AUSTRALIAN PASSIONFRUIT INDUSTRY EXPORT STUDY

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Executive Summary

This study analyses research conducted to understand the perceptions of passionfruit growers (including their readiness for export) and to provide recommendations for a first-stage export plan for the Australian passionfruit industry. The report summarises the current passionfruit market, defines the passionfruit export landscape and incorporates the views held by northern New South Wales, Wide Bay Burnett and northern Queensland passionfruit growers in relation to exporting.

There are approximately 130 commercial passionfruit growers in Australia, with a combined production over 4,500 tonnes in 2016–17. The industry is fragmented, with a large number of small- to medium-sized farms spread from Darwin, across Queensland coastal areas and into north-east New South Wales. This spread ensures that passionfruit are available all year round in Australia, making an export business a potentially viable proposition for the industry. Most fruit is sold in bulk in loose-filled cartons via the central market system, and then on to major and independent retailers in Australia. There is little, if any, value-adding occurring domestically by growers and no significant export sales of Australian passionfruit to date. The industry has a history of extreme price volatility and highly variable profitability. Export market development is seen as one option in order to help reduce the price volatility.

A series of industry workshops and in-depth interviews with northern New South Wales and Queensland passionfruit growers, as well as supply chain stakeholders, captured and assessed the key issues affecting the export potential of the industry. As demonstrated by the current desire and general understanding of exporting requirements by passionfruit growers, the research suggests that the industry is approaching export readiness.

The study found passionfruit consumption is expanding globally, both as fresh fruit and as an important ingredient in a range of cuisines. Furthermore, in 2017 Asia accounted for around 71% of global import volumes, with the twentieth largest regional importer, Bangladesh, importing about as much each year as Australia’s total annual production. Given this situation, this export plan proposes that the industry develop exports into markets where Australian horticultural products are already traded and where the produce size is consistent with the supply potential from Australia.

The main suggested export markets are Hong Kong, Singapore and New Zealand. However, a longer-term approach and further research studies are required to fully quantify the opportunities. Hong Kong and Singapore should be the first-priority markets due to their ease of access and established horticultural import trade with Australia. New Zealand offers good prospects for export; however, market access needs to be established for Australian passionfruit.

This first-phase export plan and other aligned passionfruit industry projects provide inputs that will clarify and direct those growers seeking to develop export operations. With more available information on which to base their decision-making process, it is likely that some growers will not find exporting worthwhile, while those who are better placed to meet the requirements and are more motivated and committed will step forward. This plan provides a first phase to assist the passionfruit industry to develop its own export strategy.

Preface

This report involved a joint collaboration between Passionfruit Australia Incorporated (PAI) and Griffith University under the Package Assisting Small Exporters (PASE) program. The study was funded by the Department of Agriculture and Water Resources (DAWR), Australian Government, Canberra.

The research team would like to thank the passionfruit growers of northern New South Wales, Wide Bay Burnett and northern Queensland regions, and the supply chain stakeholders engaged in passionfruit trade who freely gave their time to help compile this report.

The information and recommendations from this study will inform PAI with regards to the design of their longer-term development program for passionfruit exports. The study involved the analysis of secondary data, field research and key informant interviews with growers and stakeholders engaged in the passionfruit industry. The final reporting was supported by Tina McPherson and Margie Milgate, PAI; Hugh McIntosh, IQ Agribusiness and Dr Deborah Delaney, Griffith University.

The research was guided by a project leadership team:

Sean Russell	Project Chair and CEO, J E Tipper Pty Ltd, Brisbane
Tina McPherson	President, PAI
Margie Milgate	Industry Development Office, PAI
Bridie Carr	Horticulturalist, Department of Agriculture and Fisheries, Queensland
Peter Rigden	Horticulturalist, Department of Agriculture and Fisheries, Queensland
Daniel Lutman	National Sales Manager, Exotico, Sydney
Debbie Delaney	Griffith University

The views expressed in this report are those of the study team, passionfruit growers and stakeholders, and do not necessarily reflect the views of Griffith University or the Commonwealth Government of Australia.

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31 May 2018

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Abbreviations and acronyms

ANZCERTA	Australia-New Zealand Closer Economic Relations Trade Agreement
AQIS	Australian Quarantine and Inspection Service
ASEAN	Association of Southeast Asian Nations
AVA	Agri-food and Veterinary Authority of Singapore
CIF	Costs, insurance and freight
DAF	Department of Agriculture and Fisheries
DAWR	Department of Agriculture and Water Resources
GDP	gross domestic product
GMO	genetically modified organisms
GST	goods and services tax
ICA	Interstate certification assurance
kg	kilogram
MPI	New Zealand Ministry for Primary Industry
MRL	maximum residue limit
NSW	New South Wales
NT	Northern Territory
PAI	Passionfruit Australia Incorporated
PASE	Packaging assisting small exporters
Qld	Queensland
SA	South Australia
SAFTA	Singapore Free Trade Agreement
SIAP	Strategic Investment Advisory Panel
TTMRA	Trans-Tasman Mutual Recognition Arrangement
USA	United States of America
Vic	Victoria
WA	Western Australia

1 Introduction

1.1 Issue

There are approximately 130 commercial passionfruit growers in Australia, with a combined production over 4,500 tonnes of fruit in 2016–17. The industry is fragmented, with a large number of small- to medium-sized farms spread geographically from Darwin, across Queensland (Qld) coastal areas and into northeast New South Wales (NSW). The geographic spread of production ensures that passionfruit is available domestically all year round, making an export business a potentially viable proposition for the industry. Currently, most fruit is sold in bulk, loose-filled cartons via the central market system, and then on to major and independent retailers in Australia. There is little, if any, value-adding occurring by growers in the domestic market. Similarly, there is little, if any, export trade of Australian passionfruit. Historically and as a result of market dynamics, the industry has suffered from the effects of extreme price volatility and highly variable profitability. Export development is seen as one option to expand the trading options and thereby reduce price volatility.

The passionfruit industry is presently seeking an export plan that is commercially focused and which identifies those markets with the best opportunity to build a long-term, sustainable and profitable business for growers. Currently, the peak industry body, PAI, and the wider grower community are seeking assistance to capture insights from their members in relation to export readiness and to develop a first-stage export plan

1.2 Study objectives

The aim of the study was to develop a commercially focused, first-phase export plan for the Australian passionfruit industry.

The study objectives were to:

- identify current industry understanding of export requirements for Australian passionfruit
- determine current industry export capabilities for Australian passionfruit.

Specific research questions designed to better understand passionfruit growers' export sentiments included:

- To what extent is exporting 'on the radar' for growers?
- What do growers understand to be the requirements for exporting?
- To what extent do growers feel they are currently ready to export?

1.3 Research design and methodology

There is a range of interdependent factors that influence growers to export their produce. This study examined grower perceptions towards exporting passionfruit from Australia, and investigated the attitudes held by northern NSW and Qld growers, and their willingness in relation to passionfruit exports. The information was collected from three regions in Australia

– northern NSW, Wide Bay Burnett and northern Qld – and the consequent analysis and results have been reflected in this plan. This exploratory study employed focus group and in-depth interview research methodologies. Grower focus groups were held in the Tweed Valley in NSW, and in Bundaberg and the Wide Bay Burnett regions. Due to distance constraints, in-depth telephone interviews were undertaken with northern Qld passionfruit growers. Additionally, in-depth interviews were conducted with key supply chain stakeholders engaged in tropical fruit exports from Australia. The two focus groups and all interview sessions used pre-prepared checklists to guide group discussions and interviews (Table 1.1).

Table 1.1: Research design, focus groups and in-depth interviews

	Focus Groups	In-depth Interviews	
Planning approach	Grower list provided by PAI Facilitated by a moderator Participants paid an incentive	Grower details provided by PAI Interviews conducted by experienced researcher Participants paid an incentive	Supply chain stakeholder details provided by PAI Interviews conducted by telephone Incentives were not paid
Target audience	Passionfruit growers in Tweed Valley and Wide Bay Burnett regions	Passionfruit growers in North Qld	Passionfruit industry export stakeholders
Sample	14 Growers 8 Tweed Valley 6 Bundaberg	5 Growers	5 Export stakeholders
Timing	Tweed Valley 19/01/18 Bundaberg 23/01/18	North Qld 24 to 25/01/18	Southeast Qld 25 to 30/01/18

Grower interviews and discussions were designed to probe common themes. The areas and sub-areas of focus were:

- To what extent is exporting 'on the radar' for growers? Are they interested in exporting?
    - What are the motivations for wanting to become involved in exporting?
    - What are the potential benefits for growers?
    - What barriers stand in the way?
    - What factors would compel growers to export their produce?
- What do growers understand to be the requirements for export?
    - How have these impressions been created?
    - What sources of information have been drawn upon?
- To what extent do growers feel that they are ready to export?
    - What needs to happen in order for them to be ready?

Areas of commonality from the groups and interviews have been documented. The content informing the study is based on shared issues raised by growers and stakeholders, emerging themes relating to export development, and synthesis of the discussions.

2 Industry Overview

2.1 Goals, objectives and insights

The Australian passionfruit industry is represented by PAI which operates as a non-profit membership organisation. As the peak industry body, PAI represents the interests of all stakeholders in the passionfruit industry, including growers, packers, wholesalers, exporters, researchers and retail outlets.

The industry has an estimated farm gate value of $19million, with approximately 5,000 tonnes of passionfruit produced per year (HortStats, 2018). The majority of passionfruit production (~4,668tonnes) is sold as fresh fruit in the Australian domestic market, with a small quantity – approximately 315 tonnes – sent for processing in the period 2016–17.

The industry has a history of highly variable supply and high levels of price volatility, resulting in poor returns over the last decade. Consequently, growers consider that price stability to be their main industry concern. Marketing initiatives such as an increased focus on quality and development of export market opportunities are seen by growers as ways to increase demand for Australian passionfruit, thereby stabilising the wholesale price. Growers understand why low prices are offered for processing grade product and consider that this does not offer a viable option to deliver sustainable economic returns.

