Passionfruit

STRATEGIC INVESTMENT PLAN

2017-2021

Hort Innovation
Strategic levy investment

PASSIONFRUIT FUND

Content

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Introduction

This Strategic Investment Plan (SIP) is the roadmap that helps guide Hort Innovation's oversight and management of individual levy industry investment programs. The SIP lays the foundation for decision making in levy investments and represents the balanced interest of the particular industry from which the levy is collected. The very important function of the SIP is to make sure that levy investment decisions align with industry priorities.

Hort Innovation is the not-for-profit, grower-owned research and development (R&D) and marketing company for Australia's $9 billion horticulture Industry.

As part of the role Hort Innovation plays as the industry services body for Australian horticulture, the organisation is tasked by the Australian Government with working alongside industry to produce a strategic plan for investment of levies

in industry R&D and marketing activities. Each individual levy industry investment strategy also speaks to the future growth and sustainability of the Australian horticulture industry, as a whole. The SIPs are produced under the umbrella of the Hort Innovation Strategic Plan, which takes a whole of industry view in setting its direction, as it considers broader agriculture government priorities for the advancement of Australian horticulture.

The process in preparing each SIP was managed by Hort Innovation and facilitated in partnership with Industry Representative Bodies and Strategic Investment Advisory Panels (SIAP). Independent consultants were engaged to run the consultation process, to gather the advice from stakeholders impartially and produce a plan against which each levy paying industry can be confident of its strategic intent.

Hort Innovation has valued the support, advice, time and commitment of all stakeholders that contributed to producing the SIPs, especially passionfruit growers.

The passionfruit SIP

Producers in the passionfruit industry pay levies to the Department of Agriculture and Water Resources (DAWR), which is responsible for the collection, administration and disbursement of levies and charges on behalf of Australian agricultural industries.

Agricultural levies and charges are imposed on primary producers by government at the request of industry to collectively fund R&D, marketing, biosecurity and residue testing programs.

Levy is payable on passionfruit that are produced in Australia and either sold by the producer or used by the producer in the production of other goods. The levy rate on fresh passionfruit is 40 cents per 18-litre carton or 8 kilograms if not packed in cartons, and processing passionfruit 3 cents per kilogram.

Hort Innovation manages the passionfruit levy funds which are directed to R&D (50 per cent of total levies collected), marketing (50 per cent of total levies collected). In 2015/16, total passionfruit levy receipts were approximately $252,000: $126,000 of R&D levies and $126,000 of marketing levies.

Hort Innovation has developed this SIP to strategically invest the collected passionfruit levy funds in the priority areas identified and agreed by the passionfruit industry. The ability to deliver on all the articulated strategies (and investments) in an impactful manner will be determined by the ability of the statutory levy to provide the resources to do so.

This plan represents the Australian passionfruit industry's collective view of its R&D and marketing needs over the next five years **and gives focus to a number of prioritised strategies as foundational investments for grower levies**. This plan has been developed in consultation with Australian passionfruit levy payers through a synthesis of priority-setting exercises, direct consultations, workshops with Hort Innovation's passionfruit industry SIAP, and industry consultation.

The process to develop this plan is fully described in ***Appendix 1***. The people consulted in the preparation of the plan are listed in ***Appendix 2*** and the documents referred to are listed in ***Appendix 4***.

The passionfruit SIAP has responsibility for providing strategic investment advice to Hort Innovation. Both Hort Innovation and the advisory panel will be guided by the strategic investment priorities identified within this plan, focusing on those identified as being a higher priority. For more information on the passionfruit industry SIAP constituency please visit Hort Innovation's website at www.horticulture.com.au.

Passionfruit

STRATEGIC INVESTMENT PLAN 2017-2021 AT A GLANCE

POTENTIAL IMPACT OF THIS PLAN

$9.7 Million

Based on an estimated investment of $1.84 million over the next five years

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 the management of pests and diseases
Improved retail quality of passionfruit that matches consumer expectations	**Engage with supply chain and retailer 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 that enable relevant industry data to be captured regularly**
	Ensure that data is made available in a format that facilitates decision making amongst industry stakeholders
Increased domestic demand and export opportunities that maintain price stability	**Drive growth in domestic markets through targeted marketing initiatives**
	Increase market diversification by establishing and maintaining access to new export markets
	Develop value-add products to increase consumer access to, and consumption of, passionfruit

Highest-priority strategies or activities for the initial stages of the plan are indicated in **bold**.

Passionfruit
STRATEGIC INVESTMENT PLAN 2017-2021
AT A GLANCE

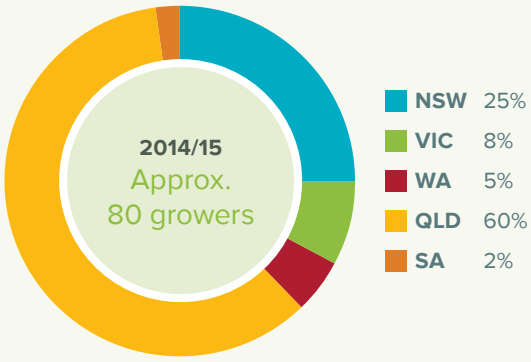
Major opportunities

- Training in the awareness and delivery of the value of a standardised grading, packing and labelling regime
- Collection and reporting of production data to enable the industry to be able to monitor passionfruit production across Australia and provide supply forecasts
- Use of irradiation for disinfestation opens export markets which would be otherwise closed
- Mechanisation of harvesting methods (although cost benefit may not be there for small farms)
- Introduction of a clean planting scheme if viruses could be eliminated from popular cultivars or new varieties introduced which are resistant (positive R&D results in this area).

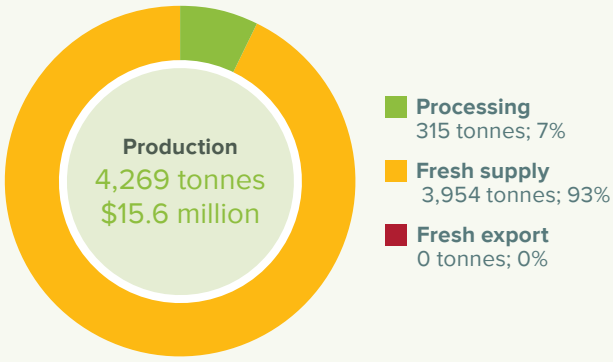
Major challenges

- Reliance and effect of changes in Australia's regulatory environment concerning biosecurity, R&D support, and use of agricultural input and resources, such as water, chemicals and land
- Increased competition from fresh imported product if supply continues to be variable with significant price fluctuations and from the import of pulp from lower cost locations such as Thailand and South America
- Loss of supply of new plants from accredited nurseries through market failure or disease outbreak
- Low cost imported pulp makes sending fruit for processing unattractive for growers
- Fragmented industry with many small growers susceptible to seasonal variation makes it difficult to ensure continuity of supply
- Inaccurate sorting and packing requires resorting by the wholesalers
- Limited awareness of alternate varieties with purchase decision done mostly on impulse
- Reliance on casual labour to pick up fruit before it gets sunburnt with up to 30 per cent unsuitable for the higher value fresh market although this was only seven per cent in 2015
- Susceptible to many pests, especially viruses
- Reliance on planting new vines every two to three years.

Industry size and production distribution



Passionfruit supply chain and value 2014/15



SECTION ONE

Context

The Australian passionfruit industry

The Australian passionfruit industry

The Australian passionfruit industry is valued at $17 million and produces approximately 4,000 tonnes of passionfruit per year. The majority of passionfruit is sold as fresh on the domestic market with only 200 tonnes sent for processing.

The industry would like to build more demand through marketing initiatives, an increased focus on quality and the development of export market opportunities. The industry recognises that while such low prices exist for factory grade fruit, it will be difficult to motivate growers not to send less than grade two quality fruit to central markets. This increases the need for the industry to develop value-add products that enable a profitable pathway for its factory grade fruit.

The industry has good engagement with independent retailers and this results in higher quality fruit reaching the consumer and higher prices being achieved. The industry recognises that it has a challenge to engage major retailers so that passionfruit is presented and displayed to maximise quality, price and to ultimately satisfy the consumer. Data collection in terms of forecasting, productions and quality will need to be systemically collected to support engagement with the major retailers.

Pests and disease are also significant issues that affect production and consistency of supply for the industry. This, combined with the fact that passionfruit varieties lose their vigour over time, make the development of new disease resistant varieties and effective treatments a high priority for the industry. This will require ongoing investment in new variety development, existing chemical registrations and permits, the research and registration of new chemicals as well as development and adoption of integrated pest and disease management practices.

