

Lychee

STRATEGIC INVESTMENT PLAN

2017-2021



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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. 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 lychee growers.

The lychee SIP

Producers in the lychee 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 lychee 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 and export lychee is 8 cents per kilogram.

Hort Innovation manages the lychee levy funds which are directed to R&D (fresh and export 5.5 cents per kilogram) and marketing (2.5 cents per kilogram). In 2015/16, total lychee levy receipts were approximately \$170,000: \$118,000 of R&D levies and \$52,000 of marketing levies.

Hort Innovation has developed this SIP to strategically invest the collected lychee levy funds in the priority areas identified and agreed by the lychee 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. The process to develop this plan is described in **Appendix 1**.

This plan represents the Australian lychee industry's collective view of its R&D and marketing needs over the next five years (2017 to 2021) and gives focus to numerous strategies that are prioritised as foundational investments for grower levies.

The Lychee 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 lychee industry SIAP constituency please visit Hort Innovation's website at www.horticulture.com.au.

Lychee

STRATEGIC INVESTMENT PLAN 2017-2021 AT A GLANCE

POTENTIAL IMPACT OF THIS PLAN



Based on an estimated investment of \$1.12 million over the next five years

OUTCOMES	STRATEGIES
Increased capacity and productivity meets growing international and domestic demand	<p>Encourage new growers to the industry and encourage existing growers to increase yields by demonstrating that international and domestic demand is strong and growing</p> <p>Research and adopt improved lychee production practices for better yields and improved quality</p> <p>Research improved treatment protocols and supply chain technologies that improve pest management, market access and shelf life without impacting quality</p> <p>Build uptake of research, development and better management practices amongst lychee growers</p>
Increased domestic demand improves price stability and industry attractiveness	<p>Drive growth in domestic demand through targeted marketing initiatives</p> <p>Engage domestic supply chain and retailer stakeholders to ensure high quality fruit reaches the consumer</p>
Increased market access and export development improves returns to growers	<p>Secure permanent market access to the United States and continue to support exports into New Zealand</p> <p>Identify and prioritise market access to countries with a large or growing Asian middle class</p> <p>Continue to develop market access to China</p>

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

Lychee

STRATEGIC INVESTMENT PLAN

2017-2021 AT A GLANCE

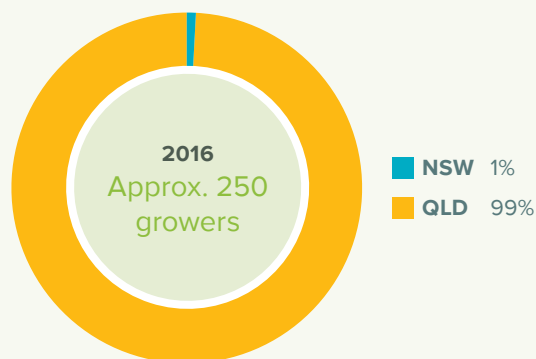
Major opportunities

- Development of new varieties
- Export markets, especially China around the Lunar New Year, and United States market capitalising on current trials as well as other countries with a growing middle class
- Use of irradiation for disinfestation opens markets which would be otherwise closed
- Import of northern hemisphere product to bolster demand in the domestic market
- Export consumers (particularly Asian markets) regard Australian lychees as superior to the sea-freighted, sulphur dioxide-treated fruit from South Africa.

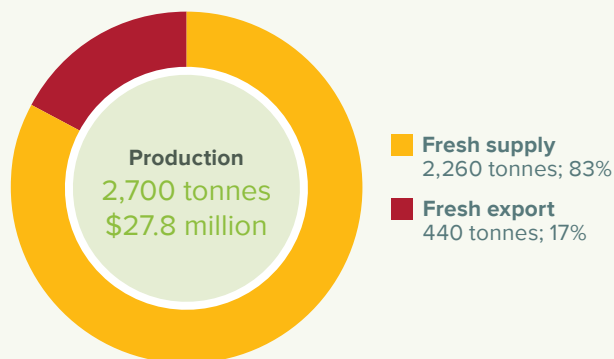
Major challenges

- Seasonal variation can have a significant positive/negative localised impact on production
- Exotic pest outbreak
- Import of poor quality product affecting domestic market perception
- Small number of irradiation facilities
- Perception of irradiated product in the export market as being 'unhealthy' although this is an internationally agreed standard
- Year-round global availability may reduce the perception of scarcity and may impact prices
- Limited specific consumer data
- Unreliable data regarding production, pricing and exports
- Short shelf life of two to three days outside cool chain management
- Limited access to funds to conduct research when compared to other industries
- Increasing production costs not matched by returns.

Industry size and production distribution



Lychee supply chain and value 2016



SECTION ONE

Context

The Australian lychee industry

Australia is a commercial producer of lychee with current annual production ranging from 2,000 to 3,000 tonnes, depending on climatic and seasonal conditions. Grower numbers have reduced over the past 10 years, although, a number of existing growers have increased their plantings. Because of this, the annual tonnage has not altered dramatically. There are approximately 250 lychee orchards in Queensland and New South Wales, but the bulk of the annual tonnage is produced in the North Queensland Tablelands, Central Queensland and South East Queensland.

The Australian lychee industry is focused on a whole of supply chain approach that takes into account production, harvesting, postharvest management and marketing. Relationships are an essential part of successful supply chains and the lychee Industry Representative Body (IRB), the Australian Lychee Growers Association (ALGA), maintains relations with growers, marketing groups, wholesale domestic and export agents, import agents, retailers and researchers in an effort to continue to improve retail outcomes for lychee.

All Australian lychees are marketed as fresh fruit because the industry uses airfreight and cool chain to provide fresh, best quality lychees to markets.

Lychees were introduced into Australia more than 100 years ago and the Australian lychee industry is unique in having the longest lychee production season in the world. Due to the introduction of earlier- and later-fruiting varieties and the extensive production zones from tropical to temperate climates, the industry produces fruit from October in Far North Queensland to early April in Northern New South Wales. This gives the Australian industry a significant advantage over other suppliers on world markets, as no other country can offer such a long line of supply of quality controlled fresh lychee product. The bulk of Australia's lychee production is sold domestically with between 12 and 20 per cent of lychee crop exported.

Figure 1: Lychee growing regions in Australia



Production

In Australia, lychees are grown in subtropical regions including Far North Queensland, Central Queensland, South-East Queensland and Northern New South Wales. Anecdotally up to 99 per cent of the production is based in Queensland with all remaining production coming from New South Wales.

Lychees are produced as a single annual crop with production significantly dependent on rainfall at the right time and cold winters to induce flowering. The harvest period is late October (North Queensland) to March (Northern New South Wales) which provides the world's longest production period².

The variance in seasonal production has a significant impact on the continuity of supply to wholesalers and retailers.

There are many advantages for lychee production in Australia:

- Exclusive window of availability with no imported product during the Australian season
- Well known and liked by those of Asian heritage

- Limited seasonal competition for export markets, particularly during Chinese New Year
- Speed to both domestic and export market
- Cool chain management
- Superior varieties.