Some growers engage directly with independent retailers and this means higher-quality fruit reaches the consumer with higher prices being achieved for individual growers. Growers recognise the challenges to engage with major retailers on a one-to-one basis and the difficulty for individual growers to consistently meet the specifications required by retailers. To facilitate engagement with major retailers, growers are seeking a centralised crop forecasting and production system in order to collect timely data which can be used by all grower groups to inform marketing activities.

Pests and disease are significant issues affecting the quality and consistency of supply for all growers. Growers feel that existing passionfruit varieties are difficult to grow well and that there is a need for ongoing investment in:

- variety development
- developing processes for preparing accredited chemical registrations and permits, including new chemical products as they arise
- support from government technical specialists to develop manuals for integrated pest and disease management on-farm.

The current focus of PAI was unknown by most growers. The mission statement documented on the PAI website is: *To provide the opportunity for PAI members to realise business growth and increased profitability.*

The core objectives for the industry group are to:

- build demand for Australian passionfruit
- enhance the competitiveness, sustainability and profitability of Australian passionfruit growers
- facilitate the exchange of information between PAI members, other growers, supply chain partners, industry service providers and other industry stakeholders

- engage with government, supply chain partners and other stakeholders to achieve policy (and other) outcomes that are favourable for passionfruit production businesses
- provide appropriate support services to the industry, including industry development, communications and market development services.

The Passionfruit Strategic Investment Plan 2017–2021 sets out the desired outcomes and associated strategies for industry development over the next five-year period (Hort Innovation, 2017a) (Table 2.1). The industry plan highlights the high priority strategies in bold.

Table 2.1: Passionfruit Industry Strategic Plan, 2017–2021

Outcomes	Strategies
Improved farm and industry sustainability from identifying and adopting best practices	• **Identify and develop future leaders of the industry through training and engagement** • **Research high-performing industries and growers and develop pathways for the passionfruit industry to embrace similar approaches** • Ensure that systems are established to assist and monitor the adoption of research, innovation and best practice
Improved pest and disease management, and the development of new varieties that increases grower productivity and profitability	• Develop and commercialise new varieties that increase production and also meet consumer expectations • **Continue research to improve pest and disease management**
Improved retail quality of passionfruit that matches consumer expectations	• **Engage with supply chain and retail stakeholders to help ensure that high-quality fruit is consistently displayed** • **Increase grower focus on delivering quality** • Research and adopt improved postharvest packing, storage and distribution processes to maintain quality and increase shelf life
Access to relevant and timely data that improves industry-wide decision-making	• **Develop systems and processes to capture relevant and timely industry and consumer data** • Ensure that data is made available in a format that facilitates decision-making among industry stakeholders
Increased domestic demand and export opportunities that maintain price stability	• **Drive domestic growth through targeted marketing initiatives** • Increase market diversification by establishing and maintaining grower-led access to export markets • Develop value-added products to increase consumer access to, and consumption of, passionfruit

Source: Hort Innovation, 2017a

2.2 Export focus

The published Passionfruit Strategy document identifies that while there is very little export data available, there is evidence of exports being undertaken by larger growers (Hort Innovation, 2017a). Furthermore, the strategy plan identifies the importance of developing opportunities outside the domestic market and specifically addresses the use of irradiation for disinfestation to open up opportunities in new export markets. In contrast to Horticulture Innovation Australia commentary, growers reported that the Commonwealth Government DAWR levy recording for the period 1 July 2017 – 31 January 2018 reported an amount of 54 cartons (3 x 18 litre) of passionfruit packed (non-levied) and exported.

The industry cites several factors justifying exports as a viable business expansion model, including:

- Irregular supply in the domestic market leads to large fruit peaks and high price fluctuations. It is anticipated that exporting fruit through opportunistic sales would remove volume from the domestic market when fruit is in oversupply.
- Expanding fruit production and improving profitability require the identification of additional sales channels with high margin potential. As the Australian market is relatively small, it appears that export markets are an avenue for industry expansion.
- Australia currently enjoys a clean, green and safe fresh food reputation in export markets. The Australian passionfruit industry can use this to its advantage in export markets and should do so as a matter of priority.

Export markets may offer higher return options for growers outside the domestic market– in particular, non-protocol markets with close geographic proximity to Australia (for example, Hong Kong and Singapore). Therefore, developing an integrated export model with key stakeholders (including growers engaged in passionfruit trade) would see opportunities for passionfruit grower exports become significantly developed and operational by 2022.

2.3 Proposal sponsor

The sponsors for this proposal were PAI and Griffith University. A representative from the PAI Executive developed the proposal jointly with Griffith Agribusiness and the funding application was submitted by Griffith University. The consultation and engagement process with the industry was planned using a three-stage approach and is described below.

Stage 1 – Development of a project leadership team

Initially, the development of a project leadership team brought together key stakeholders from PAI, supply chain, logistics and technical representatives to discuss the best approach for the research study. The group sought to include non-growers and an industry relationship manager for passionfruit from Hort Innovation. Invitations were extended to eight growers of PAI; however, only one grower and industry development officer, two technical representatives and two supply chain representatives were in a position to contribute to the project leadership.

The project leadership team included:

- Tina McPherson – PAI (President)
- Margie Milgate – PAI (Industry Services Manager)
- Sean Russell – J E Tipper Pty Ltd (wholesaler/distributor) *Chair
- Daniel Lutman – Exotico (exporter)
- Bridie Carr – Department of Agriculture and Fisheries (DAF), Queensland (horticulturalist)
- Peter Rigden – DAF, Qld (horticulturalist, retired 2017)
- Deborah Delaney – Griffith University (academic researcher)

Two formal project leadership meetings were held to establish the study framework, to review research outputs and to develop the first phase of the export plan. The project initiation meeting was held on 28 November 2017, and the second meeting to review the research and develop the export plan was held on 14 March 2018.

Stage 2 – Connecting with and seeking feedback from growers to develop the plan

The second stage was designed to connect directly with grower groups in the three key production regions. The research method used grower focus groups and in-depth interviews facilitated by an independent moderator to understand industry and regional issues faced by growers and stakeholders connected with export development from a 'grass roots' perspective.

Stage 3 – Collating, reviewing, analysing and sharing insights

This final stage involved the project committee assembling together to discuss and review the insights and prepare the content for this export plan. All members were involved in and contributed to the final draft plan. The plan was shared with PAI. PAI were asked to share the draft document with their members for feedback. We were advised this process was completed by PAI.

2.4 Export readiness and potential

Export readiness

The focus of this study was to compile the range of industry attitudes and perceptions relating to the export of passionfruit. The three areas highlighted from the groups and interviews provided a broad understanding of grower sentiments relating to industry export readiness. These included:

1. To what extent is exporting 'on the radar' for growers?

Exporting was 'on the radar' for the majority of growers in the research forums. Growers are aware of the need for alternative markets for their produce: a perception that is driven by the size of the domestic market, associated price volatility and the need to reduce the risk of relying on one market.

Notwithstanding the above comments, growers differ in their level of interest in exporting. The majority of growers sit between the extremes of being very interested and reluctantly considering export opportunities. Depending on the price being paid in domestic markets, growers become more or less motivated to pursue export markets. Many growers have considered the option of exporting but are currently adopting a 'wait-and-see' approach. They are waiting for guidance from their industry regarding the markets, the price and the export requirements to better gauge the opportunity. Growers presented different ideas and models for exporting but a large majority had no prior experience or education regarding the processes required to prepare for export.

2. What do growers understand to be the requirements for exporting?

Despite their perceived lack of knowledge, growers spontaneously and consistently identified a number of export requirements as challenges or barriers to exporting. This suggests that growers are quite well-versed in export requirements in general.

Additional insights include:

- While growers do not know the specific requirements for specific markets, they are well aware that:
  - markets have specific requirements
  - every market is/could be different in what they require
  - there are certain types of things that are likely to be required.
- Key requirements identified by growers include:
  - acceptable treatments such as irradiation or fumigations, chemicals/chemical residue and maximum residue limits (MRL) for fruit fly and other pests
  - consistent quality, packaging and possible labelling of individual fruit.

Growers are broadly aware of the types of export requirements they are likely to be required to fulfil. Generally, they do not know the specific requirements of individual markets; however, they assume that these will be shared when a formal plan has been prepared.

3. To what extent do growers feel that they are ready to export?

Australian growers were honest in sharing their concerns regarding whether they were ready to export fresh passionfruit, including the fact that they generally felt uncomfortable making a commitment to exporting without prior knowledge of specific requirements. While growers found it difficult to know precisely what they needed to do or to change, they could readily pinpoint things required from others to become export ready as an industry.

Growers consistently identified a number of export requirements as challenges or barriers to their business, suggesting that they are broadly aware of the requirements. Those who shared their opinions at the workshops felt that once export specifications were known, it wouldn't take much for them to become ready. In particular, one grower stated, '…we'd all be ready to export if we knew what the requirements were'.

The passionfruit industry does not currently have developed export systems in place. Nevertheless, research undertaken in this project concerning stakeholder perspectives on export preparedness identified the following information:

- Wholesalers/agents believe that individual growers are not currently ready to export; however, working collaboratively within regional centres should prove beneficial.
- In contrast, an exporter involved in this research sees grower knowledge of export requirements as, '…light on details and readiness as very low'. While organisations such as this one may be ready, the exercise itself is challenging and possibly, '…no less than a ten-year project'.
- One government agency identified a large gap between growers wanting to export and being in a position to operationalise this activity. There is a considerable amount of work required to provide growers with opportunities to learn about what is involved in the exporting process. Additionally, growers need to develop an understanding of consumer needs in identified markets.

