that are of critical quarantine concern to China are presented in Figure 6.

Scientific name	Common name
<i>Isotenes miserana</i>	Orange fruit borer
<i>Sternochetus mangiferae</i>	Mango seed weevil
<i>Xanthomonas campestris</i> pv. <i>mangiferaeindica</i>	Bacterial black spot

Figure 6. Pests and diseases of critical quarantine concern to China

Source: Author's analysis

6 Industry feedback

6.1 Orchard requirements

Orchard requirements are a major obstacle preventing growers from exporting to China and other protocol markets. The time involved and costs associated with complying with property registration in order to supply treatment/protocol markets is a major barrier. As part of the audit process for these markets, orchards are required to comply with stringent recordkeeping protocols including crop monitoring programs, chemical controls, and pest and disease controls. These compliance measures are easier for large-scale operations to achieve in comparison to small-scale orchards.

6.2 Communication and education

There is a need for improved communication and education across the mango supply chain (i.e. orchards, exporters, treatment facilities, government and industry stakeholders) in Australia. In the short-term, the supply chain would benefit from open communication – in particular, treatment facility operators and exporters. Research highlighted that some exporters did not understand the timelines required to prepare and treat export-ready consignments. It was also suggested that industry should be educating mango growers about the export process so that they would be aware that it was not as intimidating as they may have previously thought.

6.3 Export treatments

Lack of access to available VHT facilities, the location from orchard to the VHT facility, treatment capacity within these facilities and the increased cost/potential damage through extra handling are all factors which make it unappealing for growers to export to protocol markets requiring VHT treatments.

It was suggested that industry should be considering alternatives to VHT, particularly given the fact that the VHT process has an impact on fruit quality and shelf life.

Other alternatives include irradiation which is becoming more widely accepted in markets around the world.

Questioning the requirements of entry to China was another point that was raised by stakeholders: 'They should actually have less strict requirements as everything found in Australia is found in China (and maybe more) so what are they protecting?'

Lack of knowledge about the formal process of building a VHT facility was highlighted as being an issue for organisations that want to invest in such facilities.

6.4 Market volatility

Market volatility is driven by favourable domestic prices. When there is a favourable domestic market, supply of mangoes for the export market declines. Price competition from other importing markets that are more price sensitive (including the Hong Kong trade market) make it difficult to export. Chinese importers lack loyalty and are quick to replace program orders with cheaper offers. The unpredictability of trade, as well as the lack of commitment to consistent weekly orders had a negative impact on returns for growers which is another deterrent to export trade.

6.5 Marketing strategy

Australia enjoys a substantial premium price return for mangoes over other export market offerings, which is presumably due to quality and reputation for product integrity and food safety. Australia also offers newer varieties of mangoes with better colour and longer shelf life.

In terms of Australia's marketing strategy for mango crops, the perception is that efforts should be focused on building market share in premium channels, including premium retail, premium food service and the gift market. In recent years, online shopping has grown exponentially in China. Online sales of mangoes require a minimum purchase order of 5 kg which is similar to the tray-sale offer Australian consumers have been familiar with in their domestic market since 2012–13. The 'gift market' requirement or expectation is also undergoing a shift. Previously, a single 'ex-large' mango was the only desired article; however, the trend has shifted and now two or three smaller mango fruits that are gift boxed are just as attractive to consumers. This opens up an opportunity for different product offers.

Australia should not become complacent in terms of quality and marketing of mangoes. Peru has notably increased their focus on quality and marketing which coincides with the Australian market window yet their offer is considerably more competitive.

We should continue to pursue improvements in market access and build market share with seasonal promotions for different offers that have previously been trialled.

6.6 Brand protection

Food fraud is becoming an increasing problem in international markets and currently costs the Australian agriculture industry AUD1.7 billion a year. Internationally, it is reported that China represents most instances of food fraud. Continued food fraud is not only detrimental to Australia's reputation as a clean supplier; it also represents a financial cost to farmers and places the health and safety of millions of consumers at risk. Risk of brand damage is also an issue that is becoming a growing deterrent to some Australian exporters.

7 Conclusion and recommendations

7.1 Conclusion

Mango production in Australia has increased to an average of more than 75,000 tonnes over the past several seasons. Most produce is consumed fresh, with only around 10–12% of fresh mangoes being exported. The major export countries for Australian mangoes include Hong Kong, New Zealand, Singapore and United Arab Emirates. Though exports directly to China have increased and trade to Hong Kong is decreasing, Hong Kong is still Australia's largest export market.