Production volumes

Updated production data provided by Australian Lychee Growers Association³ indicate the figures shown in **Table 1**.

Table 1: Historical lychee production

(Source: Australian Lychee Growers Association)

	2012/13	2013/14	2014/15	2015/16
Production (tonnes)	1,759	1,975	2,250	2,700
Value (AUD million)	\$10.4	\$16.8	\$17.5	\$27.8

Products marketed

A number of lychee varieties have been introduced to Australia or developed from local selections. As the industry has developed, varieties have evolved in response to commercial success, buyer response and superior varieties becoming available. Commonly grown and newer varieties are listed in **Table 2**.

Table 2: Lychee varieties in Australia

Currently commonly grown	Newer varieties
Kwai Mai Pink (B3)	Baitangying
Tai So	Chompogo
Souey Tung	Erdon Lee
Fay Zee Siu	Linsansue
Kaimana	Red Ball
Salathiel	Sansuelin
Wai Chee	Shuangbalia
Bengal	
Sah Keng	

The Kwai Mai Pink (B3) variety, a local selection, could be classed as the “work horse” of the industry as it is a consistent performing variety that is grown throughout the bulk of lychee production regions. The smaller seeded varieties (Salathiel and Fay Zee Siu), with a higher flesh/seed ratio are preferred by many consumers, although, the sweet juicy taste of all lychees is the main reason for consumer purchase.

The newer privately introduced varieties are being taken up and evaluated by growers. Several of them are experiencing positive buyer support because of the fruit attributes, such as size, skin colour, small or no seed and flavour.

Domestic prices and demand

The price of lychees that are sold on the domestic market is affected by supply. The price per kilogram or by a 5 kilogram carton can fluctuate significantly during the lychee season. The higher prices can usually be achieved from the early varieties at the start of the season in Far North Queensland, but once more fruit becomes available then the price will drop. Prices per 5 kilogram carton can vary throughout the season depending on variety, quality and demand. Other factors that contribute to price fluctuations are:

- Low or high tonnage for the year
- Export demand
- The date of Chinese New Year
- Quality of fruit
- Variety of fruit.

One of the industry’s main objectives in the 2012 SIP was to achieve an average farm-gate price of \$7 per kilogram by 2017. This objective has been achieved much earlier than originally anticipated with returns to growers increasing in the past three years. Industry believes that this trend will continue with the increased interest and demand for fresh lychee from domestic and export markets.

Markets

Lychees are predominantly sold fresh in the capital cities of Brisbane, Sydney and Melbourne.

Australian lychees have a reputation for being fresh and sweet, however, careful presentation and shelf management by retailers is required to ensure that the consumer is presented with top quality produce. Supply chain and retailer education is one method to achieve this and the adoption of more effective packaging and handling practices will also help.

While official export trade data is not available specifically for lychees, the industry estimates that between 12 to 20 per cent are exported. This strengthens the requirement for data. The export market has increased significantly over the recent years and continues to perform well. With the existing and the recently approved markets, the potential exists to increase demand for Australian lychees.

Most world production of lychee is counter-seasonal to Australia. The main competition for Australian lychees in the southern hemisphere is from South Africa with emerging supply from some South American countries.

Australian lychees are currently being exported to Hong Kong, Indonesia, Malaysia, Singapore, Canada, France, Tahiti, Middle East, United Kingdom, New Zealand and the United States.

Low dose food irradiation is used in more than 50 countries to destroy bacteria and pests and to extend the shelf life of food. Australian lychees are imported into New Zealand and the United States (excluding Florida) using 400 Gys of irradiation to sterilise pests of quarantine concern and to meet the importing country's strict importing protocols. The Australian lychee industry is collating information on export market protocols for other South-East Asian countries including China, Taiwan, Thailand, Vietnam and Korea.

Consumer benefits

Seven lychees (one serve) contain as much vitamin C as a small orange and provide 100 per cent of the recommended daily intake of vitamin C. Lychees are also ranked second behind strawberries in antioxidant levels. They have fewer than 65 calories per 100 grams and are fat-free. Lychees are also medium GI, with a GI level of 57. Their slow releasing energy makes them a great snack¹.

Consumers and consumer research

Audience

- Target audience demographics have shifted compared to 2013/14 towards a younger audience of 24 to 35 years of age.

Facebook and Instagram

- Additional time needs to be spent developing social communities to ensure lychees are seen and heard in a saturated market
- Use of simple, yet beautiful images of lychees to resonate with audiences across social platforms.

Video content

- Creation of video content to increase the reach to key influencers, which will generate recipes and engagement with the additional social media audiences.

Competitors and the nature of competition

Australian lychees are produced counter-seasonal to lychees in the Northern hemisphere, giving the Australian lychee industry a definite advantage on the export market during this time. South Africa is a major producer of lychee during the Southern hemisphere summer harvest, albeit, South Africa's current export protocol is based on sulphur dioxide fumigation to retain fruit colour.

International lychee producers

South-East Asian countries are reported to be the highest producers of lychee with the largest industries located in China, India, Taiwan, Thailand and Vietnam. Northern hemisphere production is during their summer, being May, June and July which does not negatively affect the Australian season.

China, Thailand and Vietnam have approval to export lychee into Australia during the Australian winter months. Thailand and Vietnam's approval is based on the irradiation protocol whereas China still retains the use of either cold treatment or Vapour Heat Treatment (VHT). Vietnam is currently the only country of the three that maintains a regular annual supply to Australia.

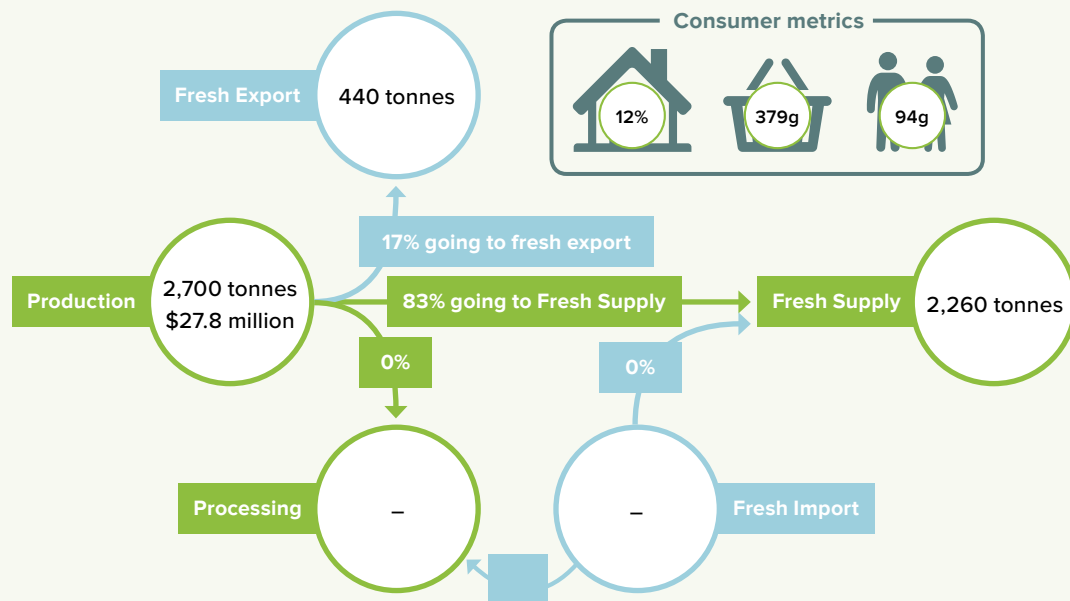
This out-of-season supply is not a threat to industry, however, the challenge to industry is ensuring that imported product is of sufficient quality to build consumer confidence to expand the domestic market for the Australian lychee industry.