Stakeholders with wider experience with exports in other fruit categories are more conservative in their assessment of the industry preparedness for export. Generally, they are positive that an export market can be developed for the Australian passionfruit industry. They are aware of the significant knowledge gaps that exist in the scale of export readiness; however, they believe that these are not insurmountable. In addition, they do not consider it to be detrimental that the passionfruit industry does not yet have an established manual, well-developed protocols or an understanding of export markets.

A series of activities were highlighted by growers to increase capacity for industry readiness to export. These include:

- support from Hort Innovation to develop export standards and an accreditation process
- establishing a committee focused on exports, including commercial stakeholders with export experience, not just growers;
- identifying export markets and researching and communicating the protocols
- undertaking studies to determine growers' capacity to fulfil export supply
- facilitating knowledge transfer from other established tropical fruit exporting industries.

Export potential

Most export sales occur through Brisbane, Sydney and Melbourne wholesale markets. Wholesalers who stock tropical fruits (including passionfruit) generally do so on a consistent basis, year-round. The main wholesaler and export agents include:

- **Brisbane:** J E Tipper, Romeo's Marketing Qld, Carter & Spencer.
- **Sydney:** J E Tipper, Exotico fruit exports.
- **Melbourne:** none noted.

The passionfruit industry representatives advise that a business case for prioritisation of New Zealand market access is being developed as part of a tropical fruit export project currently being undertaken through Hort Innovation. In addition, they note that there are entities joining the PAI export subcommittee with an interest in being part of a tropical fruit export development plan. PAI additionally advise that other tropical fruit are currently being exported from northern Qld growing regions.

2.5 Period of validity

Information and details contained in this report have been collated between October 2017 and May 2018. This report will be formally handed over to PAI for ongoing development purposes at the end of this study in June 2018.

2.6 Industry background

Publications that specifically describe passionfruit trading patterns in Australia are scant and the industry itself notes the lack of trade data as a significant issue. Information sourced for this study was obtained principally from two key sources: Hort Innovation and PAI. The key elements included in this section outline background information about the operating structure for the Australian passionfruit industry.

The Australian passionfruit industry has been operating using a statutory levy payment system since 1 May 1999. The levy is collected by DAWR and paid to Hort Innovation.

Major stakeholders in the Australian passionfruit industry include:

Hort Innovation – a not-for-profit, grower-owned research and development organisation that has been assigned by the Commonwealth Government, in consultation with the passionfruit industry, to develop and implement the overall direction for investment of industry levies.

DAF Qld – supports research and development of the passionfruit industry as part of the National Primary Industries Research and Development Framework.

Strategic Investment Advisory Panel (SIAP) – established by Hort Innovation to ensure that levy investment decisions are balanced and prioritised by the current needs of the industry. SIAP provides guidance on the way in which industry levy and Commonwealth Government contributions are utilised in the Horticulture Innovation Management Fund. SIAP is made up of members of the passionfruit industry, with appointees consisting of levy-paying growers having the requisite skills and with consideration given to geographic diversity. Currently, all members are from Qld; however, it is intended that members from NSW will be recruited in the future (Hort Innovation, 2017a).

PAI – the peak body commissioned to support the interests of all passionfruit trade participants, including growers and supply chain stakeholders in Australia (Hort Innovation, 2017a). The organisation is a membership-based, not-for-profit group. It is estimated that approximately 90% of total fruit production comes from growers who are PAI members. The organisation advises that they have formed alliances with Hort Innovation, Freshcare Ltd, Plant Health Australia (PHA); Biosecurity Australia, DAWR; DAF Qld; Growcom, Voice of Horticulture and other horticultural industry groups. PAI is comprised of a management committee consisting of seven members. All members at this time are from Qld.

President	Tina McPherson, grower, Qld
Vice-president	Jane Richter, grower, Qld
Members	Aidan Hutton, J E Tipper, NSW
	Jim Gordon, grower, Qld
	Anton Stretch, grower, Qld
	Ian Constable, grower, Qld
Industry Services Manager	Margie Milgate, Qld

PAI charges a nominal membership fee and provides access to resources (industry news; pest, disease and biosecurity alerts; chemical use and industry events and forums). All of the management committee positions are voluntary.

2.7 Supply

Passionfruit was introduced into Australia in the early 1900s from Brazil where the fruit is a native product. Although Brazil is the largest global producer of passionfruit, they export very little due to high domestic consumption in both fresh and processed formats (Hort Innovation, 2012). Ecuador, Indonesia and Columbia are the next largest producers of passionfruit. In Australia, passionfruit is predominantly grown in Queensland and northern New South Wales, with the majority (93%) of production sold as fresh fruit (Hort Innovation, 2017a). The number of commercial passionfruit growers varies but is estimated to be around 130 recorded for the period 2016–17 (HortStats, 2018). There are currently only a few large growers and many smaller growers.

Production area

The major passionfruit producing regions are:

- **Qld** – about 60% of production in 2016–2017 and 60% in 2014–2015
    - Sunshine Coast
    - Wide Bay Burnett
    - Atherton Tablelands
    - Cooktown/Daintree
    - northern Qld – Cairns to Innisfail coastal zones
- **NSW** – about 25% of production 2016–2017 and 25% in 2014–2015
- **Victoria (Vic)** – about 1% of production in 2016–2017 and 8% in 2014–2015.
- **Western Australia (WA)** – about 5% of production in 2016–2017 and 5% in 2014–2015.
- **South Australia (SA) and Northern Territory (NT)** – about 1% of production in 2016–2017 and 2% in 2014–2015.

The passionfruit season peaks in Qld during December and January. Qld and NSW have low to medium supplies all year round, while Vic has a small supply of fruit from December to August. WA, SA and NT produce small volumes from April to August (Table 2.2).

Table 2.2: Passionfruit production seasonality

State	16/17 tonnes	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
NSW	1,734	M	L	L	L	L	L	M	M	M	M	M	M
Vic	15	L	L				L	L	L	L	L	L	L
Qld	2,994	M	L	L	L	M	H	H	M	M	M	M	M
WA	250	L	L								L	L	L
SA & NT	11	L	L									L	L

Source: HortStats, 2018

Note: H=high, M=mid, L= low

Passionfruit are grown across a wide geographic range, with the variability and unpredictability of supply leading to extreme price volatility during most years. The absence of suitable forecasting tools means that the industry is unable to accurately predict production across the regions. This has a major impact on the industry's export readiness and the ability to have predictable and continuous supply required to develop viable exports. Table 2.3 illustrates the variability of supply across a four-year timeframe, even with relatively little change in the number of vines in production.

Table 2.3: Passionfruit market data, 2013–2017

	2013	2014	2015	2016	2017	Projected 2020
Production (tonnes)	2,787	2,904	4,269	5,196	5,004	unknown
Production ($ million)	13.7	14.4	15.6	17.2	19.0	unknown
Producing vines ('000)	220	229	224			unknown

Source: HortStats, 2018

2.8 Trade

Almost all passionfruit grown is sold domestically in all states and territories of Australia. There are quarantine protocols governing the interstate transport of fruit, including interstate certification assurance (ICA) standards. For example, WA passionfruit cannot leave the state due to Mediterranean Fruit Fly restrictions.

Domestic passionfruit markets

The current domestic supply is categorised by a significant fresh trade (94%) and limited fruit processing (6%). Passionfruit volume and price data, and projections from 2014 have been captured from the Brisbane Markets (Figure 2.1). The chart below illustrates a strong inverse relationship between price and volume. The data suggests that an increase in supply would necessitate an increase in demand, whether as a result of domestic, export or processing demand.

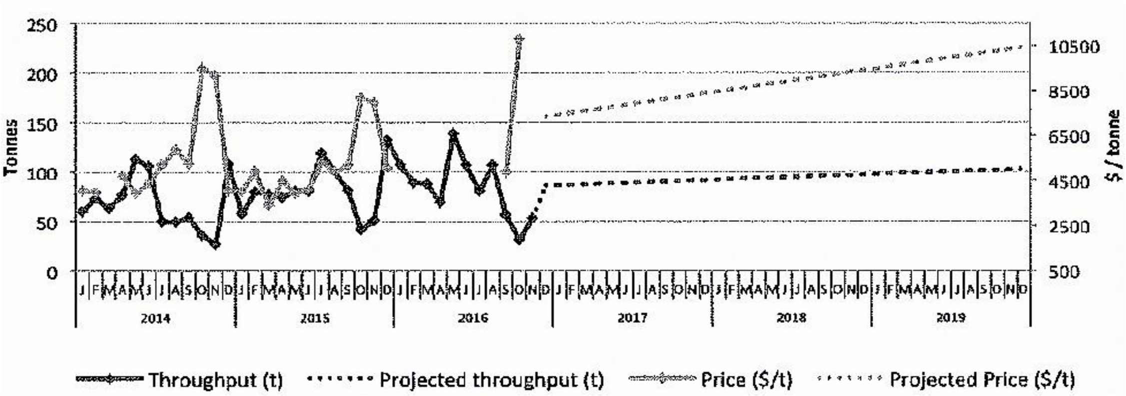

Figure 2.1: Passionfruit Production versus Price, Brisbane Markets, 2014–2019

Source: HortStats, 2018

An estimation of national volumes from Brisbane Market data and projections to 2019 is based on throughput volumes reported by the market and extrapolated to national production, using data from the 2014–2015 edition of the Horticulture Innovation Statistics Handbook (Figure 2.2). This highlights the seasonality of supply and the large variations in production. The main issues confronting the industry are directly related to volatile domestic supply and high price fluctuations.