To ensure that all growers benefit from research, engagement and innovations, the industry would like to develop best practice adoption and industry engagement approaches so that all growers have the opportunity to be productive and profitable.

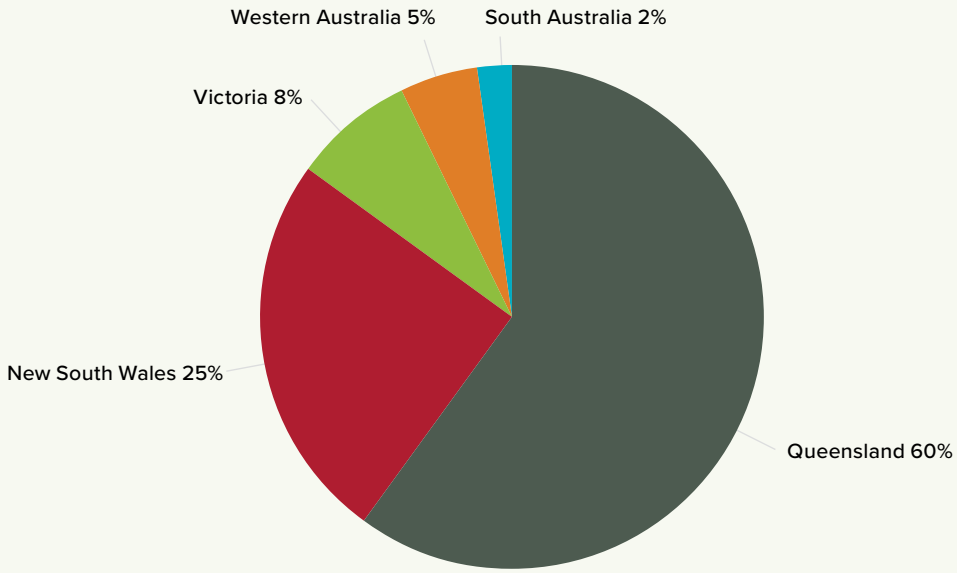
Location and extent of production

The major passionfruit production areas are the Wide Bay region, Cooktown, Daintree and Mareeba, Sunshine Coast and Northern New South Wales[1]. Queensland farmers in the Sunshine Coast, Wide Bay, Atherton Tablelands and the coastal wet tropics, as far north as the Daintree, account for around 60 per cent of production. Northern New South Wales is the second biggest producing region with 25 per cent. Passionfruit production also occurs in Victoria (8 per cent), Western Australia (5 per cent) and South Australia (2 per cent)[1-3].

Figure 1: Major passionfruit growing regions in Australia

Figure 2: Fresh passionfruit production by state, 2014/15

(Source: Horticulture Innovation Australia, Australian Horticulture Statistics Handbook 2014/15[1])



The industry has proven attractive to new growers, increasing from around 90 growers in 2012 to around 130 in 2015, mostly of whom are on two to 15 hectare farms. Many growers produce passionfruit as a second, third or fourth crop and have minimal engagement with industry bodies or supply chains[4]. Specific strategies for engaging growers including their participation in data collection, best practice adoption and strategy setting should be considered.

Factors such as dispersed geographical locations, variability and unpredictability in supply, and lack of production forecasting tools affects the industry's capacity to accurately forecast production across the growing regions. However, it is highly recommended that "the industry consider the investment in funds towards implementing better management systems and practices to enable the industry to be able to monitor passionfruit production across Australia"[5]. The final research report to Hort Innovation in 2015, project PF13006, provided a template for the collection of market data by region and wholesaler and a key recommendation is that this continue to be collected beyond the trial period as a priority for the industry[4].

Passionfruit farm establishment requires a high initial outlay due to the costs of the trellis infrastructure, high use of grafted vines, grading and packing equipment, cold room and associated farm machinery. The vines usually come into production six to 12 months after planting and reach mature phase yields in 12 to 24 months[6].

The National Passionfruit Industry Biosecurity Plan 2012, developed with Plant Health Australia (PHA) and Passionfruit Australia Inc.[15], outlines key threats to the industry, risk mitigation plans, identification and categorisation of exotic pests and contingency plans. A number of exotic pests have been identified including a number of species of fruit fly and viruses.

Products marketed

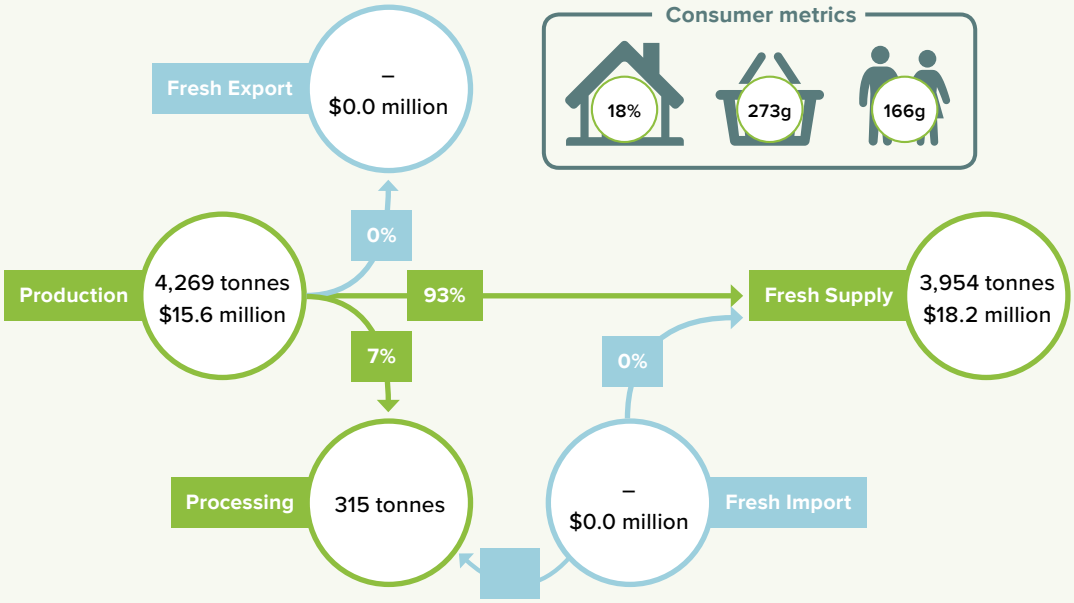
The Australian passionfruit industry began with the import of fruit from Brazil in the early 1900s. The industry is primarily dependent on the purple varieties, Misty Gem and Sweetheart, and two Panama varieties Pandora and McGuffies Red[6].

In areas with subtropical climates, such as South-East Queensland and Northern New South Wales, hybrids (Australian hybrid varieties are known to have a greater depth of flavour) of the purple passionfruit (*Passiflora edulis*) and the panama passionfruit (*Passiflora edulis f. flavicarpa*) are preferred for commercial production. In Northern Queensland, Panama, *P. edulis f. flavicarpa* hybrids (golden passionfruit resistant to Fusarium wilt) are grown[7].

The purple varieties have to be grafted each year. Some growers keep their plants for three years but most only keep purple vines for two years. Yields of between 10 to 25 tonnes.

Only seven per cent of product is sent for processing for the pulp and seeds due to the low prices that achieved for factory grade fruit[1].

Diagram 1: Fresh passionfruit supply chain, year ending June 2015 *(Source: Australian Horticulture Statistics Handbook 2014/15)*



Domestic markets

Fruit is sold through wholesale, retail (supermarkets, independent stores, green grocers) and farmers' markets/ roadside stalls. The bulk of passionfruit sales occur through wholesale markets in Brisbane, Sydney and Melbourne[9].

The *Australian Horticulture Statistics Handbook 2014/15* shows that production was 2,846 tonnes for the year ending June 2015, slightly down on 2013/14 year presumably from a poor summer harvest. However, the value of production was higher overall for the 2014/15 year. This corresponds with the Brisbane Markets data.

Table 1: Domestic markets 2012/13 to 2014/15
(Source: Horticulture Innovation Australia, Australian Horticulture Statistics Handbook 2014/15[1])

	2012/13	2013/14	2014/15
Production (tonnes)	2,787	2,904	2,846
Value (AUD million)	$13.7	$14.4	$15.6
Producing vines	220,000	229,000	224,000

Price fluctuates during the year based upon availability of fruit with lowest prices coinciding with the peak harvest periods. Prices range from $14 to $90 per carton with $30 considered reasonable[6, 10]. Prices climbed to $50 to $70 per carton in January 2015 due to limited supply from a poor summer harvest[11].