Market access to China is of high significance to the Australian lychee industry. The volume of lychee produced during the peak of the Australian season can easily create an oversupply in the Australian domestic market leading to a decrease in market prices. To counteract this, alternative markets have been identified by growers. Gaining access to the Chinese market would resolve this issue within a very short timeframe.

Alternative products

There are a range of competing tropical, sub-tropical and temperate fruits available during the lychee season. The seasonal exotic nature and unique taste profile of lychee ensures they are a popular and sought after fruit. The concept of a 'tropical basket' of specialist fruits linked together in a marketing program is worthy of exploration.

Figure 2: Fresh lychee supply chain, year ending June 2016 (Source: Australian Horticulture Statistics Handbook)



Barriers to consumption

The biggest barrier to consumption is consumer education as many consumers are unaware of the product itself, its benefits and what a high quality product it actually is. This includes a difficulty in accepting the product as presented at retail, and also, a lack of knowledge on how to prepare and ultimately, consume the product.

Poor retail presentation can negatively affect the purchasing patterns of consumers and sale of the fruit relies on size and redness to attract increased purchases. The whole supply chain requires communication, education and engagement to ensure the product reaches market on time and at the highest quality.

Ease of entry

Lychees require considerable management skill to produce high quality fruit and a large capital input to become established. It takes eight to 10 years to develop a productive orchard², with trees becoming productive after three to four years and taking more than five years to become mature. However, a secure export market would mitigate this price volatility and make the industry more attractive to new farmers and existing growers looking to expand.

The growers highly value the cross-industry communication available through the ALGA magazine, particularly given the coverage of valuable technical advances.

Operating systems and structures

The industry is represented by the Australian Lychee Growers Association Inc (ALGA). The ALGA Management Committee consists of 6 area/regional representatives including a President and Vice President. All committee members volunteer their time to the Association.

Industry's supply chain

Research and adoption into improved lychee production practices to produce better yields and improved quality is considered essential by the industry as the precursor to increasing the overall profitability and demand.

Maximum yield is achieved with a good flowering, which requires cold winter weather, and a single growth flush, currently managed through careful agronomic management practices. A second flush is highly detrimental to initial fruit set and retention. Research into advances in agronomic practices including fertilisation, water, pruning and spraying and disseminating this information to all the growers would be beneficial to the growth of the industry.

Lychee production is highly labour intensive especially around harvest time. Lychees must be fully ripe when harvested as they do not sweeten further after picking. Each variety has different indicators of when the fruit is ripe and ready to harvest. In some varieties, not all fruit on the panicle will ripen at once. Where individual mature fruit need to be picked early, harvest costs increase.

Although labour is a significant operating cost, the industry is faced with a significant financial impost due to the mechanisms required to prevent loss through bird and bat damage. The methods include netting (complete, throw and partial), flood lights, noise generators, patrols and regulated exclusion methods. Metal halide floodlights are an expensive capital and operating cost, whilst employing people to patrol from dusk to 10 pm and from 4 am onwards is also expensive.

Marketing systems and structures

Fresh Australian lychees are usually marketed in either 5 kilogram one-piece or two-piece cartons or a 2 kilogram carton. Growers can choose to market their fruit to wholesale agents, join a marketing group, send their fruit to a pack house or sell their fruit direct from the farm.

Promotion and market development

Recent results from Hort Innovation's marketing campaign "Love from Lychees" (now in its third year) indicate that 25- to 34-year-old food enthusiasts (foodies) and health and fitness conscious women are the target groups that demonstrated the largest domestic growth opportunity for lychees. This is similar to the market for other tropical fruits, so consideration of consumer purchasing behaviour across products is advisable so that false assumptions of market potential in these segments are not reached. Current consumer data does not seem to provide segmentation based on culture/ethnicity which could be particularly important for this industry given the immense popularity of lychees with Asian consumers. This segmentation may need to be addressed in future consumer research.

Delivering a quality product to the market by the adoption of industry-wide standards of production, handling and supply chain management is seen by the industry as essential to ensure that the marketing spend is a valuable investment.

Operating environment

The lychee industry	
Strengths	<ul style="list-style-type: none"> • Australian lychees are fresh because the growing practices and cool chain management ensure this • Healthy product profile • Longest production period in the world providing continuity of supply from October to March • Highly engaged consumer base with an opportunity to increase this group and leverage 'desirability' with Asian communities • Peak availability during festive season.
Weaknesses	<ul style="list-style-type: none"> • Specific consumer and usage and attitude piece not available – deeper understanding of consumer segments is needed with specific data, such as Asian communities • Unreliable data regarding production, pricing and exports • Short shelf life outside correct packaging, high humidity cool chain and retail display environment • Consistent supply year-on-year with climatic and seasonal conditions impacting export relationships and marketing opportunities.
Opportunities	<ul style="list-style-type: none"> • Development of new varieties • Export markets, especially China around the Lunar New Year, and United States market capitalising current trials as well as other countries with a growing middle class • Use of irradiation for disinfestation opens markets which would be otherwise closed • Import of northern hemisphere product to bolster demand in the domestic market • Export consumers (particularly Asian markets) regard Australian lychees as superior to the sea-freighted, sulphur dioxide-treated fruit.
Threats	<ul style="list-style-type: none"> • Seasonal variation can have a significant positive/negative localised impact on production • Exotic pest outbreak • Import of poor quality product affecting domestic market perception • Increased costs of production.

2

SECTION TWO

Lychee industry outcomes

Industry outcomes

The following outcomes have been identified by growers and These prioritised areas will be the focus areas.

OUTCOME 1

Increased capacity and productivity meets growing international and domestic demand

The Australian lychee season coincides with the Lunar New Year. If export opportunities to the United States are realised and market access to China is obtained, demand could significantly outstrip current production. To ensure the industry can reliably deliver product to these markets, it is expected that production will need to increase by 50 per cent by 2021.

To achieve this level of growth there will be a need for productivity improvements, additional tree planting and the attraction of new growers to the industry.

OUTCOME 2

Increased domestic demand improves price stability and industry attractiveness

Domestic consumption has been increasing with penetration, average spend and purchasing occasion increasing by nearly 20 per cent in the last 12 months. While exports could potentially provide the most significant opportunities for growth, a healthy domestic market is also required to help maintain price stability and to increase the attractiveness of the industry to potential growers. Marketing initiatives underpinned by quality lychees will help to ensure that domestic demand continues to grow.