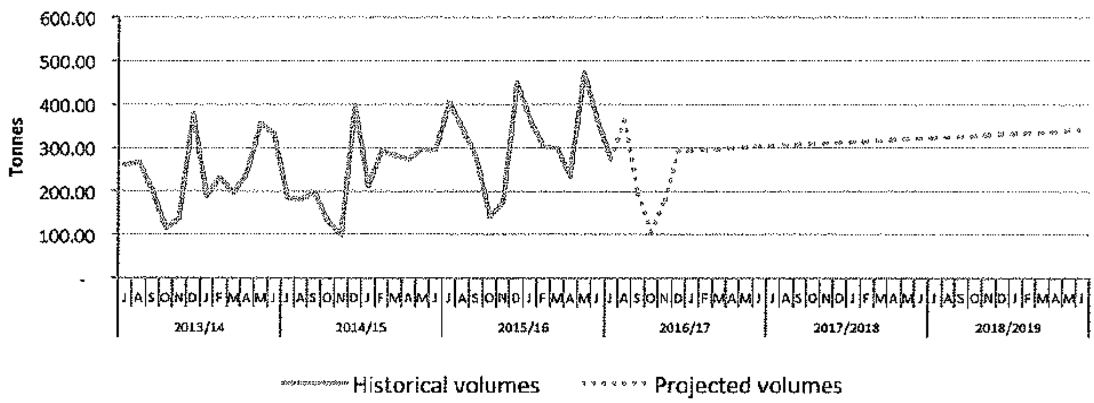

Figure 2.2: Passionfruit Trade, Brisbane Markets, 2014–2019

Source: HortStats, 2018

Domestic trade

Domestically, passionfruit is sold through wholesale, retail (supermarkets, independent grocers), farmer markets and roadside stalls. The bulk of passionfruit sales occur through wholesale markets in Brisbane, Sydney and Melbourne. Passionfruit wholesalers usually carry the fruit on a year-round basis, with most buyers demanding only one to two boxes a week which, in turn, creates challenges in terms of product line viability (Hort Innovation, 2012). Communication between growers and wholesaler agents relating to seasonal forecasts; pricing and crop supply estimates is a significant challenge.

Price fluctuations occur throughout the year depending on fruit supply, with the lowest prices coinciding with the peak harvest period in Qld. Prices range from $14 to $90 per carton with $30 considered to be reasonable (Hort Innovation, 2017b). Prices climbed to $50 to $70 per carton in January 2015 due to the limited supply from a poor summer harvest (according to grower feedback). The price paid by wholesalers to growers is affected by fruit quality and the accuracy of grading and packing. Poor grading and packing causes wholesalers to undertake costly re-sorting and re-packing processes, and reduces the return to the grower.

Retailers tend to set consistent retail pricing with a view to reducing the variation in wholesale pricing. Passionfruit is sold through four main retail segments:

- major supermarkets
- independent food stores
- independent greengrocers
- farmer markets and roadside markets.

Export markets

There are no official trade statistics for fresh or processed passionfruit as there is no separate category for these products in the Australian Customs Tariff and Statistical Nomenclature or the Australian Harmonized Export Commodity Classification (DAF, 2009). Only negligible quantities of fresh passionfruit are exported (HortStats, 2018).

2.9 Product

Product specifications for the Australian domestic market (as at March 2018) as advised by PAI are presented below (Table 2.4).

Table 2.4: Australian domestic passionfruit specifications

Product description	
Product source	Qld and NSW
Packaging	18-litre carton
Weight	Minimum 6–8 kg Panama count 40–80 and Purple 80–140
Grade	Premium, First and Class 2
Shelf life	5–10 days
Distribution method	Road
Final customer preparation	Eaten fresh, minimal preparation
Sensitive customers	Customers with known allergies
Price point	$0.50 – $1.50 each
Trade description	Fresh passionfruit

Source: PAI advised, 2018

Product specifications for Australian exports (as at March 2018) as supplied by DAF, Qld are presented below (Table 2.5).

Table 2.5: Australian export passionfruit specifications

Product description	Fresh fruit
Product source	Qld and NSW
Packaging	Modified atmosphere
Weight	9-litre carton
Grade	Premium for Purples and Panama
Shelf life	5 to 10 days
Distribution method	By air
Final customer preparation	Eaten fresh, minimal preparation
Sensitive customers	Customers with known allergies
Price point	Unknown
Trade description	Fresh passionfruit

Source: DAF Qld advised, 2018

2.10 Marketing

Consumer research

Consumer research shows that price, in combination with taste, flavour and easy preparation are key determinants of purchasing decisions associated with passionfruit (Hort Innovation, 2017c).

The current key consumption and buying patterns for passionfruit are:

- Consumer research undertaken in 2011 indicates that 57% of passionfruit consumers purchase on impulse.
- A greater number (36%) of consumers are now buying passionfruit compared to 2011 (27%).
- Heavy users tend to be more adventurous in cooking and plan their purchases, with 94% considering passionfruit to be good as a finishing touch even though only 49% actually use them in this manner.
- 56% of non-buyers have previously bought passionfruit, with 80% having purchased passionfruit-flavoured products.
- Price remains the biggest barrier to purchasing passionfruit.

Research undertaken in 2017 illustrating passionfruit consumer buyer proportions is shown below (Figure 2.3).

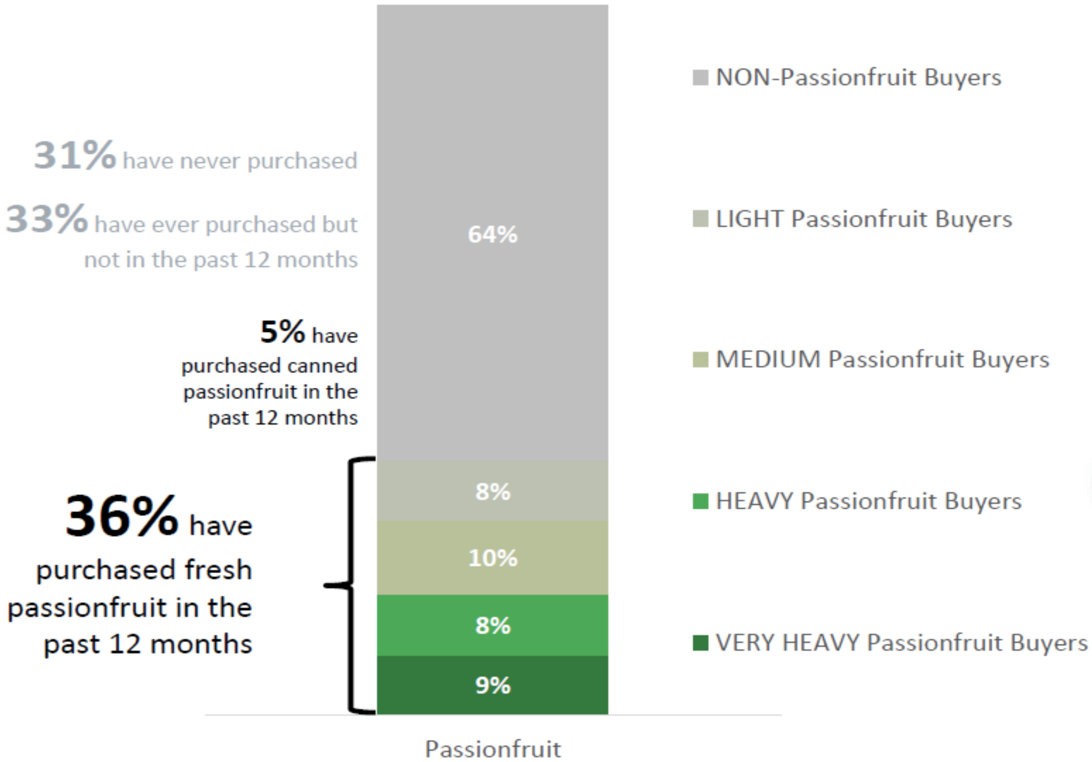

Figure 2.3: Consumer breakdown

Source: Hort Innovation, 2017c

Consumer benefits

Passionfruit with consistently good-quality flesh are easily prepared and eaten. Passionfruit can be kept refrigerated for a number of weeks and the pulp can be frozen. Traditionally, passionfruit have been easy to grow in home gardens thereby resulting in some reduction in demand. The Hort Innovation marketing plan summarises the consumer feedback regarding the sensory attributes of passionfruit as taste, visual appeal and healthiness. These factors are linked to memories of childhood and evoke feelings of past summer seasons (Hort Innovation, 2017c).

Promotion and market development

Levy and Commonwealth funds for marketing passionfruit increased by nearly 20% in 2014–15 to $122,000 in comparison to the previous two years (Hort Innovation, 2017b). The industry's size limits the scope of promotional activity and engagement with major retailers; however, there has been considerable progress in terms of better understanding the market. Ongoing collaboration with similar sized industries is important to maximise the return on marketing investment.

In order to engage consumers and media, the industry's marketing plan for 2016–2017 presented a consumer campaign which emphasised the concept of 'finish with passion' in order to promote Australian passionfruit as the ideal fruit to use as a finishing touch for sweet and savoury dishes (Hort Innovation, 2017c). The marketing campaign was pro-active via online and social media channels, including Facebook and Instagram. The goal of the campaign was to increase passionfruit sales to consumers through showcasing more purchase occasions and usage ideas.

2.11 Logistics

It is important that the delivery method for passionfruit from farm to the retailer is managed through the use of optimal and consistent temperature control to minimise damage through the chain. Distribution practices to ensure optimal delivery include:

- Harvesting fruit in a timely manner to reduce the likelihood of sunburn or disease development.
- Reducing and improving the efficacy of time from harvest to the start of the cool chain process.
- Taking care when transferring fruit from picking bucket to transport carrier and then to the pack house.
- Adhering to maximum weight restrictions in crates when picking and stacking the fruit.
- Setting and adhering to quality and grade standards and ensuring that mixed maturity classes are separated since failure to do this poses postharvest issues.
- Commencing the cool chain process to remove field heat as soon as possible. Temperature management is of paramount importance to preserve quality and prolong storage life. The current temperature for cold storage for passionfruit is between 5 and 7 degrees Celsius
- Using appropriate packaging which minimises rubbing, reduces dehydration and supports the fruit throughout the supply chain process.