Retail prices do not necessarily reflect the wholesale price as retailers seek to reduce the variation created by volatility in supply. Inferior quality, inaccuracy in grading and packaging are also significant determinants in the price paid by wholesalers who are frustrated by having to re-sort the product which creates additional costs for the wholesaler[4].

Export markets

Passionfruit exports appear to be undertaken by individual growers. There is very limited data on exports, however, in discussions with growers there is evidence of exports. This is positive for the industry, as exports require high grade product and consideration of continuity of supply combined with effective packaging and logistics. As is usual, the larger growers lead in each of these areas, and would like to see best practices spread across the industry. Other growers are recognising the importance in developing markets outside of the domestic market. Testing is underway to develop a disinfestation treatment regime using irradiation which may then open other markets[8]. If consumer concern about irradiation, also known as cold pasteurisation, can be overcome, then exporting passionfruit is an opportunity that could be explored to provide additional channels to market during peak production periods.

Consumers and consumer research

Consumer research conducted in 2011 found that quality, look, feel, price and smell were the major determinants of the purchase decision[12].

The passionfruit industry advisory committee identified the following key findings on demographics and buying patterns in their 2013/14 report[9]:

- 57 per cent of purchasers of passionfruit were on impulse, caused in part by consumer lack of knowledge of fruit availability, especially during winter
- Penetration is higher amongst more adventurous cooks and those living in the eastern states
- Significantly larger proportion of higher income households in New South Wales purchase passionfruit
- Almost half (48 per cent) of consumers were unaware of passionfruit varieties
- Despite this, colour and size are the key differentiating factors for those that can identify varieties.

It is expected that consumer research will be repeated in 2017 to ascertain consumer trends and changes since 2011.

The *Australian Horticulture Statistics Handbook 2014/15* identified that 13 per cent of Australian households purchased fresh passionfruit, buying an average of 273 grams per shopping trip and the consumption per capita was 111 grams[1].

The primary focus of the marketing strategy is to increase awareness and consumption volume within the domestic market, particularly the 'Younger Households' (light users) by removing barriers to purchasing passionfruit like price sensitivity and lack of usage ideas[8].

Consumer benefits

Passionfruit is available all year with peaks in supply during summer and winter months[2, 3]. Nutritionally, passionfruit provides the following advantages:

- Good source of fibre
- Source of vitamin C and high in potassium (same as bananas)
- Low in energy – only 55 kilojoules per serve.

Barriers to consumption

Passionfruit has low barriers to consumption unlike some of the other exotic fruits. They are readily and easily prepared and eaten. All that a consumer has to do is cut the fruit and scoop the pulp out. Passionfruit can be kept in the fridge in a bag for up to a month and the pulp can be frozen. Traditionally, passionfruit have also been grown in home gardens, which in turn, can create price barriers due to increased consumer knowledge that increases expectations.

The quality of the fruit being presented at the retail level is an issue that needs to be addressed. The supply chain to store and time on shelf is a lengthy process that results in dehydration and wrinkling of the fruit. While consumers see wrinkled passionfruit as an indicator of ripeness, the effects associated with this are that dehydration can result in reduced pulp and an intensification and variability of flavour can occur. Engagement with the supply chain and retailers is required to ensure that best practices are adopted to ensure the highest quality fruit is presented to the consumer.

Limited consumer awareness about the seasonality of passionfruit is also a barrier to consumption. Consumers are not aware of the winter flush which results in increased impulse purchases during these times. Marketing initiatives are being directed at increasing consumer awareness of its seasonality and how to enjoy it during winter months. However, promotional activity, particularly at major retailers, is difficult to conduct during winter due to availability issues as the timing of the winter flush is highly variable. Insufficient forecasting affects the industry's ability to effectively engage retailers.

Competitors and the nature of competition

International passionfruit producers

Brazil is the largest producer of passionfruit in the world, but is not an exporter of significance because of the high percentage of domestic consumption. Ecuador, Indonesia and Colombia are the next largest producers of fresh passionfruit with Ecuador one of the largest exporters of processed passionfruit. Kenya exports fresh product to Europe. Indonesia has the same seasonal production peaks as Australia. Whilst Indonesia has a large industry, it only exports a small amount of juice[13].

The influx of cheaper processed products (pulp) into the Australian market from suppliers such as Thailand and South America is seen as a concern by the industry because of the industry's inability to compete on price. No country has applied to import fresh fruit however there is a possibility that fresh imports may become a reality if the industry is unable to address issues such as volatile supply and high price fluctuations within the domestic market[14].

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. Some of these products are only seasonally available, however, they have considerably greater continuity of supply and are more easily accessible to consumers[9] than passionfruit in terms of display and availability at supermarkets. Other competitive products include snack food brands. There may be an opportunity to maximise marketing returns by collaborating with other fruit industries on promotional initiatives, such as the health benefits of fruit, to increase overall fruit consumption.

Operating systems

Production systems and processes

Passionfruit vines require regular attention to ensure protection from pest infestation as well as general maintenance including irrigation and fertilising. Two people can routinely look after three hectares with help during harvest.

Passionfruit production is highly labour intensive during the peak seasons where harvesting of purple varieties is by manually picking up off the ground once or twice a day before the fruit gets sunburnt. The Panama variety is generally picked from the vine[6]. A mechanised harvesting system for picking up the fallen fruit was developed in Taiwan (Feng Ou-Yang1, Pei-Chia Hsieh2, Yi-Chich Chiu3), however, there is no clear evidence of its commercialisation.

The industry has developed a grading guide in partnership with Queensland Department of Agriculture and Fisheries (QDAF) to help growers assess fruit quality. The grading guide is used for both purple and Panama varieties and takes the form of a poster that is displayed in packing sheds to assist growers in meeting the requirements of the produce specifications[16]. A recent industry report recommended that the grading guide be updated.

While wholesalers report that the overall quality of fruit coming to market has improved significantly in the last 10 years, there are still some growers who supply variable quality fruit that could (and should) be sent for processing. The result is, wholesalers are then required to repack and reclass some of the fruit, and in turn, the costs increase. A potential reason that growers send factory grade fruit to the fresh markets is because of the low prices achieved for factory grade fruit. At 40 cents per kilogram, it is not economically viable for the grower to send fruit for processing.

Low prices for factory grade fruit are caused by the cheap imports from Asia and Latin America. However, the quality of imported pulp is low and there are potential opportunities to develop a high quality pulp where the texture is retained through new processes such as freezing. Developing profitable pathways for factory grade fruit is needed so that growers are encouraged to only send high quality fruit to fresh markets.

Quality is also impacted by storage and display at the retail level. Often the fruit arrives and leaves the wholesaler in good condition but by the time it reaches the consumer, quality has been impacted. It is unclear whether if this results from the amount of time that it takes to get on to the retail shelf or if it is the storage at the retail outlet that impacts quality. It has been proposed that the use of track and trace technology that records storage conditions throughout the entire supply chain could be used to help identify and address these issues.

Pest and disease management requires ongoing investment to maintain chemical use permits and registrations for existing approaches. The industry is moving towards using soft chemicals and integrated pest and disease management (IPDM). Many growers have serious IPDM practices in place and the defined IPDM is in place with many growers, these changes and the resources currently invested need to continue to ensure effective identification and treatment.

A key issue that affects production is that vine varieties appear to age quickly and that even new vines start to lose productivity over short time periods. The current commercial varieties are now starting to show the signs ageing that have affected older varieties – the vines either produce lots of small fruit or produce low numbers of large fruit. This is why the industry places such importance on the development of new varieties.

Marketing systems and structures

There are a number of primary wholesalers in each of the major markets of Brisbane, Sydney and Melbourne.

There are secondary wholesalers in each of the major central markets that service regional and rural independent supermarkets and retailers. In Brisbane, there are at least 10 key secondary wholesalers and equivalent numbers in other states[4]. Inaccurate sorting by growers requires wholesalers to frequently repack and reclass the fruit that arrives which is a source of frustration and cost that needs to be addressed.

Passionfruit is available at most retail outlets in Australia. The information below highlights the number of stores, however, the industry would find it useful to know the distribution of volume across retail outlets to help prioritise marketing and stakeholder engagement.

- Independent supermarkets (including IGA and Foodworks): 1,950 stores

- Independent fruit and vegetable retailers: 2,400 stores
- Full service supermarkets including Woolworths, Coles and Aldi: 2,285 stores[4]

Some independents are also working with innovative forms of packaging to increase consumer appeal whilst reducing dehydration. This is enabling the independents to sell more fruit at a higher price. If these best practices could be captured and adopted by the industry, then demand for the fruit at the higher price point could be increased while also addressing issues that affect quality.