OUTCOME 3

Increased market access and export development improved returns to growers

Exports are the lychee industry's biggest opportunity for growth, profitability and sustainability. Export market diversification is a desired outcome to ensure price and demand stability for growers. Market access to China is an aspirational goal which could dramatically increase demand and prices. While China is the largest opportunity, market access to the United States is a significant new opportunity that needs to continue to be prioritised.

By 2021, the lychee industry would like to increase exports to over 50 per cent of production from current levels.

If plans for export are realised, and domestic demand continues to increase, the industry expects average prices to increase by \$3 per kilogram to \$10 per kilogram by 2021.

SECTION THREE

Lychee industry priorities

Industry investment priorities

The information 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 – Increased capacity and productivity meets growing international and domestic demand	
STRATEGIES	POSSIBLE DELIVERABLES
1.1 Encourage new growers to the industry and encourage existing growers to increase yields by demonstrating that international and domestic demand is strong and growing	<ul style="list-style-type: none"> • Build on industry collaboration to illustrate opportunities and best practice methodologies to growers • Target news media to publish articles on industry’s opportunities for growth, particularly in appropriate ethnic communities • Provide industry updates on current and emerging export opportunities • Collect and report industry data to quantify growth opportunities
1.2 Research and adopt improved lychee production practices for better yields and improved quality	<ul style="list-style-type: none"> • Continue investment in chemical use trials, permits and registrations • Conduct research to improve lychee flowering • Investigate international lychee growing best practice and collaborate with international researchers • Increase adoption of Integrated Pest and Disease Management practices
1.3 Research improved treatment protocols and supply chain technologies that improve pest management, market access and shelf life without impacting quality	<ul style="list-style-type: none"> • Research global, and out-of-industry, approaches for in-transit pest and disease management protocols • Identify and adopt transportation best practice throughout the supply chain to improve shelf life and quality • Identify and address issues in supply chain that could impact quality or reduce shelf life

OUTCOME 1 – (continued)	
STRATEGIES	POSSIBLE DELIVERABLES
1.4 Build uptake of research, development and better management practices amongst lychee growers	<ul style="list-style-type: none"> • Report regional volumes, pricing and customer segmentation to highlight domestic opportunities • Develop industry communications to engage new growers • Encourage existing growers to increase production and adopt best practice to ensure high quality lychees

OUTCOME 2 – Increased domestic demand improves price stability and industry attractiveness	
STRATEGIES	POSSIBLE DELIVERABLES
2.1 Drive growth in domestic demand through targeted marketing initiatives	<ul style="list-style-type: none"> • Identify industry specific consumer segmentation and their preferences • Continually review and refine the marketing strategy and collaborate with other industries where it is appropriate to do so • Use the domestic targeted strategy results to inform potential export strategies
2.2 Engage domestic supply chain and retailer stakeholders to ensure high quality fruit reaches the consumer	<ul style="list-style-type: none"> • Develop and execute a supply chain and retailer engagement plan to help identify and address issues affecting quality • Research cold storage and packaging options to extend shelf life

OUTCOME 3 – Increased market access and export development improves returns to growers	
STRATEGIES	POSSIBLE DELIVERABLES
3.1 Secure permanent market access to the United States and maintain access to New Zealand	<ul style="list-style-type: none"> • Engage growers, United States supply chain and retailer stakeholders to develop permanent access to the United States • Document pathways for and engage growers to start realising export opportunities
3.2 Identify and prioritise market access to countries with a large or growing Asian middle class	<ul style="list-style-type: none"> • Conduct research to prioritise market access investments including demand and prices that are being achieved in each market • Maintain up to date Maximum Residue Level (MRL) requirements information for each target market and update growers on how they can meet MRL requirements and treatment protocols • Engage growers to commit to building a stable supply to each target market
3.3 Continue to develop market access to China	<ul style="list-style-type: none"> • Demonstrate that existing export opportunities are being realised • Revise export plan for China and to prioritise lychee market access negotiations

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.

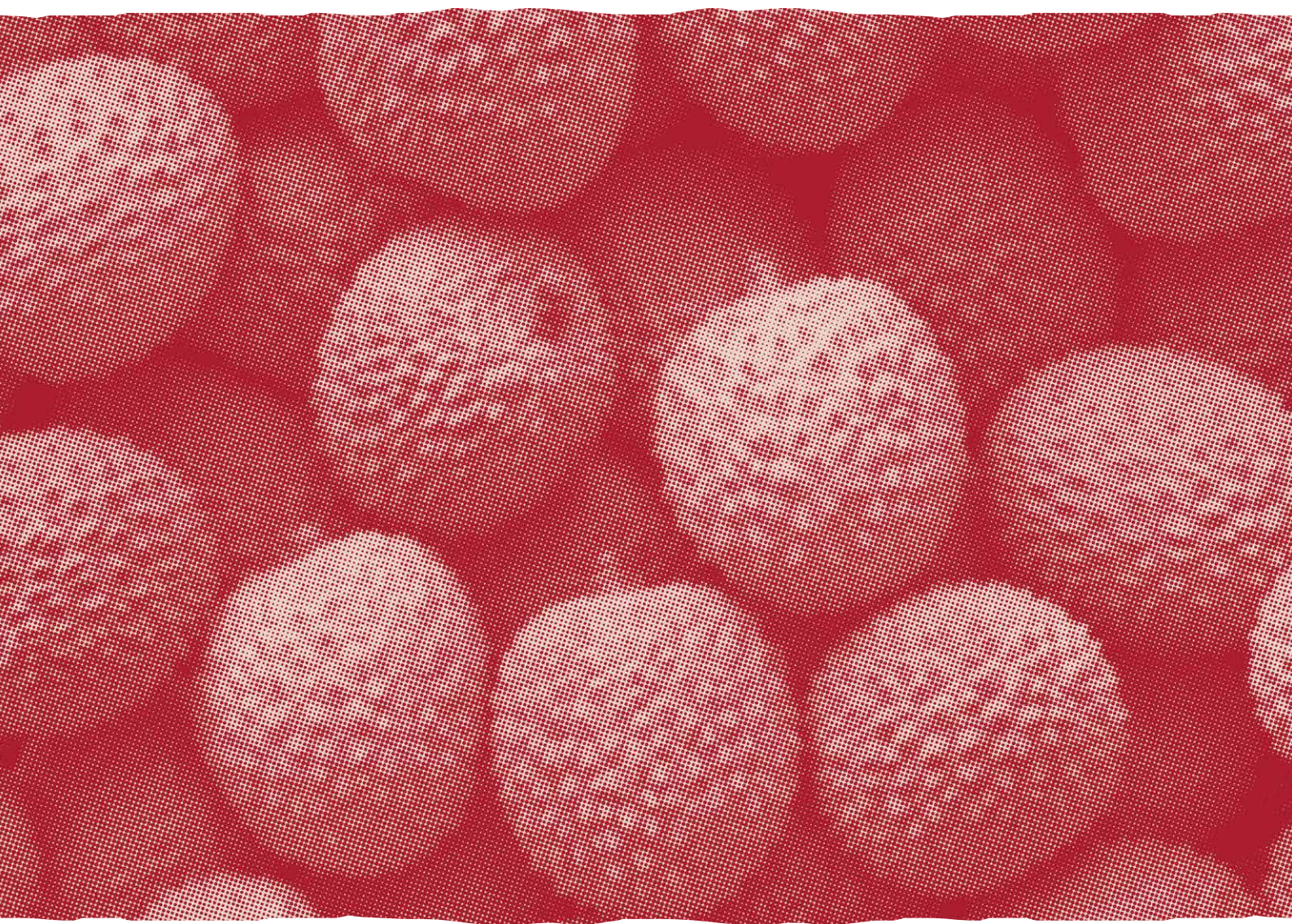
Figure 3: Hort Innovation’s investment priorities