The most common package used for distribution of fresh passionfruit is an 18-litre carton (T35) which holds 5–10 kg (with an average of 7 kg) of fruit, depending on variety, fruit size and packing method. Most cartons are volume-filled, but pattern packing produces a visually attractive pack and generally returns a higher price. Some buyers require fruit to be packed in plastic bags within the carton as this reduces dehydration and minimises fruit shrivelling. It is important that the fruit is dry before packing if plastic bags are used as the increased humidity within the bag is an ideal environment for disease development. Other packaging options are available and used mainly for niche markets, with some market agents repacking fruit into special packs for specific orders.

Postharvest treatments currently involve insecticide application for ICA which involves dipping or flood-treatment with an insecticide for fruit fly disinfestation. Waxing is also used by around half of the growers to help improve shelf life and appearance.

A number of growers are currently reviewing other postharvest treatments such as modified atmosphere packaging or SmartFresh™ for improving postharvest quality and storage life (www.agrofresh.com/smartfresh-technology). It is also important to note that not all varieties will behave in the same manner throughout the supply chain. The impact of this knowledge gap is unknown at this time by growers.

Feedback received during interviews noted that not all growers had on-farm, cold room facilities which presents a significant barrier to exporting in terms of maximising shelf life and conducting postharvest treatments. In peak production times, fruit shelf life is often reduced due to lack of cooling prior to and during fruit transportation.

2.12 Legal or intellectual property issues

There are no intellectual property rights over the passionfruit varieties Misty Gem and Sweetheart. Peasley Horticulture Services has developed the Flamenco and Tango varieties. However, there does not appear to be intellectual property protection or plant breeder rights for these varieties. Growers using these varieties are asked to sign a Non-Propagation Agreement prior to planting.

Southern Cross University is currently undertaking a passionfruit breeding program and anticipates the new varieties developed from this research will require intellectual property issues to be addressed.

3 Export Market Evaluation

3.1 Industry export objectives

PAI has advised they will lead the industry export initiative by establishing a dedicated export subcommittee, comprised of commercial-scale growers, export agents and domestic traders. The PAI Executive believe export market development will provide a further incentive for reinvestment into new varieties, as well as new growing and harvesting methodologies that will also benefit the domestic industry. Additionally, they believe it is critical for a long-term view to be taken with regards to international trading and that export is not viewed as a dumping ground for excess fruit during peak domestic production windows.

PAI advised their long-term objective is to increase the export opportunities for growers in order to maintain price stability and improve the quality of passionfruit in all markets. No further information was provided to the research team about the export objectives, strategies or planning.

3.2 Export considerations

It is critical for the development of new export markets that a 'clean slate' approach is taken to understanding the product's opportunities. Within the domestic market, supply chain participants, grocery store buyers and, ultimately, consumers have been 'trained' to reject skin markings or colour variation as a product defect in passionfruit. Particularly in the case of black and purple varieties, the external skin appearance has almost no bearing on the flavour and juice level of the interior fruit.

A large number of passionfruit growers do not include regular sweetness or taste testing as part of their quality control program but, instead, focus solely on external skin perfection. It would be a mistake to take this same attitude when exporting. The aim should be on establishing flavour, sweetness and juice delivery as the key attributes valued by buyers and consumers in export markets. Consideration may also be given to providing catering grade fruit (second/third grade) to export markets which would not have an impact on domestic markets.

3.3 Export market trade analysis

The consumption of passionfruit is expanding globally, both as a fresh fruit and as an important ingredient in recipes (ITC, 2018). Consumption of both fresh and processed passionfruit is growing in Europe. In South America, large production and exporting countries such as Peru are dominating the fresh passionfruit market, while in Ecuador a significant volume of passionfruit is used for processing. As previously noted, passionfruit exports in Australia are negligible in both volume and value.

Globally, the five largest passionfruit exporting countries (based on the harmonised code of HS081090[1], which is a very broad category, by tonnage) are: Vietnam, Thailand, Turkey, Hong Kong (including re-exports) and the Netherlands (including re-exports) (ITC, 2018). Based on 2017 data, Vietnam and Thailand both export more than four times the tonnage of each of the next two largest exporters. Total global exports (HS081090) have risen by around 87% in the four-year period from 2013–2017, to a total of 2.87 million tonnes. Note that it is not possible to isolate the specific passionfruit export tonnage from the data so the figures must be interpreted with caution. The global average export value over the period 2013–2017 is around US$1,300 to US$1,500 per tonne (ITC, 2018). The average export value varies between countries, ranging from around US$500 per tonne in Mexico to about US$5,000 per tonne in Ecuador.

The five largest importers of passionfruit (HS081090) by tonnage are: China, Mauritania, Vietnam, Hong Kong and United States of America (ITC, 2018). China (28%) and Mauritania (22%) accounted for more than half of total global imports in 2017, and each of these countries import more than twice as much as the third largest importer – Vietnam. Total global imports have risen by around 44% in the four-year period 2013-2017, to a total of 3.97 million tonnes.

The global average import value during the period 2013–2017 is around US$900 to US$1,000 per tonne. The average export value varies between countries, ranging from about US$500 per tonne in Iraq to around US$3,500 per tonne in Switzerland (ITC, 2018). Note that it is not possible to isolate the passionfruit import tonnage from the data so the figures must be interpreted with caution.

In 2017, Asia accounted for around 71% of global imported volume, with the five largest importers being: China, Vietnam, Hong Kong, Indonesia and Iraq. Importantly, even the twentieth largest importer in Asia – Bangladesh – imports 3,000 to 5,000 tonnes per annum, which is roughly equivalent to the total Australian production of passionfruit.

Given the absence of data relating specifically to passionfruit, information relating to the export markets for other fresh tropical fruits from Australia was used to identify the most immediately relevant export markets for passionfruit. These countries considered to be viable for Australian passionfruit exports include Hong Kong, Singapore and New Zealand.

Hong Kong

Australia has extensive and enduring interests in Hong Kong built on strong trade and investment connections and close people-to-people links. Hong Kong has one of the largest Australian communities abroad, with around 100,000 Australians residing in Hong Kong. Hong Kong is Australia's leading business base in East Asia. More than 600 Australian companies (including the four major banks) have a significant presence in Hong Kong. The Australian Chamber of Commerce in Hong Kong is Australia's largest offshore Chamber of Commerce. Australian business is drawn to Hong Kong due to the transparency and

[1] **Fresh tamarinds, cashew apples, jackfruit, lychees, sapodillo plums, passionfruit, carambola, pitahaya and other edible fruit (excluding nuts, bananas, dates, figs, pineapples, avocados, guavas, mangoes, mangosteens, papaws 'papayas', citrus fruit, grapes, melons, apples, pears, quinces, apricots, cherries, peaches, plums, sloes, strawberries, raspberries, mulberries, blackberries, loganberries, cranberries, fruits of the genus Vaccinium, kiwifruit, durians, persimmons, black-, white- and redcurrants and gooseberries)**

efficiency of its regulatory environment, the integrity of Hong Kong's financial markets and the rule of law, backed by an independent judiciary and the freedoms of an open civil society. The location provides Australian companies with an important base for commercial engagement with China and neighbouring countries in Southeast Asia.

Australia and Hong Kong have a longstanding trade relationship. Hong Kong was Australia's twelfth largest trading partner overall in 2016, with total two-way trade in goods and services worth $16.3 billion. In 2016, Hong Kong was Australia's seventh most important destination for merchandise exports ($10 billion) and seventh largest services market ($2.5 billion). Australia's major merchandise exports were gold, packaged food products, telecommunications equipment and parts, and fruit and nuts.

Australia is an important source of high-quality food and beverages for Hong Kong's hotel and restaurant sector, including wine, fresh and chilled seafood, premium fruit, nuts, vegetables and dairy products. Hong Kong has been overtaken by mainland China as the number one export destination by volume as fresh fruit has now by-passed the Hong Kong market for direct access to China. There is evidence to suggest that passionfruit is currently being imported into Hong Kong from Columbia and Ecuador It should be noted that ‘other’ fresh fruit is understood to be mostly lychees and avocados (AHEA, 2017).

Import conditions

Hong Kong is a free trade port with no tariffs on fruits. As it is a major port, Hong Kong has streamlined customs procedures and has a ready availability of cold storage. Importantly, there are no phytosanitary barriers to trade, making it a very attractive market for Australian tropical fruit.

Hong Kong has extensive marketing networks in mainland China which supports its position as an important and efficient trans-shipment point in the region. It is noted that there is anecdotal evidence (documented but unrecorded) of informal trade channels being used to circumvent Chinese phytosanitary regulations.

Each year, Australia exports upwards of 50,000 tonnes of fresh fruit, worth more than $120 million, to Hong Kong (Table 3.1).

Table 3.1: Australian fruit exports to Hong Kong

	2014/15 tonnes	2015/16 tonnes	2016/17 tonnes	2016/17 % change to LY	2016/17 Volume (%)	2016/17 Value (AU$ m)
Value (AU$ million)	174.1	164.0	129.1	-21.03		
Volume (tonnes)	**72,387**	**71,226**	**49,874**	-30.0		
Price / kg	2.40	2.30	2.59	12.4		
Table Grapes	29,659	13,097	8,026	-38.7	16.1	28.9
Oranges	28,584	39,641	25,967	-34.5	52.1	26.2
Cherries	1,567	2,259	895	-60.4	1.8	17.3
Mangoes	2,707	3,010	3,328	10.6	6.7	14.3
Plums	2,076	1,948	3,096	58.9	6.2	11.3
Mandarins	1,850	3,411	3,743	9.7	7.5	8.9
Peaches & nectarines	3,755	4,434	1,711	-61.4	3.4	7.3
Blueberries	56	115	169	46.4	0.3	4.1
Strawberries	159	197	368	86.7	0.7	2.7
Other (includes lychee)	144	174	433	149.4	0.9	2.4
Melons	1,010	1,273	1,174	-7.8	2.4	2.2
Avocados	23	87	217	150.5	0.4	1.4
Apples	46	297	343	15.6	0.7	0.9
Grapefruit	-	0	138	++	0.3	0.7
Al other	1,831	2,940	2,137	-27.3	4.3	5.5
Total	**72,387**	**71,226**	**49,874**	**-30.0**	**100**	**129.1**

Source: ITC, 2018

Though a seemingly small market, as a major trading centre and with an established fresh produce trade with Australia, Hong Kong presents as a potentially viable export market for the Australian passionfruit industry. Table 3.2 summarises the key socioeconomic indicators for Hong Kong.