There is one main processor in Queensland. Passionfruit pulp can be imported by the drum for very low prices which makes gaining better prices for Australian product more difficult. However, the quality of the imported pulp in terms of texture is low and this could be a point of differentiation that could be capitalised on.

Promotion and market development

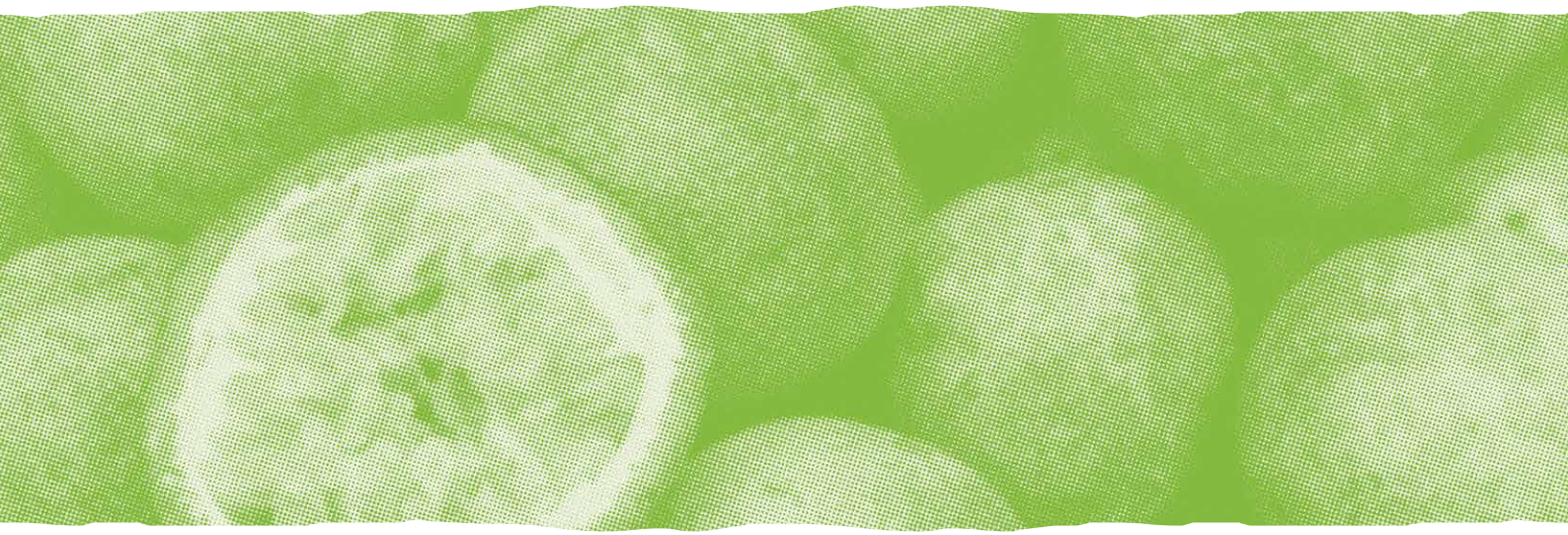
Levy and commonwealth funds for marketing increased by nearly 20 per cent in 2014/15 over the prior two years to $122,000. The size of the industry limits the scope of promotional activity and engagement with major retailers, however, there has been considerable progress in better understanding the market. Ongoing collaboration with similar-sized industries is important to maximise the return on marketing investment.

The former passionfruit Investment Advisory Committee report 2013-14[17] identified the marketing objective of the industry as "to facilitate a sustainable and profitable production sector by increasing demand for Australian passionfruit". The intent was to drive consumer awareness to increase the frequency of purchase by building on previous marketing campaigns. The "Everybody needs Passion" brand campaign combined with in-store, social media campaign and media outreach was a result from the strategies outlined in the three-year strategic marketing plan developed in 2011[5].

The marketing plan for 2017-2020 for the passionfruit industry is being developed and will involve renewing consumer insights and then developing an engagement strategy. The limited marketing budget increases the need for the industry to develop specific and targeted marketing initiatives. It is hoped that the consumer research will identify a new customer group that can be targeted to help increase demand.

Operating environment

The passionfruit industry	
Strengths	• Market perception of a healthy, easy-to-eat fruit, high in potassium and fibre • Effective marketing campaign with a strong brand strategy built on the "Everybody needs Passion" brand promise • Fruit available all year although with significant seasonal variation in supply and therefore price • Strong National Passionfruit Industry Biosecurity Plan (2012) in place which outlines the key threats to the industry and risk mitigation plans.
Weaknesses	• Fragmented industry with many small growers susceptible to seasonal variation makes it difficult to ensure continuity of supply • Inaccurate sorting and packing requires resorting by the wholesalers • Limited awareness of alternate varieties with purchase decision done mostly on impulse • Reliance on casual labour to pick up fruit before it gets sunburnt with up to 30 per cent unsuitable for the higher value fresh market, although, this was only seven per cent in 2015 • Susceptible to many pests and diseases • Reliance on planting new vines every two to three years.
Opportunities	• Training in the awareness and delivery of the value of a standardised grading, packing and labelling regime • Collection and reporting of production data to enable the industry to be able to monitor passionfruit production across Australia and provide supply forecasts • Use of irradiation for disinfestation opens export markets which would be otherwise closed • Mechanisation of harvesting methods (although cost benefit may not be there for small farms) • Introduction of a clean planting scheme if viruses could be eliminated from popular cultivars or new varieties introduced which are resistant (positive R&D results in this area).
Threats	• Reliance and effect of changes in Australia's regulatory environment concerning biosecurity, R&D support, and use of agricultural input and resources, such as water, chemicals and land • Increased competition from fresh imported product if supply continues to be variable with significant price fluctuations and from the import of pulp from lower cost countries such as Thailand and South America • Loss of supply of new plants from accredited nurseries through market failure or disease outbreak • Low cost imported pulp makes sending fruit for processing unattractive for growers.



SECTION TWO

Passionfruit industry outcomes

Industry outcomes

The following outcomes have been identified by growers and **listed in order of priority as identified through the SIP Logic process outlined in Section Four of this plan.** These prioritised areas will be the focus areas of this plan.

OUTCOME 1

Improved farm and industry sustainability from identifying and adopting better practices

The identification and adoption of global best practice by growers in terms of management and industry leadership was identified as key to the future sustainability and stewardship of the industry. By 2021, the industry would like to have identified what the best-in-class industries are doing both domestically and abroad to remain competitive and have embedded process that facilitate rapid adoption of R&D through engagement, training and benchmarking.

OUTCOME 2

Improved pest and disease management and the development of new varieties that increases grower productivity and profitability

Pests, diseases and the loss of vigour in varieties over time are significant issues for the passionfruit industry that require ongoing research investment. Consumers are also becoming increasingly conscious about the provenance of their food and the impact food production has on the environment.

By 2021, growers would like to have developed an integrated pest management (IPM) plan and adopt more environmentally sustainable pest and disease management processes. It is also essential that the industry continues its investments in chemical use permits and registrations.

Growers would also like to have at least two new commercial varieties in production by 2021 to help increase production and meet consumer expectations.

OUTCOME 3

Improved retail quality of passionfruit that matches consumer expectations

The quality of the fruit being displayed at retailers varies widely due to inconsistent and less than ideal distribution and storage management throughout the supply chain and at retailers. By 2021, growers would like to improve the quality of fruit reaching the consumer by ensuring that 80 per cent of fruit being displayed at independent and major retailers meets or exceeds Class 1 standard. This will also require improvements to harvesting, packing, cold-chain logistics, storage and retail display of passionfruit. Cross-industry innovation and leveraging logistics practices of other tropical fruit industries, especially for multi-crop growers, could help accelerate this improvement process.

OUTCOME 4

Access to relevant and timely data that improves industry-wide decision-making

Access to reliable industry data is a challenge for the passionfruit industry, making it difficult for the industry to prioritise investments and assess the impact of R&D and marketing initiatives. The lack of information also makes it challenging to effectively engage retail and supply chain stakeholders regarding forecasting, quality, pricing and marketing initiatives.

By 2021, the industry would like to have access to timely and reliable information regarding consumer preferences, including consumption and purchasing habits, regional production, and retail and wholesale data including quality, pricing and volumes. This is a desire for growers in many industries and points to opportunities to collaborate across industries to scale up good quality data and information collection.