There is a growing necessity to access alternate markets or consider product diversification such as value adding in order to ease the volume of mango crops that enter the domestic market during the peak growing period. Implementing these strategies to ensure that producers achieve the best return during these periods of high production is critical for the sustainability of the Australian market and for a return on investment for mango growers. It is also important to have a range of alternate markets in case a particular pathway fails for political, administrative or technical reasons.

7.2 Recommendations

Recommendations raised by mango stakeholders in this study area include:

1. **Requirements for export:** Different biosecurity requirements for domestic and foreign markets make it increasingly complex for growers to service multiple markets. The complexity of servicing multiple markets is costly, and the time required to implement and document pre-season requirements for export to protocol markets adds to these costs.
2. **Effective communication and education:** Encourage growers to export to phytosanitary markets through training and education, including provision of quality manual for export markets and application process workshops. Support with reduced audit times, improved online services or applications.
3. **VHT:** Review current protocol in order to better understand other possible treatments that could be used in place of VHT. A suggestion was made to pursue alternative options such as irradiation that could align export and domestic protocols. Alternatively, better understanding and utilising other possible treatments that are currently accepted by Chinese markets, such as high temperature forced air (HTFA) or hot water immersion (HWI) treatment.
4. **Market volatility:** Reduce the desire for opportunistic trade through collaboration of like-minded Australian exporters (i.e. similar to the current US working group that was formed around four years ago). Developing improved importer relationships with a focus on long-term strategies will lead to the ongoing support of seasonal programs where importers can be confident of consistency of supply and growers assured of weekly orders.

8 References

Australian Government Department of Agriculture and Water Resources, 2019. China export requirements, MiCor, viewed <https://micor.agriculture.gov.au/Plants/Pages/China_CN/Mangoes.aspx>

Australian Government Department of Agriculture and Water Resources, 2019. Plant Export Operations Work Plan Australian Mango Exports to the People's Republic of China, viewed <<https://micor.agriculture.gov.au/plants/Pages/default.aspx>>

HIA, 2017. Guide for Australian Mango growers and exporters, Horticulture Innovation Australia, viewed <<https://static1.squarespace.com/static/53b0ef57e4b04ed3deabc4f/t/588aafe1197aea2042971c22/1485484008095/Guide+for+Australia+Mango+growers+-+Export+market+requirements.pdf>>