The alignment of the lychee 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 3**.

Table 3: Alignment of lychee SIP outcomes to Hort Innovation investment priorities

Hort Innovation investment priorities	Lychee SIP outcomes
Support industry efficiency and sustainability	Outcome 1 – Increased capacity and productivity meets growing international and domestic demand
Improve productivity of the supply chain	
Grow the horticulture value chain capacity	
Drive long-term domestic and export growth	Outcome 3 – Increased market access and export development improves returns to growers Outcome 2 – Increased domestic demand improves price stability and industry attractiveness
Lead strategically to enhance the development of the Australian horticulture industry through operational excellence	Enabler



4

SECTION FOUR

Lychee monitoring and evaluation

Lychee SIP monitoring, evaluation and reporting

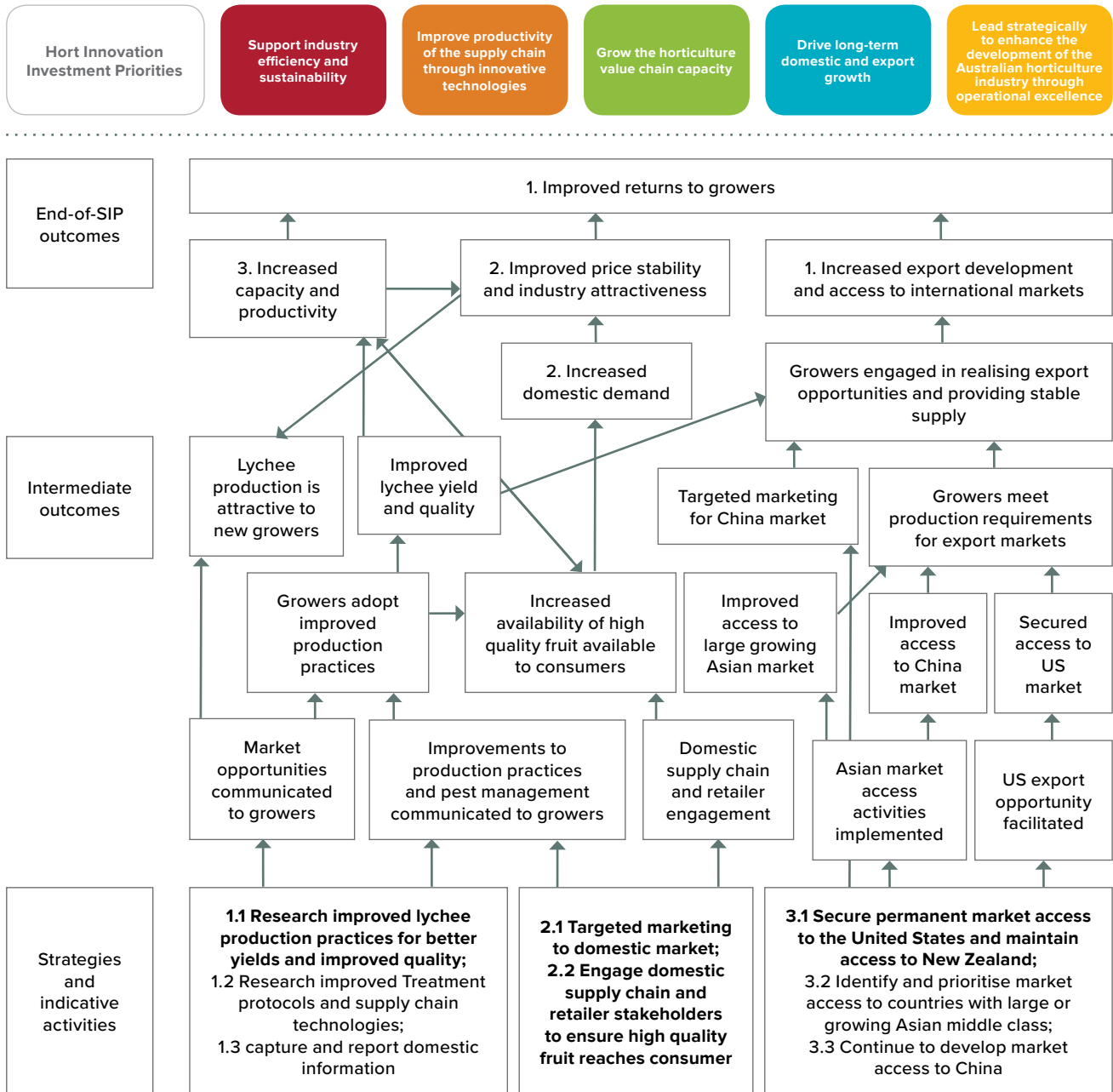
A SIP program logic and monitoring and evaluation (M&E) plan has been developed for the lychee SIP. These are informed by the Hort Innovation Organisational Evaluation Framework. The logic maps a series of expected consequences of SIP investment. The M&E plan shows the performance measures that will 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.

Lychee SIP logic

An indicative lychee SIP program logic is shown in **Figure 4**. The logic is based on the Hort Innovation SIP logic hierarchy (**Appendix 3**). The highest-priority strategies or activities in the deployment of the initial stages of the plan are indicated in **bold**.

Figure 4: Lychee SIP logic



Lychee SIP M&E plan

The lychee M&E plan is shown in **Table 4**. 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 deployment of the SIP in the initial stages of the plan are indicated in **bold**.