OUTCOME 5

Increased domestic demand and export opportunities that maintain price stability

Consumer research conducted in 2011 indicated that only 27 per cent of fruit consumers bought passionfruit and that it was purchased on impulse 57 per cent of the time. Consumer awareness of the fruit's availability, particularly in winter months, was identified as a cause of impulse purchases. By 2021, growers would like passionfruit to be a planned and repeat purchase through targeted marketing initiatives that increase consumer awareness of the availability, versatility, taste and health benefits of passionfruit. This will be measured by planned purchases increasing to at least 50 per cent and the number of fruit consumers buying passionfruit increasing to over 40 per cent.

Export activity in the passionfruit industry remains very low and less than 10 per cent of production is processed for value-add activities. The lack of profitable options available to growers outside of domestic fresh consumption results in high price volatility. Therefore, in addition to increasing domestic consumer demand, the industry would like to see grower-led exports taking place by 2021 as well as the identification and development of viable processing opportunities for factory grade fruit.

SECTION THREE

3 Passionfruit industry priorities

Industry investment priorities

The table below describes the outcomes, strategies and possible deliverables that will be the initial priorities of this plan. Highest-priority strategies or activities for the initial stages of the plan are indicated in **bold**. The ability to deliver on all the articulated strategies (and investments) will be determined by the ability of the statutory levy to provide the resources to do so. The priorities will lay the foundation for future investment and the implementation of this plan will require a balanced approach to ensure the industry has a high likelihood of success over the short-, medium- and long-term.

OUTCOME 1 – Improved farm and industry sustainability from identifying and adopting better practices	
STRATEGIES	**POSSIBLE DELIVERABLES**
1.1 Identify and develop future leaders of the industry through training and engagement	• Identify training needs in the areas of farm and business management • Engage with training providers to develop industry specific learning • Utilise funding options from government and state to reduce the costs of training • Attract new growers and improve grower engagement through industry conferences, media and communications
1.2 Research high performing industries and growers and develop pathways for the passionfruit industry to embrace similar approaches	• Identify and benchmark what high performing industries are doing well • Organise farm tours to help growers identify their own opportunities for improvement • Develop pathways for best practice adoption within the passionfruit industry • Research technology options and process improvements that can improve productivity and quality • Collaborate with other industries on research where outcomes are aligned
1.3 Ensure that systems are established to assist and monitor the adoption of research, innovation and best practice	• Biannual conferences to diffuse research and best practice, highlight emerging opportunities and issues facing industry, augmented by other communication channels, especially in printed form and online • Develop regular communications with growers to showcase opportunities, best practice and innovations

OUTCOME 2 – Improved pest and disease management and the development of new varieties that increases grower productivity and profitability	
STRATEGIES	**POSSIBLE DELIVERABLES**
2.1 Develop and commercialise new varieties that increase production and also meet consumer expectations	• Consumer preferences guide variety development • Explore biotech/DNA sequencing methodologies to explore fruit traits and accelerate development
2.2 Continue research to improve the management of pests and disease	• Develop efficient and less-aggressive/agro-ecological methods for disease control • Develop an alternative/integrated pest management plan to minimise environmental impact and increase consumer trust • Continue investment in chemical use permits and registrations

OUTCOME 3 – Improved retail quality of passionfruit that matches consumer expectations	
STRATEGIES	**POSSIBLE DELIVERABLES**
3.1 Increase grower focus on delivering quality	• Establish an industry standard where growers commit to delivering high quality fruit that is also consistent in size, shape and colour • Improve packing processes so that accuracy of grading and labelling of fruit is increased • Undertake wholesaler and retailer tours to educate growers on the impact of delivering non-standard, lower quality fruit or incorrectly labelled fruit • Benchmark practices undertaken by growers that are respected by wholesalers and retailers to lift standards across all of industry
3.2 Engage with supply chain and retailer stakeholders to help ensure that high quality fruit is consistently displayed	• Adapt and adopt engagement strategies that are proving successful for other industries such as mango • Collaborate and communicate with wholesalers more effectively in the areas of forecasting, quality and promotion • Support engagement through access to reliable and relevant industry data including improved forecasting
3.3 Research and adopt improved postharvest packing, storage and distribution processes to maintain quality and increase shelf life	• Research cold storage and packaging options that improve shelf life • Use track and trace technology to identify and address issues in supply chain • Ensure pathways for research adoption are established (See Outcome 1.3) • Investigate postharvest best practice that is easily adopted

OUTCOME 4 – Access to relevant and timely data that improves industry-wide decision-making	
STRATEGIES	**POSSIBLE DELIVERABLES**
4.1 Develop systems and processes that enable relevant industry data to be captured regularly	• Engage growers to enable regular and accurate collection of quality and production data • Collaborate with other industries to work with supply chain and retailer stakeholders to capture accurate and timely data
4.2 Ensure that data is made available in a format that facilitates decision making amongst industry stakeholders	• Engage industry stakeholders to identify frequency and format of reporting • Establish and report on benchmarks or targets to promote increased adoption of quality and productivity improvements

OUTCOME 5 – Increased domestic demand and export opportunities that maintain price stability	
STRATEGIES	**POSSIBLE DELIVERABLES**
5.1 Drive domestic growth through targeted marketing initiatives	• Conduct and disseminate consumer research to help validate and benchmark consumer segmentation including preferences and buying habits • Use consumer insights to develop targeted marketing initiatives to increase demand in emerging customer segments while maintaining loyalty within existing segments • Develop consumer awareness initiatives on the availability of the fruit, particularly in winter • Collaborate with other industries on cross promotional activities to maximise return
5.2 Increase market diversification by establishing and maintaining access to new export markets	• Consumer and market research on potential demand for irradiated passionfruit • Development of export market development plans • Develop clear pathways for growers to start exporting • Encourage growers to actively participate in export opportunities
5.3 Develop value-add products to increase consumer access to, and consumption of, passionfruit	• Conduct research into potential functional food/health properties of passionfruit • Investigate packaging options that could be adopted at an industry level to maximise interest in the product domestically and abroad • Investigate uses of second grade fruit and improved access for pulp into new markets such as food service industry

Aligning to Hort Innovation investment priorities

In establishing investment priorities, Hort Innovation analysed both historical and current levy and co-investment portfolios and priorities. From this analysis, we identified 11 cross-sectoral investment themes. We consolidated these themes further and considered their alignment with the Australian Government's Rural RD&E Priorities and National Science and Research Priorities, to arrive at five investment priorities outlined in ***Figure 3***. ***Figure 3*** also shows how each cross-sectoral investment theme relates to the five investment priorities.

Figure 3: Hort Innovation's investment priorities

The alignment of the passionfruit SIP outcomes to the Hort Innovation investment priorities, and consequently, the Australian Government's Rural RD&E Priorities and National Science and Research Priorities is shown in ***Table 2***.

Table 2: Alignment of passionfruit SIP outcomes to the Hort Innovation investment priorities

Hort Innovation investment priorities	Passionfruit SIP outcomes
Support industry efficiency and sustainability	**Outcome 1:** Improved farm and industry sustainability from identifying and adopting better practices **Outcome 2:** Improved pest and disease management and the development of new varieties that increases grower productivity and profitability
Improve productivity of the supply chain	**Outcome 3:** Improved retail quality of passionfruit that matches consumer expectations
Grow the horticulture value chain capacity	**Outcome 4:** Access to relevant and timely data that improves industry-wide decision-making
Drive long-term domestic and export growth	**Outcome 5:** Increased domestic demand and export opportunities that maintain price stability
Lead strategically to enhance the development of the Australian horticulture industry through operational excellence	Enabler