Table 3.2: Hong Kong: Key socioeconomic indicators, 2017

Population	7.4 million
Language	Chinese, English
Ease of Doing Business	5 of 190
GDP	US$334.1 billion
Per Capita	US$44,999.3
GDP Growth	3.5%
Unemployment	2.6%

Source: Austrade, 2018; WITS, 2018

Singapore

Singapore is a small and a historically important market for Australian horticultural exports. Trade and business relationships between the Australia and Singapore are strong. There are number of benefits for trading with Singapore including:

- proximity (i.e. less than 8 hours by air)
- language and culture; English is one of the country's official languages
- a strong and growing economy
- bilateral relationship with Australia, facilitated by the Singapore-Australia Free Trade Agreement (SAFTA) signed in 2003.

Singapore is Australia's largest trade and investment partner in the Association of Southeast Asian Nations (ASEAN) and our fifth-largest trading partner overall. In 2015–16, Australian merchandise exports to Singapore were AU$5.5 billion and our imports from Singapore were AU$7.1 billion. The market segments for trade of fresh produce in Singapore can be divided into three broad segments: retail, catering and food service, and processing and manufacturing. The retail sector in Singapore is dominated by three supermarket chains: NTUC Fair Price, Dairy Farm International and Sheng Siong Group.

NTUC Fairprice Co-operative Ltd – founded in 1973, with a social mission to moderate the cost of living in Singapore. With a network of over 130 outlets, NTUC is the largest retailer serving over half a million shoppers daily. A leader in grocery retailing in Singapore, NTUC offers one of the widest range of products nationally and caters to both price-conscious and higher-income consumers through its various convenience stores, supermarkets and hypermarkets.

Dairy Farm International – a member of the Jardine Matheson Group; its business is managed from Hong Kong. In Singapore, they are the second largest grocery chain by market share. The Dairy Farm Group in Singapore operates under the brands Cold Storage and Market Place which cater to mid-range to high-end consumers, whereas their hypermarket and supermarket brand Giant caters to price-sensitive consumers.

Sheng Siong Group – a local company and listed on the Singapore Stock Exchange – is the third largest supermarket chain, with its stores catering to price-sensitive consumers. The company has promoted the expansion of their presence in Singapore, indicating that it will be opening new stores in new areas nationally. Specialty stores that target the expatriate market are keen to carry sustainably sourced and farmed produce, as well as non-GMO products.

Online retailing is gaining popularity (particularly among working adults) in Singapore, providing ordering flexibility and home delivery services. RedMart is the largest online grocery retailer in Singapore and is owned by Alibaba-backed Lazada. Amazon launched its Prime Now service in July 2017 with a range of fresh and processed grocery products.

Singapore has a prosperous and constantly evolving food service and catering sector. A steady stream of international visitors and the propensity of local residents to eat out ensure that Singapore has a vibrant food service sector. The Singapore Tourism Board reported that Singapore received 16.4 million visitors that spent around SG$2.97 billion on food and beverage-related services in 2016. There are over 7,000 catering outlets in Singapore, including restaurants, cafes, snack bars, food courts, fast food restaurants and catering agencies.

Singapore's food manufacturing sector is small but efficient, with approximately 800 organisations processing raw food ingredients for products such as juice, meals, bakery and confectionary items.

Import conditions

The Agri-food and Veterinary Authority of Singapore (AVA) is the national authority that is responsible for ensuring the supply of safe food and safeguarding animal and plant health; it facilitates agri-food trade for the wellbeing of the country. The responsibility to ensure that food imported into Singapore is safe and meets all local regulations lies with the local importer.

All importers of fresh fruits and vegetables into Singapore must be licensed by AVA under the Licence for Import/Transhipment of Fresh Fruits and Vegetables. In addition, a permit approved by the AVA is required to accompany every consignment that is imported into Singapore.

Specific import requirements are listed below:

- Under the Control of Plants Rules, imported fresh fruits and vegetables must not contain any prohibited pesticide, or levels of pesticide residue or toxic chemical residue exceeding the prescribed levels specified in the Ninth Schedule of the Food Regulations or recommended in the Joint FAO/WHO Codex Alimentarius Commission;
- Containers (for example, cartons, baskets) imported into Singapore must be labelled with:
    - the name and address of the producer of the products
    - the product description, including AVA code for passionfruit – HFTØPF
    - the date of export and packing.

Imports of processed food products, as well as fresh fruits and vegetables, must be obtained from establishments regulated by the relevant overseas competent authorities. No application for AVA accreditation is required. AVA requires an import permit for all food and food products brought into Singapore, regardless of the mode of transport involved. Australia is exempt from obtaining a phytosanitary certificate. An import fee must be paid for every consignment of fresh fruit that is imported. Customs and/or excise duty and Goods and Services Tax (GST) are levied on the customs value of imports. The Port of Singapore includes a duty-free zone where goods in transit may be stored, re-sorted or repacked without incurring duty.

AVA provides guidelines for labelling and advertising pre-packed imported foods for commercial purposes. An online guide to food labelling and advertisements is also available as a step-by-step guide for self-checking food labels and advertisements for growers to review.

Each year, Australia exports around 26,000 tonnes of fresh fruit to Singapore, with a total value of approximately $65 million (Table 3.3).

Table 3.3: Australian fruit exports to Singapore

	2014/15 tonnes	2015/16 tonnes	2016/17 tonnes	2016/17 % change to LY	2016/17 Volume (%)	2016/17 Value (AU$ m)
Value (AU$ million)	**56.0**	**73.2**	**65.2**	**-10.9%**		
Volume (tonnes)	**26,062**	**29,534**	**25,761**	**-12.8%**		
Price / kg	**$2.15**	**$2.48**	**$2.53**	**2.1%**		
Oranges	9,341	11,460	9,929	-13.4	38.5	12.9
Table grapes	5,622	4,521	3,143	-30.5	12.2	10.5
Melons	4,140	4,863	5,494	13.0	21.3	9.1
Strawberries	563	814	940	15.5	3.6	7.2
Avocados	765	792	909	14.7	3.5	4.8
Cherries	391	519	276	-46.9	1.1	4.1
Mangoes	953	869	1,127	29.7	4.4	3.9
Peaches & nectarines	983	965	849	-12.0	3.3	3.2
Mandarins	1,064	1,638	1,229	-25.0	4.8	2.7
Plums	835	1,011	772	-23.6	3.0	2.2
All other	1,406	2,083	1,094	-47.5	4.2	4.6
Total	**26,062**	**29,534**	**25,761**	**-12.8**	**100**	**65.2**

Source: ITC, 2018

Though relatively small, Singapore presents as a viable potential export market for the Australian passionfruit industry. Table 3.4 summarises the key socioeconomic indicators for Singapore.

Table 3.4: Singapore: Key socioeconomic indicators, 2017

Population	5.6 million residents
Language	Malay, English, Mandarin, Tamil
Ease of Doing Business	2 of 190
GDP	US$305.8 billion
Per Capita	US$53,880
GDP Growth	2.5%
Unemployment	2.1%

Source: Austrade, 2018; WITS, 2018

New Zealand

New Zealand is a small and important market for Australian horticultural exports, and is often overlooked as an export destination because of its comparatively small population. However, for fresh produce and businesses new to exporting, New Zealand offers a number of potential benefits as an export market including:

- proximity (i.e. less than three hours by air)
- its language and culture are very similar to Australia
- its economy is strong and continues to grow
- established relationship in the form of historically significant trans-Tasman bilateral trading arrangements facilitated by the Australia New Zealand Closer Economic Relations Trade Agreement (ANZCERTA);
- governance (i.e. a stable political and legal structure based on the English systems and affiliated to Australia).

Following adoption of formal trading arrangements, two-way trans-Tasman merchandise trade has increased at an average annual rate of around 8%. New Zealand is Australia's sixth largest goods trading partner. In 2016, trans-Tasman goods and services trade was valued at around AU$24.8 billion. Australian merchandise exports to New Zealand totalled AU$8.7billion, while merchandise imports from New Zealand totalled AU$7.6 billion. In the year to March 2017, Australia was New Zealand’s number one overall trading partner and the largest destination for total exports.

Import conditions

The Trans-Tasman Mutual Recognition Arrangement (TTMRA) for Goods and Occupations came into effect in 1998 and has substantially reduced the regulatory impediments to trans-Tasman trade.

The two basic principles of the TTMRA are listed below:

1. Any goods that may legally be sold in Australia may also be legally sold in New Zealand and vice versa
2. A person registered in Australia to practice an occupation is entitled to practice an equivalent occupation in New Zealand and vice versa. This principle is particularly applicable in the horticulture industry.

Each year, Australia exports around 20,000 tonnes of fresh fruit to New Zealand, with a total value of approximately AU$40 million (Table 3.5).