9 Supporting documents

9.1 Australian export data, 2017–2019

Australia Export Statistics												
Commodity: 080450, Guavas, Mangoes And Mangosteens, Fresh Or Dried												
Year To Date: January - December												
Partner Country	Unit	2016/17		2017/18		2018/19		\$/kg			Volume variance	
		AUS	Quantity	AUS	Quantity	AUS	Quantity	16/17	17/18	18/19	17/18	18/19
World	KG	\$ 31,400,728	7,359,205.00	\$ 30,950,813	8,069,482.00	\$ 32,070,378	8,703,290.00	\$ 4.27	\$ 3.84	\$ 3.68	10%	8%
Hong Kong	KG	\$ 14,050,507	3,180,384.00	\$ 12,785,765	3,244,431.00	\$ 7,912,058	2,250,514.00	\$ 4.42	\$ 3.94	\$ 3.52	2%	-31%
Singapore	KG	\$ 3,863,631	1,104,029.00	\$ 5,328,575	1,591,628.00	\$ 7,182,986	2,115,952.00	\$ 3.50	\$ 3.35	\$ 3.39	44%	33%
New Zealand	KG	\$ 3,143,323	855,379.00	\$ 3,698,673	1,118,897.00	\$ 4,292,924	1,297,728.00	\$ 3.67	\$ 3.31	\$ 3.31	31%	16%
United Arab Emirates	KG	\$ 2,901,477	754,738.00	\$ 2,839,168	836,852.00	\$ 3,508,778	918,322.00	\$ 3.84	\$ 3.39	\$ 3.82	11%	10%
China	KG	\$ 471,888	64,885.00	\$ 754,778	119,150.00	\$ 1,262,966	225,633.00	\$ 7.27	\$ 6.33	\$ 5.60	84%	89%
Saudi Arabia	KG	\$ 817,100	189,483.00	\$ 1,009,941	243,254.00	\$ 1,243,228	331,061.00	\$ 4.31	\$ 4.15	\$ 3.76	28%	36%
Lebanon	KG	\$ 1,443,953	410,816.00	\$ 592,573	209,163.00	\$ 1,097,612	399,249.00	\$ 3.51	\$ 2.83	\$ 2.75	-49%	91%
Korea South	KG	\$ 809,472	110,252.00	\$ 563,160	60,534.00	\$ 986,156	139,925.00	\$ 7.34	\$ 9.30	\$ 7.05	-45%	131%
Kuwait	KG	\$ 520,905	118,836.00	\$ 456,218	114,626.00	\$ 954,567	237,431.00	\$ 4.38	\$ 3.98	\$ 4.02	-4%	107%
Canada	KG	\$ 513,213	122,211.00	\$ 635,527	122,432.00	\$ 896,361	208,516.00	\$ 4.20	\$ 5.19	\$ 4.30	0%	70%
Qatar	KG	\$ 420,683	96,956.00	\$ 732,519	168,812.00	\$ 785,746	212,128.00	\$ 4.34	\$ 4.34	\$ 3.70	74%	26%
United States	KG	\$ 960,641	93,363.00	\$ 542,656	63,676.00	\$ 501,063	75,763.00	\$ 10.29	\$ 8.52	\$ 6.61	-32%	19%
Japan	KG	\$ 616,549	60,106.00	\$ 417,180	34,634.00	\$ 374,060	36,308.00	\$ 10.26	\$ 12.05	\$ 10.30	-42%	5%
Oman	KG	\$ 6,000	1,794.00	\$ 154,202	37,694.00	\$ 298,748	71,018.00	\$ 3.34	\$ 4.09	\$ 4.21	2001%	88%
Belarus	KG	\$ -	-	\$ 65,980	14,136.00	\$ 212,734	36,378.00		\$ 4.67	\$ 5.85		157%
Bahrain	KG	\$ 46,865	13,258.00	\$ 24,866	6,694.00	\$ 126,662	27,223.00	\$ 3.53	\$ 3.71	\$ 4.65	-50%	307%
Bangladesh	KG	\$ 109,210	26,926.00	\$ 83,234	22,638.00	\$ 107,266	37,915.00	\$ 4.06	\$ 3.68	\$ 2.83		67%
Netherlands	KG	\$ -	-	\$ -	-	\$ 82,780	20,270.00			\$ 4.08		
Maldives	KG	\$ 28,520	6,688.00	\$ 12,095	4,220.00	\$ 74,630	21,055.00	\$ 4.26	\$ 2.87	\$ 3.54	-37%	399%
Thailand	KG	\$ 37,300	8,100.00	\$ 55,242	11,786.00	\$ 48,937	3,970.00	\$ 4.60	\$ 4.69	\$ 12.33	46%	-66%
Brunei Darussalam	KG	\$ 50,460	9,300.00	\$ 53,679	8,802.00	\$ 41,180	7,326.00	\$ 5.43	\$ 6.10	\$ 5.62	-5%	-17%
Switzerland	KG	\$ 127,636	28,761.00	\$ 81,390	20,005.00	\$ 36,984	10,723.00	\$ 4.44	\$ 4.07	\$ 3.45	-30%	-46%
Malaysia	KG	\$ 428,309	94,966.00	\$ 29,045	6,630.00	\$ 19,977	14,206.00	\$ 4.51	\$ 4.38	\$ 1.41	-93%	114%
Italy	KG	\$ 9,776	2,632.00	\$ 11,620	3,752.00	\$ 11,100	2,492.00	\$ 3.71	\$ 3.10	\$ 4.45	43%	-34%
French Polynesia	KG	\$ 5,240	640.00	\$ 900	240.00	\$ 4,820	410.00	\$ 8.19	\$ 3.75	\$ 11.76	-63%	71%
Nauru	KG	\$ 10,608	1,910.00	\$ 5,620	960.00	\$ 3,090	730.00	\$ 5.55	\$ 5.85	\$ 4.23	-50%	-24%
United Kingdom	KG	\$ -	-	\$ -	-	\$ 2,048	896.00			\$ 2.29		
Papua New Guinea	KG	\$ 119	13.00	\$ 124	14.00	\$ 827	130.00	\$ 9.15	\$ 8.86	\$ 6.36	8%	829%
Kiribati	KG	\$ -	-	\$ 600	28.00	\$ 90	18.00		\$ 21.43	\$ 5.00		-36%
Indonesia	KG	\$ 460	80.00	\$ -	-	\$ -	-	\$ 5.75			-100%	
Germany	KG	\$ -	-	\$ 15,184	3,780.00	\$ -	-		\$ 4.02			-100%
Fiji	KG	\$ -	-	\$ 299	15.00	\$ -	-		\$ 19.93			-100%
Philippines	KG	\$ 6,883	2,700.00	\$ -	-	\$ -	-	\$ 2.55			-100%	

Source: Author's analysis supported by HIA, 2017

Note: January-December data and includes guavas, mangoes and mangosteens

9.2 Grower export procedure (People's Republic of China)



Source: MICO R database, 2019