Table 4: Monitoring and evaluation plan for the lychee SIP

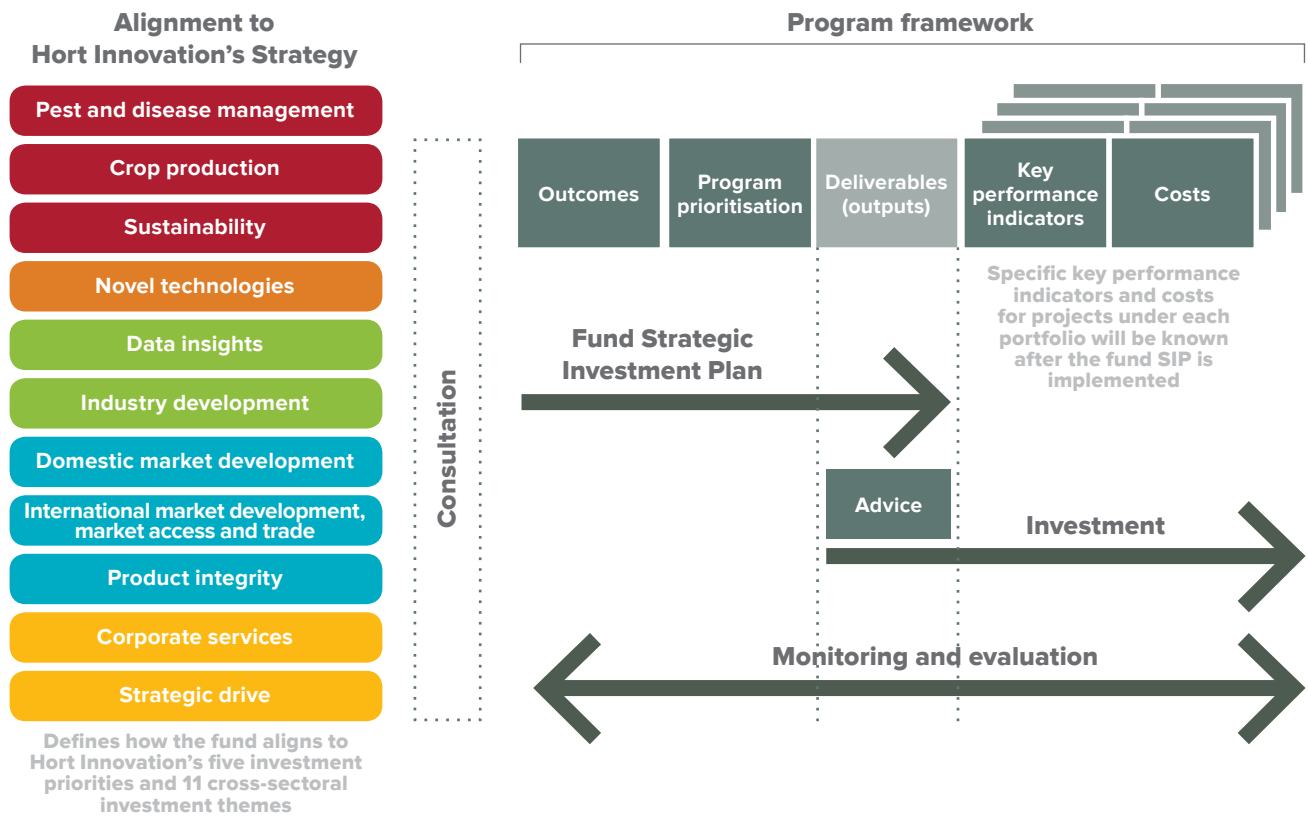
Objectives	Strategies	KPIs	Data collection methods and sources
Increased market access and export development improved returns to growers	Secure permanent market access to the United States and maintain access to New Zealand	<ul style="list-style-type: none"> Evidence of the development of further market access to the United States Evidence of an increase in the percentage of total crop volume being exported and an increase in price per kilogram for exports 	<ul style="list-style-type: none"> Trade data Contact and market interest at each trade expo attended Market access confirmations from DAWR Compliance data
	Identify and prioritise market access to countries with a large or growing Asian middle class	<ul style="list-style-type: none"> Compliance protocols established and followed by growers 	
	Continue to develop market access to China	<ul style="list-style-type: none"> Market access priorities identified and prioritised 	
Increased domestic demand improves price stability and industry attractiveness	Drive growth in domestic demand through targeted marketing initiatives	<ul style="list-style-type: none"> Education packages for supply chain management released to all sectors of the supply chain and being followed by retailers 	<ul style="list-style-type: none"> Supply chain guide user feedback Retail data
	Engage domestic supply chain and retailer stakeholders to ensure high quality fruit reaches the consumer	<ul style="list-style-type: none"> Percentage increase in domestic sales per annum 	
Increased capacity and productivity meets growing international and domestic demand	Encourage new growers to the industry and encourage existing growers to increase yields by demonstrating that international and domestic demand is strong and growing	<ul style="list-style-type: none"> Specific export market information (destination/tonnage/price) is available to the new and existing growers 	<ul style="list-style-type: none"> Production capacity and yield statistics by farm
	Research and adopt improved lychee production practices for better yields and improved quality	<ul style="list-style-type: none"> Adoption of industry wide Best Management Practice Percentage increase in production 	<ul style="list-style-type: none"> Grower surveys and production data
	Research improved treatment protocols and supply chain technologies that improve pest management, market access and shelf life without impacting quality	<ul style="list-style-type: none"> Integrated Pest and Disease Management (IPDM) protocol adoption 	<ul style="list-style-type: none"> Chemical type and use data Retailer spoilage data
	Build uptake of research, development and better management practices amongst lychee growers	<ul style="list-style-type: none"> Industry production, price data and quality data is available to growers 	<ul style="list-style-type: none"> Wholesale price and volume data Quality data captured at wholesaler and retailer level