Table 3.5: Australian fruit exports to New Zealand

	2014/15 tonnes	2015/16 tonnes	2016/17 tonnes	2016/17 % change to LY	2016/17 Volume (%)	2016/17 Value (AU$ m)
Value (AU$ million)	**37.0**	**42.3**	**41.3**	**-2.5%**		
Volume (tonnes)	**19,676**	**22,530**	**19,341**	**-14.2%**		
Price / kg	**$1.88**	**$1.88**	**$2.13**	**13.5%**		
Table grapes	3,607	3,182	3,127	-1.7	16.2	10.5
Mandarins	3,970	5,161	3,811	-26.2	19.7	6.9
Strawberries	365	491	579	18.0	3.0	5.2
Melons	2,991	3,011	3,033	0.7	15.7	5.1
Pears	2,066	2,985	2,238	-25.0	11.6	3.4
Oranges	3,488	4,246	2,988	-29.6	15.5	3.3
Mangoes	886	834	828	-0.7	4.3	3.2
Watermelons	2,134	2,385	2,523	5.7	13.0	2.8
Other (including lychee)	34	43	44	4.2	0.2	0.4
All other	134	193	170	-12.2	0.9	0.5
Total	**19,676**	**22,530**	**19,341**	**-14.2**	**100**	**41.3**

Source: ITC, 2018

Though relatively small, New Zealand presents as a viable potential export market for the Australian passionfruit industry. Table 3.6 summarises the key socioeconomic indicators for New Zealand.

Table 3.6: New Zealand: Key socioeconomic indicators, 2017

Population	4.8 million residents
Language	English, Maori
Ease of Doing Business	1 of 190
GDP	US$200.8 billion
Per Capita	US$41,629.3
GDP Growth	3.5%
Unemployment	4.6%

Source: Austrade, 2018 & WITS, 2018

3.4 Impediments to exporting

Competition

International passionfruit producers

Brazil is the largest producer of passionfruit in the world with a high percentage of domestic consumption and therefore a low level of exports. Ecuador, Indonesia and Colombia are the largest producers of fresh passionfruit, with Ecuador being a larger exporter of processed passionfruit. Kenya exports fresh product to Europe. Indonesia has the same seasonal production peaks as Australia and while it has a large industry, it exports only a small amount of passionfruit in the form of juice.

Alternative products

Although there is no immediate substitute for passionfruit, there is competition for market share with other types of tropical fruit such as mango, papaya, pineapple and kiwifruit. These tropical fruits (which are only seasonally available) have greater continuity of supply and are more easily accessible to consumers through retail outlets than passionfruit. Snack foods such as dried fruit are also seen as a competitor product. The key considerations for each of the four target markets are summarised below.

Hong Kong – Competition

With a wealthy population of more than seven million and approximately 50 million tourists each year, Hong Kong is a substantial and high-value market for a range of food products. Hong Kong is also a ‘shop window’ for attracting a significant number of mainland China visitors each year. Hong Kong relies heavily on food imports since there is minimal domestic agricultural production and limited food manufacturing capability. Hong Kong is also a trading hub for re-exports of fresh produce across to mainland China, Macau and into other neighbouring markets in Southeast Asia.

Being one of the most unrestricted markets in the world, Hong Kong has minimal trade barriers for food imports. The market is extremely competitive which means quality products are often competing on price. Australia is currently the fourth-largest produce supplier to Hong Kong after China, Thailand and the United States of America.

The image of Australia’s ‘clean and green’ production environment and high food safety standards means that Australian food exports are well-positioned in Hong Kong. Organic products are helping to sustain and diversify the market position of Australian food products.

Hong Kong imports between 40,000 to 50,000 tonnes per annum of fruit falling under the code HS081090 (Fruit, Others, Fresh) which may include passionfruit. In this category, there are more than 50 countries listed with the top five supplying countries being: Thailand, China, Chinese Taipei, Vietnam and Chile. Australia supplies around 700 to 1,000 tonnes of fruit per annum with an average value of US$2,000 to US$3,500 per tonne in recent years (ITC, 2018). Over the past three years, the average unit value of imports from all countries in this category is around US$740 to US$970 per tonne (ITC, 2018).

Singapore – Competition

As a result of easily accessed markets and minimal trade barriers, Singapore is a highly developed open and trade-oriented market. Singapore imports a vast array of fresh produce from all over the world, including around 25,000 to 30,000 tonnes per annum of fruit that come under the HS081090 code. Within this classification, Singapore imports around 6,500 to 9,000 tonnes per annum of fruit classified as 'Fruit, Others, Fresh' which may include passionfruit. In this category, there are over 35 supplying countries, with the top five supplying countries being Malaysia (greater than 50% of the tonnage), Thailand, Egypt, India and Peru. Australia supplies around 30 tonnes per annum with an average value of US$7,000 to US$8,500 per tonne in recent years (ITC, 2018). Over the past three years, the average unit value of imports from all countries in this category is around US$1,200 to US$1,300 per tonne (ITC, 2018).

Australia's competitive advantages in Singapore include:

- strong brand recognition and position
- high degree of familiarity with Australia among consumers
- similar time zone
- counter-seasonal to the Northern Hemisphere supply
- strong sea and air connectivity.

Supply diversification is part of the nation's food security policy to address any potential interruption to supply. Hence, it is worth noting that while the Singaporean market presents minimal barriers to entry for Australian exports, products will be exposed to a number of competitive global food and agribusiness brands in-market.

New Zealand – Competition

The food and beverage sector remains the linchpin of the New Zealand economy. It employs nearly one in five New Zealand workers and earns over half of the country's merchandise export earnings. New Zealand is a major horticultural producer with over NZ$8 billion per annum and exports over NZ$5 billion per annum, particularly of kiwifruit and apples which account for over 70% of the country's fresh produce export value.

New Zealand also produces a wide range of other fruit and nuts, with significant growth in avocados, cherries and blueberries. New Zealand has around 30 ha of planted agricultural land devoted to passionfruit vines which, in 2016, produced around 125 tonnes. A large proportion of the total passionfruit crop is exported (ITC, 2018). Despite this significant production base, New Zealand also imports fresh produce worth approximately NZ$500 to NZ$800 million per year, at least half of which comes from Australia. The USA is the next largest exporter of fresh produce to New Zealand.

3.5 Barriers to trade – Non-technical

This section provides a summary of the tariff and related trade barriers in the three target markets.

Hong Kong – Tariffs, regulations and customs

Hong Kong is a free trade port, with the exception of alcoholic spirits. There are no duties or tariffs imposed on imports of food and beverages. However, importing food and beverages into Hong Kong is subject to the control of various local food laws and regulations pertaining to:

- bacteriological or microbiological standards
- preservatives
- food colours
- metal and mineral oil content
- contamination by harmful substances (such as hormone residues).

The Hong Kong government currently adopts the Maximum Residue Limits (MRLs) and Extraneous Maximum Residue Limits (EMRLs) for pesticides as recommended by Codex Alimentarius International Food Standards; both of which are adopted by China, the United States and Thailand who are major produce suppliers to Hong Kong. These maximum residue limits are revised and published online as necessary.

Singapore – Tariffs, regulations and customs

Singapore has no applicable tariffs or duties on food and packaged food products, except alcoholic beverages. All goods imported into or manufactured in Singapore are subjected to 7% GST and this is applied on an ad valorem basis to all dutiable and non-dutiable goods. The GST taxable is calculated in accordance with the Costs, Insurance and Freight (CIF) value, plus all duties and other chargeable costs, regardless of whether or not these amounts are shown on the invoice.

New Zealand – Tariffs, regulations and customs

All food and food-related products imported for personal use or sale into New Zealand must meet New Zealand standards and requirements. The New Zealand Ministry for Primary Industry (MPI) oversees the importation of fresh produce under the MPI Standard 152.02, Importation and Clearance of Fresh Fruit and Vegetables into New Zealand. All imports of fresh produce (including fruit, vegetables, herbs and fungi) must be facilitated by a New Zealand registered food importer.

All fresh fruit and vegetables are prohibited from entering into New Zealand unless they are covered by a valid Import Health Standard certification. At present, there is no Import Health Standard for passionfruit from Australia so application would need to be made to the MPI before exporting could commence. Unless specified, a completed phytosanitary certificate issued by the Australian Quarantine and Inspection Service (AQIS) must accompany all consignments of fresh fruit and vegetables exported to New Zealand.

4 Export Strategy Planning

4.1 Current industry strategy linkages

The Passionfruit Industry Strategic Plan contains a Monitoring and Evaluation Plan which highlights the following points in relation to exports:

1. Outcomes

Item 1.0: Increased domestic demand and export opportunities that maintain price stability.

2. Strategies

Item 1.2: Increase market diversification by establishing and maintaining access to new export markets.

3. Key performance indicators

Grower-led exports to New Zealand and other countries in place by 2022.

4. Data collection methods and sources

Market access gained to New Zealand with export volumes captured.

To address Strategy 1.2, the following possible deliverables are noted in the Passionfruit Strategic Investment Plan (Hort Innovation, 2017a):

- consumer and market research on potential demand for irradiated passionfruit
- completion of export market development plans
- develop clear pathways for growers to start exporting
- encourage growers to actively participate in export opportunities.

4.2 Export market planning

Product

Currently, domestic supply is made up of two main types of passionfruit: (1) the Panama variety grown in tropical climates only and (2) the purple or black varietal grown in different regions due to adaptation by the variety to climatic variation.

The price for the black passionfruit variety is typically higher than for the Panama style. Australian consumers recognise and generally prefer black-style fruit over the Panama-style fruit. The accepted packaging formats are three pieces of fruit sold in a tray with clear wrap, or a string bag of six to ten pieces of smaller-sized fruit.