4

SECTION FOUR

Passionfruit industry monitoring and evaluation

Passionfruit SIP monitoring, evaluation and reporting

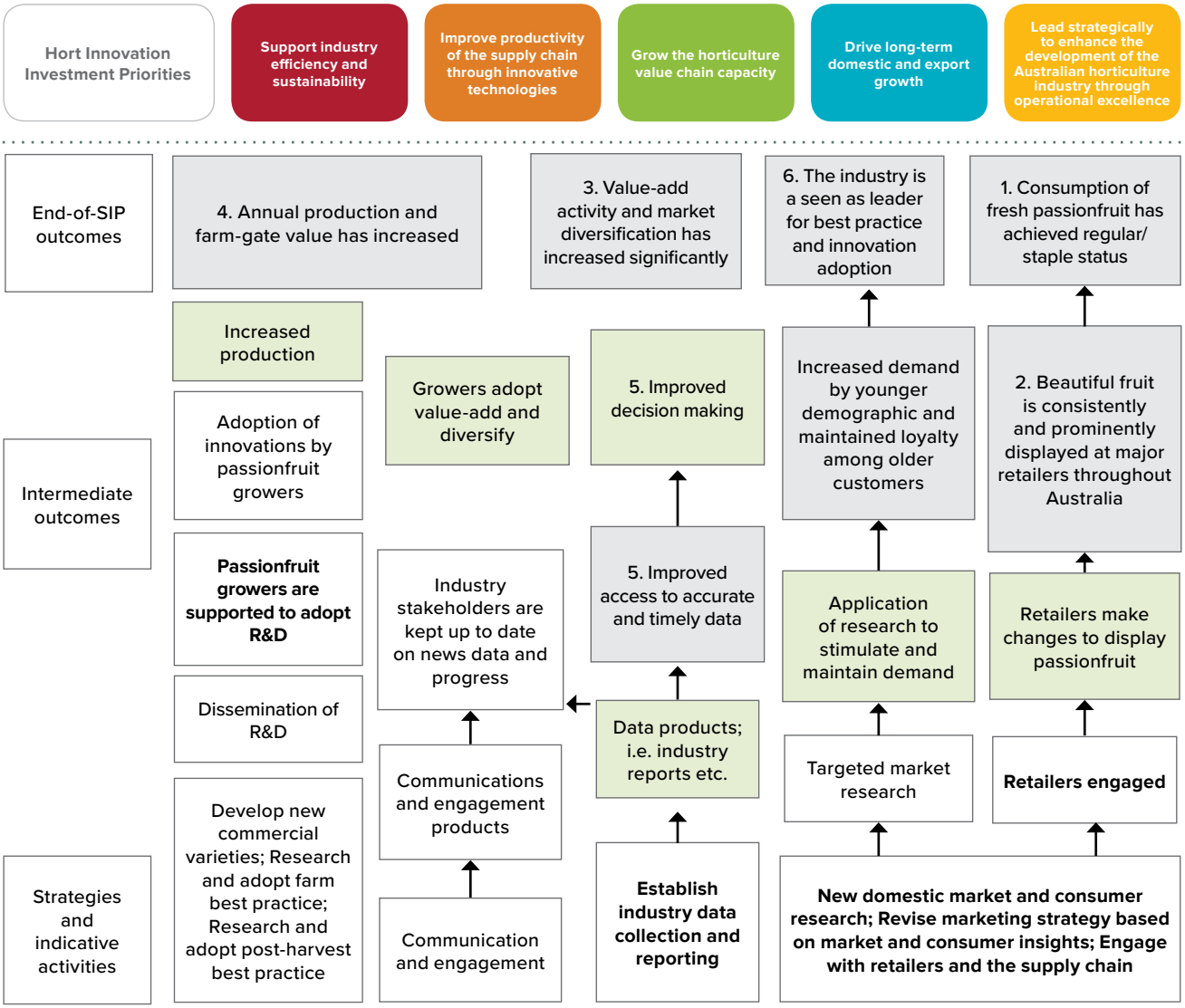
A SIP program logic and monitoring and evaluation (M&E) plan has been developed for the passionfruit SIP. These are informed by the Hort Innovation Organisational Evaluation Framework. The logic maps a series of expected consequences of SIP investment. The M&E plan shows the performance measures that will be measured to demonstrate progress against the SIP and what data will be collected. Progress against the SIP will be reported in Hort Innovation publications and at industry SIAP meetings.

The SIP outcomes and strategies will be used to inform investments in individual projects to deliver on the SIP. The results of M&E will be used to reflect on the results of investments and in decision-making. Hort Innovation will facilitate the regular review of SIPs to ensure they remain relevant to industry.

Passionfruit SIP logic

An indicative passionfruit SIP program logic is shown in ***Figure 4***. The logic is based on the Hort Innovation SIP logic hierarchy (***Appendix 3***). The shaded boxes are not fully explicit in the SIP but necessary conditions for the achievement of expected outcomes. Highest-priority strategies or activities for the initial stages of the plan are indicated in **bold**.

Figure 4: Passionfruit SIP logic



Passionfruit SIP M&E plan

The passionfruit M&E plan is shown in ***Table 3***. The table includes key performance indicators (KPIs) and data collection methods both at a macro/industry (trend) level and at more specific SIP level/s. Highest-priority strategies or activities for the initial stages of the plan are indicated in **bold**.

Table 3: Monitoring and evaluation plan for the passionfruit SIP

Outcomes	Strategies	KPIs	Data collection methods and sources
Improved farm and industry sustainability from identifying and adopting best practices	**1.1 Identify and develop future leaders of the industry through training and engagement** **1.2 Research high performing industries and growers and develop pathways for the passionfruit industry to embrace similar approaches** 1.3 Ensure that systems are established to assist and monitor the adoption of R&D, innovation and best practice	• Established baseline industry data and metrics on efficiencies • 10 per cent increase in efficiency in harvest and postharvest activities • 10 per cent increase in yield per hectare • 10 per cent increase in efficiency in supply chain and storage activities • Number of growers/industry stakeholders attending training and knowledge transfer events • Access and uptake of best practice/innovation/R&D information; target of industry uptake of new R&D is more than 30 per cent of industry within two years of availability	• Grower survey and benchmarking • Impact measure of research and innovation designed into cost of project • R&D project records • Knowledge transfer/ training event feedback
Improved pest and disease management and the development of new varieties that increases grower productivity and profitability	2.1 Develop and commercialise new varieties that increase production and also meet consumer expectations **2.2 Continue research to improve the management of pests and disease**	• Development and commercialisation of new varieties underway • Access to existing chemicals is maintained • New chemical registrations are attained	• Grower support and knowledge of new varieties • Survey of nurseries/ growers (uptake of any new varieties) • R&D project records
Improved retail quality of passionfruit that matches consumer expectations	**3.1 Increase grower focus on delivering quality** **3.2 Engage with supply chain and retailer stakeholders to help ensure that high quality fruit is consistently displayed** 3.3 Research and adopt improved postharvest packing, storage and distribution processes to maintain quality and increase shelf life	• Improved quality of fruit reaching the central market (more than 80 per cent) • Top class or Class 1 fruit is consistently presented at major retailers (more than 80 per cent)	• In-store audit/review • Wholesaler survey

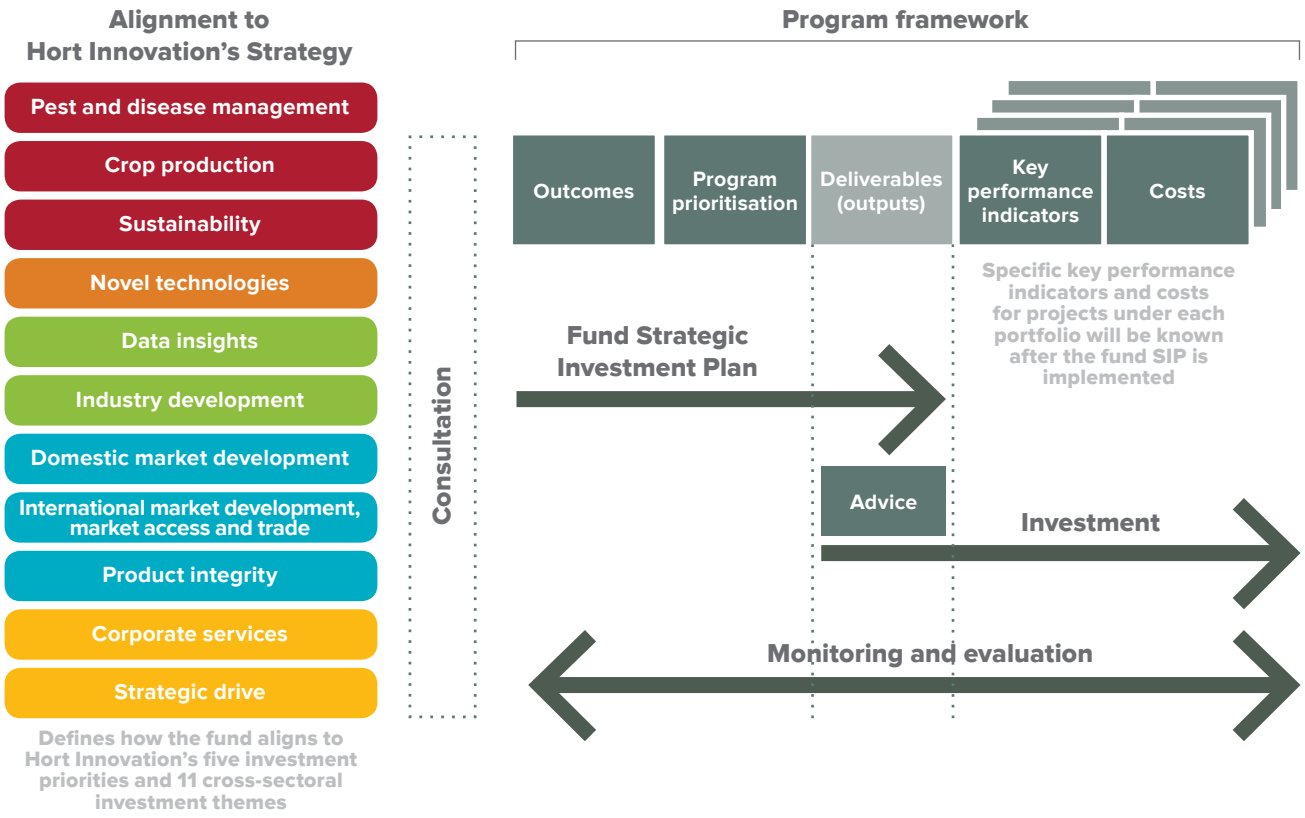
Outcomes	Strategies	KPIs	Data collection methods and sources
Access to relevant and timely data that improves industry-wide decision making	**4.1 Develop systems and processes that enable relevant industry data to be captured regularly**	• Industry production, price data and quality is available to inform industry • Systems to enable grower forecasting established	• Price and volume data from central markets • Quality data captured at wholesaler and retailer level
	4.2 Ensure that data is made available in a format that facilitates decision making amongst industry stakeholders		
Increased domestic demand and export opportunities that maintain price stability	**5.1 Drive growth in the domestic market through targeted marketing initiatives**	• **Evidence of an increase in production and average price per tonne** • **Grower led exports to New Zealand and other countries are underway** • **Evidence of an increase in value of factory grade fruit (currently 40 cents per kilogram)** • **Evidence per capita consumption has increased** • **Evidence of research into value-added projects**	• **Price and volume statistics from central markets** • **Trade data** • **Grower survey** • **Retail and consumer data**
	5.2 Drive domestic growth through targeted marketing initiatives and increase market diversification by establishing and maintaining access to new export markets		
	5.3 Develop value-add products to increase consumer access to, and consumption of, passionfruit		