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

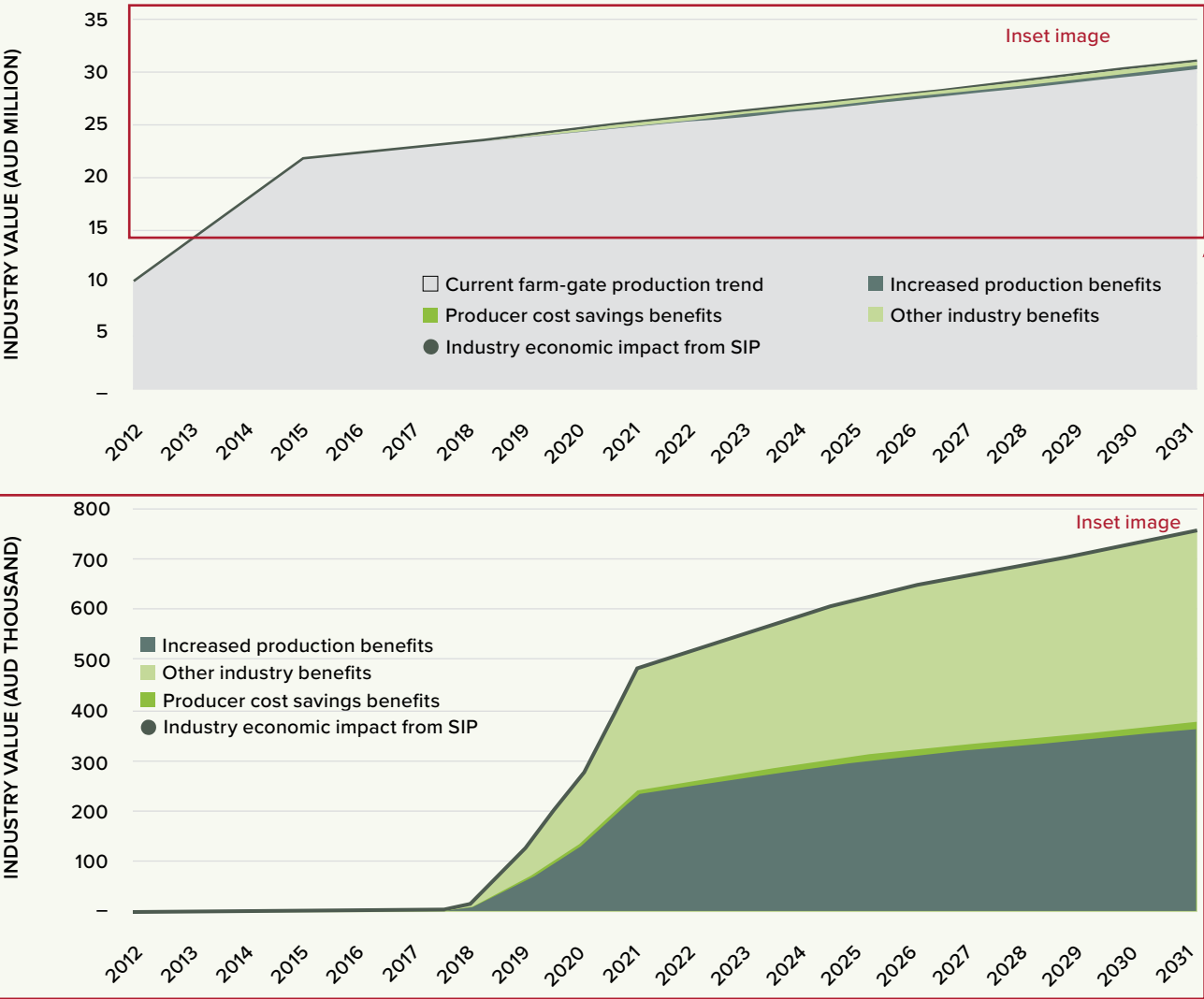


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SECTION FIVE

Impact assessment

Figure 6: Economic benefit from investment in the SIP



An independent assessment of the potential economic impacts from investment into the lychee SIP indicated a positive return on investment for the industry (Figure 6). The anticipated investment of \$1.12 million over the next five years in R&D, extension and marketing activities is expected to generate \$7.38 million in net benefits for the industry, representing a benefit cost ratio of 6.60 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 5 provides a summary of the assessed impacts for each outcome identified in the SIP, the anticipated deliverables, net economic benefits and benefit cost ratio.

Table 5: Summary of assessed impacts for each SIP outcome

Outcome	Expected deliverables <i>Refer to section 3 for further details</i>	Anticipated SIP investment (over five years)	Net benefits (over 15 years)	Benefit cost ratio
Increased market access and export development to improve returns to growers	<ul style="list-style-type: none"> Secure permanent market access to the United States and maintain access to New Zealand Documented pathways to export Prioritisation of market access Maintain and update growers on MRL requirements Engagement with growers on exports Demonstration of success in existing export markets 	\$372,353	\$2,782,841	7.47
Increased domestic demand to improve price stability and industry attractiveness	<ul style="list-style-type: none"> Industry specific consumer information Marketing strategy Domestic strategy results to inform exports Supply chain engagement to address product quality issues Cold storage, packaging options to extend shelf life 	\$372,353	\$2,051,903	5.51
Increase capacity and productivity to meet growing and international demand	<ul style="list-style-type: none"> Demonstrations of best practice methodologies to growers Minor use program to improve access to chemicals Increased adoption of integrated pest management Industry information and communication 	\$372,353	\$2,542,475	6.83

The quantified impacts associated with Outcome 1 include:

- Market expansion from access to the United States and other high value markets, the implementation of a new export plan for China and greater export support to growers
- Price premiums received from high value export markets to offset the higher cost of production in Australia compared to other countries
- Increase in domestic prices due to the reduction of local supply which balances out the supply and demand in Australia.

The quantified impacts from Outcome 2 include:

- Market expansion and price premiums from a greater alignment to consumer needs through the use of industry specific consumer information and a new marketing strategy
- Improved benefits for Outcome 1 from using the learnings and knowledge obtained in the domestic market to support export trade
- Increased consumption per capita from improvements in product quality through greater collaboration across the supply chain
- Reductions in waste from cold storage and packaging technologies that extend product shelf life for lychees.

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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 limited resources available for both R&D and marketing through the current levy influence the successful implementation of this SIP.

APPENDIX 1: Process to develop this plan

The process to develop the SIP was as follows:

1. ABCD analysis discussions were held at the inaugural SIAP meeting on June 21, 2016
2. The context was developed through desktop research and engagement with growers between October and December 2016
3. An industry wide online survey was issued to gain greater feedback on identified outcomes and to identify any gaps in the industries requirements
4. The draft outcomes and strategies were validated with one on one phone calls to key growers, researchers and SIAP members in December 2016
5. The monitoring and evaluation analysis was conducted by Clear Horizons in December 2016
6. 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 Strategic Investment Plan and their contribution is greatly appreciated:

SIAP:

Derek Foley, Frank Bosnic, Craig Van Rooyen, Jill Houser, Martin Joyce, Paul Thorne, Yan Diczbalis

Australian Lychee Growers Association:

Derek Foley, Ian Groves, Frank Bosnic, Gavin Macdonald, Chris Salta, Ted Knoblock, Jill Houser