Market grades range from Premium to Class 1 to Class 2 (also known as catering- or processing-grade fruit). If Class 1 is assumed to be the largest volume and attracts a price index of 100, then, depending on the state of the market, the Premium Class will attract a price index of 115 to 120 and Class 2 will attract a price index of 25 to -50. However, it should not be assumed that the export market is identical to the domestic market. For this reason further exploratory work is required to ensure that the product is suitable for the chosen target market. Table 3.4 provided a generic export product specification outline

Marketing and promotion strategies

PAI has advised they will develop marketing strategies for each export market identified. In some markets, passionfruit will be entirely unknown as a fresh fruit, but may be familiar as flavouring in such products as yoghurts and juices. In this case, a food service access strategy may be required. The passionfruit marketing strategy should also be considered as part of the overall marketing strategy for tropical fruits in collaboration with other tropical fruit industry associations and Hort Innovation.

As a small grower association, PAI has advised they will seek support for export promotions depending on the market area such as food service or fresh fruit markets. Likewise, PAI will identify appropriate trade shows (for example, Fruit Logistica, Hong Kong) to define the appropriate market segment in a given country.

4.3 Resources

As a small industry, passionfruit may be limited in its success by operating in isolation. Within the industry, there are a number of growers who have the necessary expertise to champion export as a business channel. In future, what will be required is regular funding for the exploration of new markets; a clear and tightly focused list of markets to explore; and a set of success measures that can provide a benchmark for evaluation.

The PAI committee, supported by Hort Innovation and in conjunction with other relevant tropical fruit industries, should consider export development as a collaborative channel. PAI has advised funding resources to support export development will be explored by their subcommittee.

5 Opportunities and issues

An industry analysis of exporting prospects and constraints was compiled from grower, PAI and industry stakeholders' viewpoints.

SETTING	HELPFUL to achieving the objectives	HARMFUL to achieving the objectives
INTERNAL industry attributes	**Product** • Sweeter, better quality product • A safe and healthy product, free from chemicals • Attractive varieties not available elsewhere • Due to the product's hard skin, postharvest treatment may be easier in comparison with other fruits (for example, grapes) **Supply** • Longer window of supply due to climate and widespread growing regions **Industry Standards** • Growers are generally up-to-date, professional and have good practices	**Product** • Limited varieties available; don't have different shapes/ flavours • Some are coming to the end of their life span and so are starting to get genetic defects – need new varieties • Lack of knowledge of what the market wants – they may prefer a different variety • Inconsistency in quality • Insufficient R&D • Limited shelf life • Presence of fruit fly **Supply** • Some areas (Tweed) won't have year-round production – impacts continuity of supply as well as the feasibility of having a regional packing facility • Inconsistent supply • Currently have a single seedling supplier. **Inputs** • High labour costs • High freight costs • Distance from potential markets. **Industry Characteristics** • A small industry, therefore has limited funds to invest in exports • Can be difficult to get growers to work together • Grower desire for exporting and willingness to commit • A low-priority industry in Australia so may struggle to get to the negotiating table to have market access developed.

SETTING	HELPFUL to achieving the objectives	HARMFUL to achieving the objectives
EXTERNAL **environmental attributes**	**Markets** • Hong Kong • Singapore • New Zealand **Models/ Marketing Approaches** • A cooperative of growers operating under a single brand is one possible model for exporting • Target upper middle class with premium positioning • Piggyback on other fruit exports/ companion fruit • Sell in Asia in small quantities (for example, nicely presented as a gift) **New Products** • Exporting passionfruit pulp or puree • As an ingredient in exported, value-added products (e.g. dairy) **Reputation** • Trade off Australia's reputation for clean, green produce (though, in reality, this advantage is being diminished as other countries lift their standards) **Knowledge** Support from other industries, especially tropical fruit groups already exporting from Australia	**Weather** • Weather or other factors outside growers' control may prevent them from meeting export demand **Competition** • Especially from low-cost producers, but also from neighbours such as New Zealand who are currently exporting • Markets with easy access have high competition **Financial/ Supply Chain** • May not get paid • Poor handling in the supply chain • Difficulty resolving any conflict or disagreement that arises due to distance **Awareness/ Understanding** • Consumer education is required in countries unfamiliar with passionfruit – consumers may not know how to select or use passionfruit • Don't have our history/ nostalgic links with the fruit • Passionfruit not well-recognised around the world • Passionfruit may not be considered a premium product like lychee or mango • Passionfruit may not meet the taste preferences of overseas markets

6 Conclusion

The contributing factors to developing a commercially focused, first-phase export plan for the Australian passionfruit industry that can be utilised nationally were the focus of this study. Currently, passionfruit distribution is principally domestically focused and growers would benefit from greater understanding of the opportunities and issues associated with exporting. Currently, there is limited information available about passionfruit market dynamics (domestic and export). Nevertheless, it is apparent that there are various opportunities for passionfruit export development. Consultations with grower and stakeholders in 2017 and 2018 identified the fact that they considered exporting as a viable trade opportunity to increase the profitability of their businesses. Acting on these priorities in order to increase the net income of the industry provides an effective strategic prospect for passionfruit growers to increase their livelihoods. The study objectives were to:

- identify current industry understanding of export requirements for Australian passionfruit
- determine current industry export capabilities for Australian passionfruit.

Specific research questions dealing with grower sentiments in relation to international trade development and encompassing interest in exporting, knowledge of export requirements and industry readiness to export were completed.

Interest in exporting

Passionfruit growers are mainly attracted to the industry for its potential financial benefits, return on investment, and the potential for an acceptable and steady cash flow. However, supply isn't always predictable (in part due to the crop's vulnerability to weather, pest and diseases) and the small local market can easily be under or over supplied. This situation creates extreme variations in price that growers find difficult to manage. Price volatility, the lack of scope for domestic growth and the power of major retail chains creates impetus for change and has resulted in growers considering expansion into exports. In this way, exporting is firmly on the radar for growers, though they vary in their level of interest. All growers can see the potential benefits; namely, the opportunity to generate increased incomes.

Passionfruit industry export stakeholders have their own perspectives with regards to the industry expanding into exports. While some are more optimistic than others, generally they agree on the need for: (a) growers to work together, (b) accessible markets to be considered in the first instance, (c) a premium pricing positioning to be adopted and (d) groundwork to be undertaken to understand consumers' needs and preferences in priority destination markets. Growers describe the following barriers to exporting: (a) identification of suitable markets, (b) product shelf life, (c) consistent supply, (d) fruit fly management, (e) consistent quality and packaging, (f) lack of cash flow to expand operations and (g) a belief that exporting is hard.

Export stakeholders identify many of the same barriers, namely: (a) identification of and access to markets, (b) freight cost/times, (c) product shelf life, (d) consistent supply, (e) fruit fly management and (f) consistent quality. Additionally, they identify barriers such as the difficulty of encouraging growers to work collaboratively, growers' likelihood of ongoing commitment to exports, industry size, competition in export markets and the passionfruit varieties themselves.

Knowledge of export requirements

The barriers to exporting that were readily identified and described by growers are, in many instances, also export requirements. While the majority (63%) claim to have no knowledge of the requirements for export, the types of things they do describe are consistent with requirements described by industry stakeholders. Therefore, it would seem that growers do have quite a good general knowledge of export requirements. What they apparently lack is a specific understanding of export requirements for particular countries, which is understandable given that they have no export experience to date and that no specific export countries have been identified as yet.

Growers identify a number of key requirements in the passionfruit industry, including: fruit fly and associated treatments, acceptable levels for chemicals, and quality/consistency of product and packaging. Additionally, some countries are assumed to have further requirements in connection with other pests, diseases, contamination, traceability and continuity of supply. As well as the above requirements, export stakeholders also identified farm practices as a likely requirement for export. Growers' current knowledge of export requirements is largely based on their domestic selling experience. They have a good understanding of how to extend their learning about specific requirements for export, with the industry association expected to play a key role in this education process.

Industry readiness

Growers and industry stakeholders seem to differ more markedly in their perceptions of readiness for export. While growers admit to not knowing the specific export requirements of particular countries, over 60% of them think they are either personally ready in some respects or that it wouldn't take much effort for them to be ready. This assumption appears to be based on growers making an educated guess as to what they think countries are likely to require and believing in their own product, practices and ability to easily make any necessary adjustments.

While growers are aware that without external direction they don't know what they need to do in order to be ready for exporting, they can identify things that are needed from others or that would include them but not be their sole responsibility. This includes the development of an export committee comprised of experienced professionals; postharvest research to improve shelf life; a parallel study focused on supply capabilities; exploration of different models for exporting; and the establishment of an export accreditation process. Growers are most eager for the potential overseas markets to be identified and for exporting protocols to be researched and communicated.

Industry stakeholders have a more conservative view on the industry's preparedness for export. No doubt this stems from their wider perspective and greater export experience. Some industry stakeholders point to signs that the industry is not yet ready, highlighting the considerable amount of work required to commence exporting (especially to those markets requiring access negotiations) and significant gaps in growers' understanding of the process, and consumers' needs and preferences in overseas markets. That said, some industry stakeholders recognise the tendency to 'over-complicate things' and suggest that the industry should simply make a start, even on a very small scale and learn through experience.

7 Recommendations

As demonstrated by the current desire and general understanding of exporting requirements by passionfruit growers, the research suggests that the industry is approaching export readiness. This initial export plan (plus other industry projects under way) provide the clarity and direction that growers seek regarding where (what markets) and how (what models) they could export. With more information available to inform their decision-making, it is likely that some growers will not find exporting to be worthwhile, while those who are better placed to meet the requirements will become more motivated and committed to step forward.

With these factors in mind, this export study proposes that the industry undertake development of exports into markets in which Australian horticultural products are currently traded and which are of a size that is consistent with the supply potential from Australia. Further collaboration with other tropical fruits will support early-stage export initiatives.

The suggested export markets are:

- Hong Kong
- Singapore
- New Zealand.

Hong Kong and Singapore should be the first export targets due to their established horticultural import trade association with Australia and their ease of access. New Zealand is a good prospect; however, some work needs to be done to establish market access for Australian passionfruit. This plan provides a first-phase guide for the industry to begin development of a viable export trade.

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