Reporting

The program framework in ***Figure 5*** is the mechanism that links Hort Innovation's strategy and investment priorities to the investment process through the industry SIP. **SIPs assist Hort Innovation to prioritise based on advice and available resources** to implement the specific industry R&D, extension and marketing programs.

Hort Innovation will use dynamic reporting against our monitoring and evaluation framework to report on investment progress. The contribution of investments to each industry outcome will be reported regularly, including through industry Annual Reports, Hort Innovation's Annual Report and Hort Innovation's Annual Operating Plan.

Figure 5: Hort Innovation's program framework



SECTION FIVE

Impact assessment

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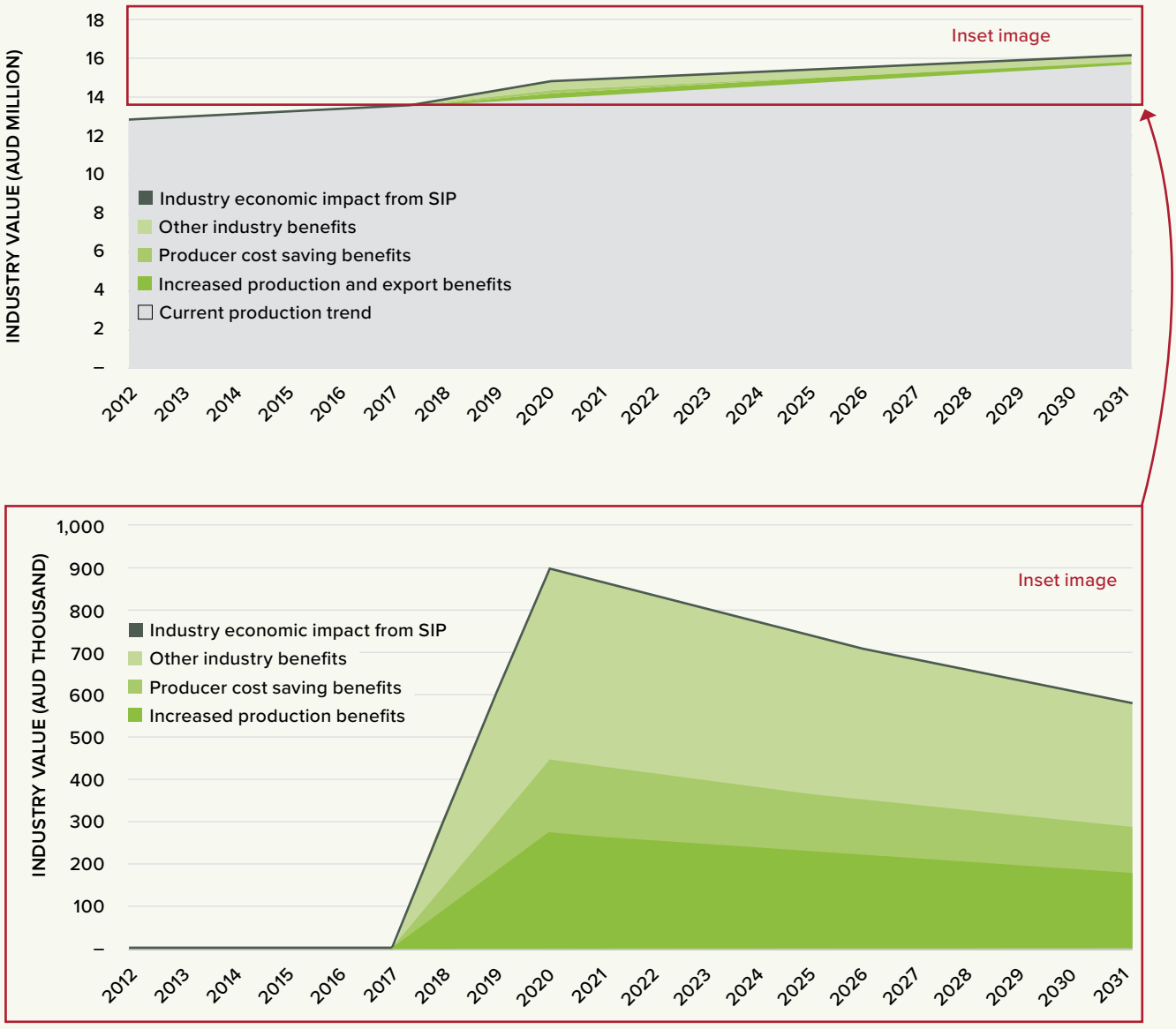
Figure 6: Economic benefits from investment in the passionfruit SIP



An independent assessment of the potential economic impacts from investment into the passionfruit SIP indicated a positive return on investment for the industry (***Figure 6***). The anticipated investment of $1.84 million over the next five years in R&D, extension and marketing activities is expected to generate $9.73 million in net benefits for the industry, representing a benefit cost ratio of 5.30 times to growers and service providers along the value chain.

The assessment draws from a wide range of available data sources, and projects economic impacts over a 15-year period starting from 2016/17. A five per cent discount rate has been applied and all values are adjusted for inflation and presented in 2016/17 dollar terms. The assessment takes a highly conservative approach and the presented figures have been adjusted to account for risks associated with achieving research outputs, expected adoption and impacts.

Table 4 provides a summary of the impacts assessed for the SIP, their corresponding outcomes, net economic benefits and benefit cost ratio.

Table 4: Summary of assessed impacts for each SIP outcome

Outcome	Expected deliverables	Anticipated SIP investment (over five years)	Net benefits (over 15 years)	Benefit cost ratio
(3) Improved retail quality of passionfruit that matches consumer expectations **(4) Access to relevant and timely data that improves industry-wide decision making** **(5) Increased domestic demand and export opportunities that maintain price stability**	Increased production resulting in fresh production revenue growth, with price maintenance	$918,270	$5,993,745	6.53
(1) Improved farm and industry sustainability from identifying and adopting best practices **(2) Improved pest and disease management** **(4) Access to relevant and timely data that improves industry-wide decision-making**	Cost savings in production for growers	$918,270	$3,731,779	4.06
	All impacts	**$1,836,540**	**$9,725,524**	**5.30**

The quantified impacts associated with Outcomes 3, 4 and 5 include:

- A maintenance of prices achieved for fresh production at $5,000 per tonne
- An increase in total production by 2019/20 with historic rates of approximately 91.5 per cent entering the fresh supply chain.