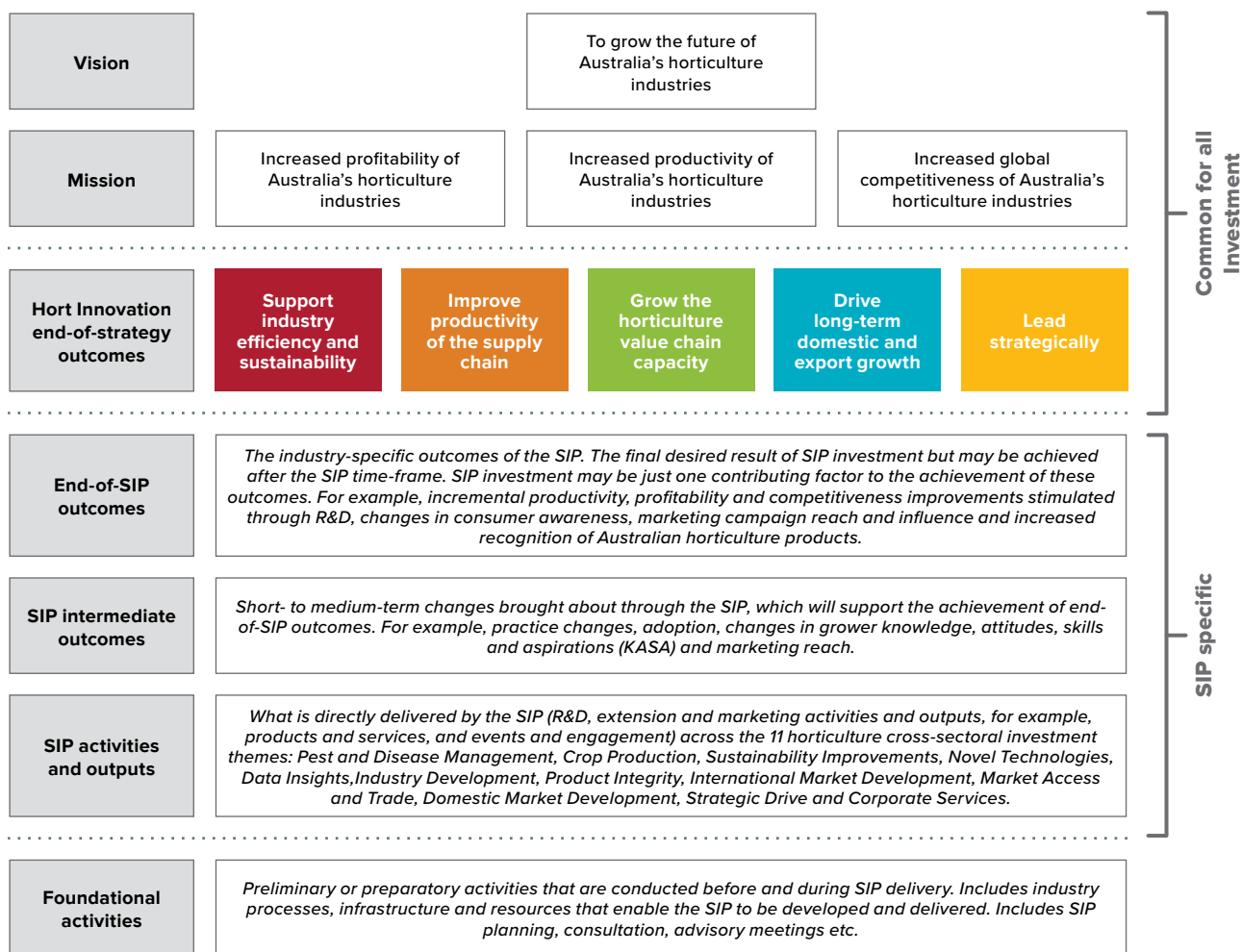
Additional Grower:

Rick Bronson

Researchers:

Yan Diczbalis (Principal Horticulturist, QDAF)

**APPENDIX 3:
Logic hierarchy**

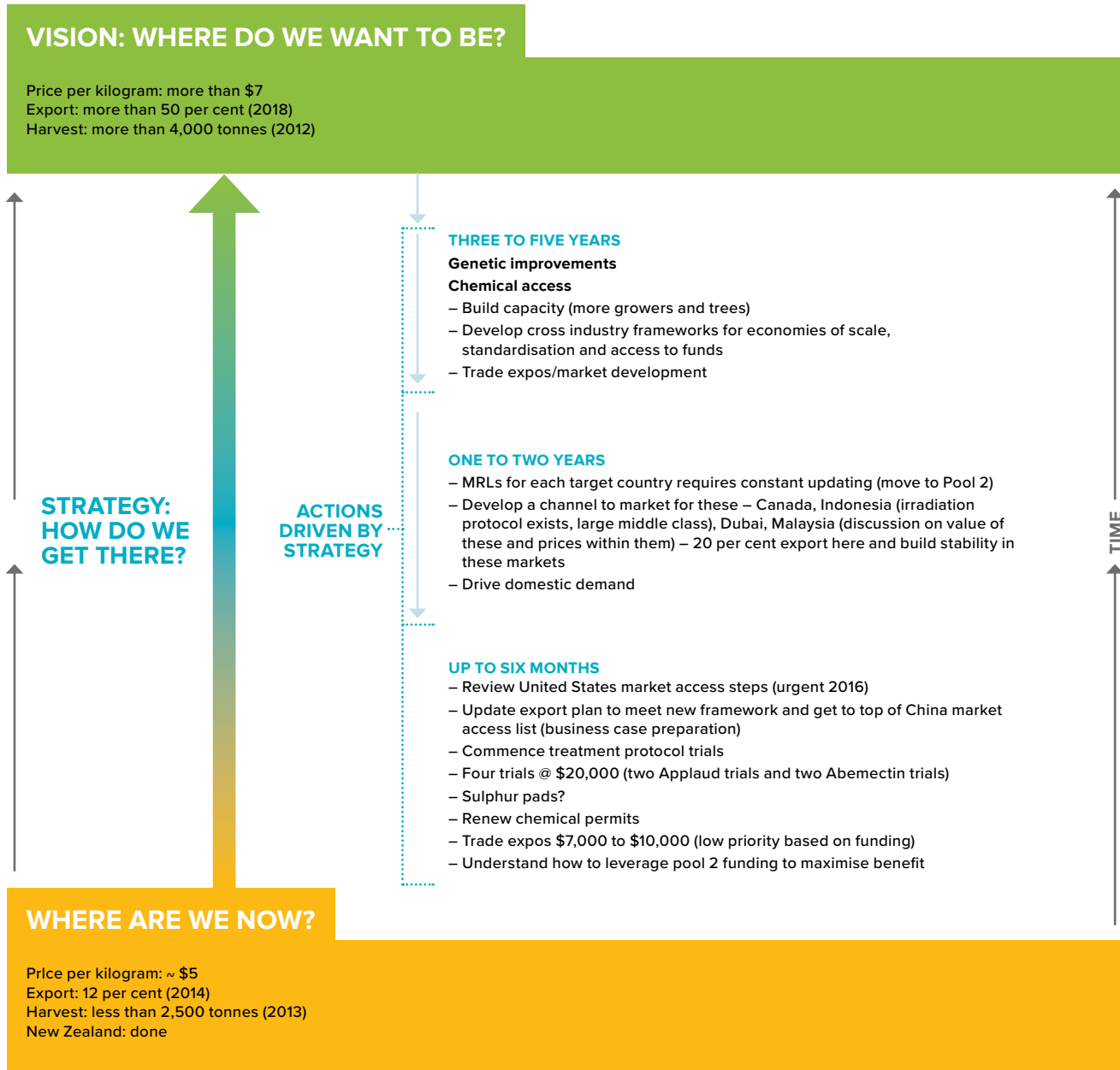


**APPENDIX 4:
Reference documents**

1. Horticulture Innovation Australia and Freshlogic, *Australian Horticulture Statistics Handbook 2014/15*. 2016.
2. Horticulture Innovation Australian www.horticulture.com.au
3. Australian Lychee Growers Association – ALGA www.australianlychee.com.au
4. Queensland Department of Agriculture & Fisheries – QDAF www.daf.qld.gov.au
5. Trade & Investment Queensland – TIQ www.tiq.qld.gov.au

APPENDIX 5: Outputs from engagement

ABCD analysis – SIAP



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