Achieving price maintenance and increased production sales will rely on data systems for decision making to effectively forecast, targeted marketing initiatives to drive demand, export market sourcing to relieve domestic price pressure, and whole of supply chain engagement and postharvest improvements to ensure quality product is delivered to consumers.

The quantified impact associated with Outcomes 1, 2 and 4 is:

- A 10 per cent increase in yield achieved with a reduced cost of production.

Increasing yield will require continued pest and disease management research strategies, development of new varieties and systems to train and engage growers to adopt R&D, innovation and best practice.

6

SECTION SIX

Risk management

The purpose of this risk section is to highlight any unique or specific risks that qualify the SIP. This is not intended to be an exhaustive risk review of the industry risks, which in part are considered in the SWOT. This is also not reflective of the general investment risks, which will be considered in the project investment process.

The most significant risk to the implementation of the passionfruit SIP will be the limitation of funds available under the current levy.

Solid engagement with major retailers could be challenging due to the size of the industry, which could impact the industry's ability to ensure high quality fruit is appropriately stored and displayed at major retailers.

The passionfruit industry has attempted to raise quality standards at the grower level for several years, but without a viable/profitable pathway for factory grade fruit, growers will continue to try and send poor quality fruit to market.

As the outcomes that the industry wants to achieve are ambitious, and the R&D and marketing budget is restricted, the SIAP will be required to carefully stage initiatives and projects.

APPENDIX 1:
Process to develop this plan

The process to develop the SIP was as follows:

1. ABCD Analysis at the inaugural SIAP meeting on July 26, 2016
2. Draft outcomes and strategies were documented and presented to growers at a workshop on September 23, 2016 in Bundaberg
3. Vision setting and task identification and prioritisation exercises were also conducted at the workshop on September 23, 2016. Outcomes and strategies were refined and presented to growers at the passionfruit AGM on September 24, 2016 in Bundaberg
4. An industry-wide online survey was issued to gain greater feedback on identified outcomes and to identify any gaps in the requirements or the industry
5. A workshop was held with growers from Northern New South Wales in Murwillumbah on October 27, 2016 which repeated the vision setting, task identification and prioritisation exercises
6. The draft outcomes and strategies were validated through phone calls to key growers and SIAP members in December 2016
7. The context was developed through desktop research and engagement with growers between October and December 2016
8. The monitoring and evaluation analysis was conducted by Clear Horizons in December 2016
9. The impact assessment analysis was conducted by Consulting & Implementation Services (CIS).

APPENDIX 2:
Consultation and validation

The following individuals contributed to the development of this SIP and their contribution is greatly appreciated:

- Tina McPherson
- Keith Paxton
- Jim Gordon
- Melissa Smith
- Ross Brindley
- Brian Westwood
- Sue Granger
- Tim Johnson
- Margie Milgate
- Mike Blasco
- Leonie Dunne
- Mike Hogan
- Leo Burgoyne
- Ian Campbell
- Chris Mudge
- Katrina Mudge
- Manios Stylianou
- Rick Coates
- Ian Constable
- David Constable
- Shane Adams
- Joel Dunne
- Astrid Hughes
- Monique Emmi
- Tim Archibald.

APPENDIX 3:
Logic hierarchy

Vision			To grow the future of Australia's horticulture industries			Common for all Investment
Mission	Increased profitability of Australia's horticulture industries		Increased productivity of Australia's horticulture industries		Increased global competitiveness of Australia's horticulture industries	
Hort Innovation end-of-strategy outcomes	**Support industry efficiency and sustainability**	**Improve productivity of the supply chain**	**Grow the horticulture value chain capacity**	**Drive long-term domestic and export growth**	**Lead strategically**	
End-of-SIP outcomes	*The industry-specific outcomes of the SIP. The final desired result of SIP investment but may be achieved after the SIP time-frame. SIP investment may be just one contributing factor to the achievement of these outcomes. For example, incremental productivity, profitability and competitiveness improvements stimulated through R&D, changes in consumer awareness, marketing campaign reach and influence and increased recognition of Australian horticulture products.*					SIP specific
SIP intermediate outcomes	*Short- to medium-term changes brought about through the SIP, which will support the achievement of end-of-SIP outcomes. For example, practice changes, adoption, changes in grower knowledge, attitudes, skills and aspirations (KASA) and marketing reach.*					
SIP activities and outputs	*What is directly delivered by the SIP (R&D, extension and marketing activities and outputs, for example, products and services, and events and engagement) across the 11 horticulture cross-sectoral investment themes: Pest and Disease Management, Crop Production, Sustainability Improvements, Novel Technologies, Data Insights, Industry Development, Product Integrity, International Market Development, Market Access and Trade, Domestic Market Development, Strategic Drive and Corporate Services.*					
Foundational activities	*Preliminary or preparatory activities that are conducted before and during SIP delivery. Includes industry processes, infrastructure and resources that enable the SIP to be developed and delivered. Includes SIP planning, consultation, advisory meetings etc.*					

APPENDIX 4: Reference documents

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APPENDIX 5:
Outputs of engagements

ABCD Analysis – passionfruit SIAP

VISION: WHERE DO WE WANT TO BE?

Volume: 3,500 tonnes
Value: more than 18 million (2020)
Growers: more than 150

STRATEGY: HOW DO WE GET THERE?

ACTIONS DRIVEN BY STRATEGY

THREE TO FIVE YEARS

Genetic improvements

Chemical access

– Beautiful fruit presented in major retailers – Coles and Woollies initially through retailer engagement, merchandising strategies and in store sampling
– Domestic consumption is not going to grow at the same rate as production – need to develop new markets for this

ONE TO TWO YEARS

– New varieties may come in here that will increase production therefore need to develop new markets for this point
– Communications – discussion around newsletter print/email and about website with alignment btw consumer and industry and development of a communications plan
– Disease issues on going as needed through the SARP process

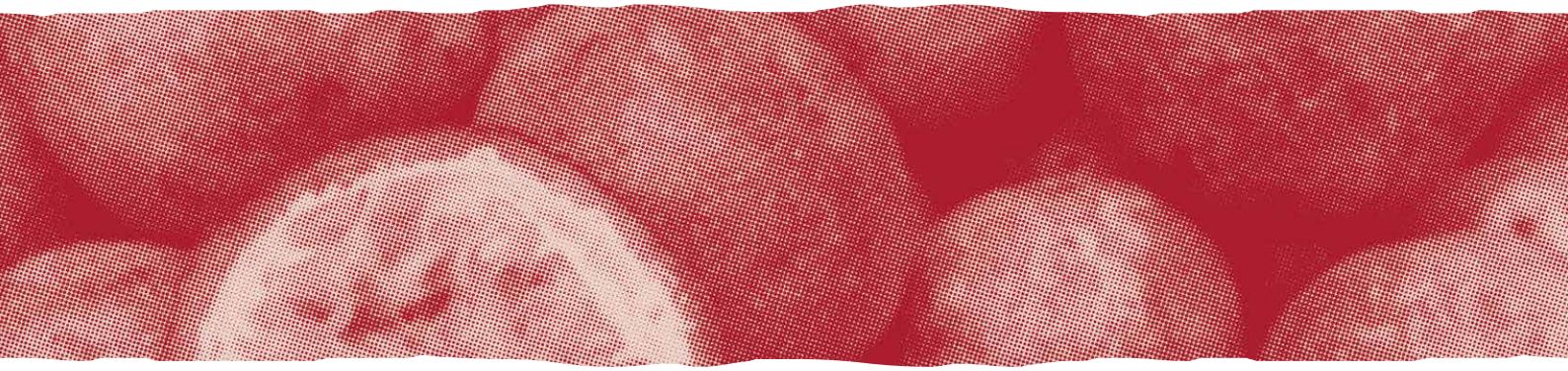
0 TO SIX MONTHS

– Data information from production through to prices (volume to value) – continuation of supply chain data to include wholesale prices/ distribution channels with percentage split between majors/independents also reviewed; Homescan data to look at broad trends
– Build demand around where it already exists for current marketing investment – initial focus on independent retailers
– Scoping study for analysis of alternative markets (including New Zealand for irradiated fruit) for Australian passionfruit to access – this is a desktop study by end of year
– Specifically finish off the application of the project to New Zealand

TIME

WHERE ARE WE NOW?

Volume: 3,200 tonnes in 2015 (2,850)
Value: $12 million to $15 million (2015)
Growers: ~120 unknown



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