

Avocado

STRATEGIC INVESTMENT PLAN

2017-2021

Horticulture
Innovation
Australia

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Communications Manager
Horticulture Innovation Australia Limited
Level 8, 1 Chifley Square
Sydney NSW 2000
Australia
Email: communications@horticulture.com.au
Telephone: 02 8295 2300

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.

Horticulture Innovation Australia Limited (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 SIP, especially avocado growers.

The avocado SIP

Producers in the avocado industry pay levies to the Department of Agriculture and Water Resources (DAWR), who 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 avocados 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 avocados is 7.5 cents per kilogram and 1 cent per kilogram for processing avocados.

Hort Innovation manages the avocado levy funds which are directed to marketing (4.5 cents per kilogram) and R&D (fresh 2.9 cents and processing 1 cent per kilogram), while separately, Plant Health Australia (PHA) manages plant health programs (0.01 cents per kilogram). In 2015/16 total avocado levy receipts were approximately \$5.1 million; \$2.06 million of R&D levies and \$3.07 million of marketing levies.

Hort Innovation has developed this SIP to strategically invest the collected avocado levy funds in the priority areas identified and agreed by the avocado 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 avocado industry's collective view of its R&D and marketing needs over the next five years (2017 to 2021). It has been developed in consultation with Australian avocado levy payers through telephone interviews, grower workshops, a national online survey with growers and value chain firms and synthesis of desktop research. See **Appendix 1** for a full list of these industry consultations, and **Appendix 3** for main documents reviewed for this SIP.

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

Avocado

STRATEGIC INVESTMENT PLAN 2017-2021 AT A GLANCE

OUTCOMES	STRATEGIES
By 2021, increase domestic demand for Australian avocados has increased by at least 20%	<p>Domestic marketing services that elevates value to consumers for Australian avocados while encouraging them to buy more avocados more often</p> <p>Establish strategic relationship management with the major supermarket chains</p> <p>Modern production and market information collection, analysis and sharing across value chain</p> <p>Improve the reliability and consistency of year round supply of Australian avocados to replace the reliance on imported fruit</p> <p>Collect and promote evidence of industry practices that strengthen the reputation of value chain businesses and avocado products</p>
By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality	<p>Establish objective evidence and understanding of the primary sources of continued quality issues</p> <p>Quantify the levels of quality variability between farms and across value chains to consumers</p> <p>Develop targeted programs to implement best practice in those areas identified as being the highest risk/lowest performance</p> <p>Collection and sharing of information on performance in the supply of consistent quality avocados at point of sale</p>
By 2021, over 10 per cent of production will be exported to markets where customers have a willingness and capacity to pay a premium for Australian avocados	<p>Develop trade with existing export markets</p> <p>Improve the reliability and consistency of year round supply of Australian avocados</p> <p>Gain technical access in high value markets as defined by avocado exporters</p> <p>Coordinate integrated industry response to expand exports into newly accessed high value markets</p> <p>Value chain collaboration for gathering and sharing of market intelligence on existing and new export markets</p>

POTENTIAL IMPACT OF THIS PLAN



Based on an estimated investment of \$31.48 million over the next five years

OUTCOMES	STRATEGIES
By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram	<p>Establish and share baseline and time series information on farm productivity by growing region</p> <p>Promote uptake of established on-farm good practice tailored to variety/region</p> <p>Facilitate access to crop protectants and regulants of high value to growers</p> <p>Identify and use proven technologies and automation that reduces costs and improves marketable yields</p> <p>Review and prioritise the main constraints (e.g. irregular bearing, pest and disease, rootstock selection, nutrition, irrigation management) to increasing farm productivity and address those with the greatest national impact</p> <p>Maintain and improve biosecurity</p>

Avocado

STRATEGIC INVESTMENT PLAN

2017-2021 AT A GLANCE

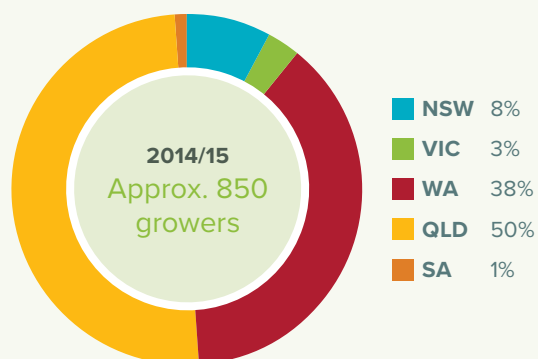
Major opportunities

- Increase in supply provides capacity to meet demand in export markets
- Improve access to existing and new export markets
- Awareness of/interest in Australian avocados in overseas markets
- Import displacement to ensure year round consumption of Australian product
- Health conscious consumers interested in new food experiences
- Increasing consumer demand for safe, clean food
- Consumer awareness/expectation of environmentally sustainable production
- Growing recognition by consumers of the positive health attributes of avocados
- Smaller size fruit preferred in Asian markets complements domestic market preference for larger fruit
- Value chain desire for strategic industry engagement
- Supermarkets seeking security of supply
- Access to technology providing new avenues for data collection, analysis, information sharing and communications
- Information and Communications Technology is enabling rapid and global information flows between consumers, community, businesses and governments.

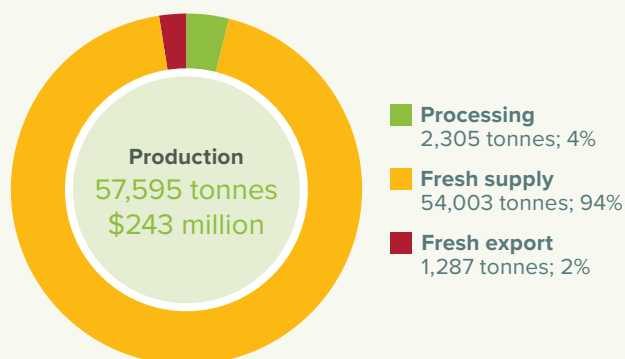
Major challenges

- Major increases in avocado supply could exceed consumer demand and cause prices to fall
- Consumer trust in the product erodes with experiences of inconsistent quality
- Well-resourced overseas competitors, with the ability to compete on the basis of lower price
- Potential market access for Mexican avocados could impact on Australian price and market share
- Industry environmental practices (or perceptions of) come under public scrutiny
- Biosecurity risks to plant health status
- Limited restrictions on imported processed avocado products
- Supermarket private labels eroding food supplier brands
- Rising production places pressure on current infrastructure and cool chain capacity
- Climate change and variability in growing conditions
- Irregular bearing is a significant threat to the industry.

Industry size and production distribution



Avocado supply chain and value 2014/15

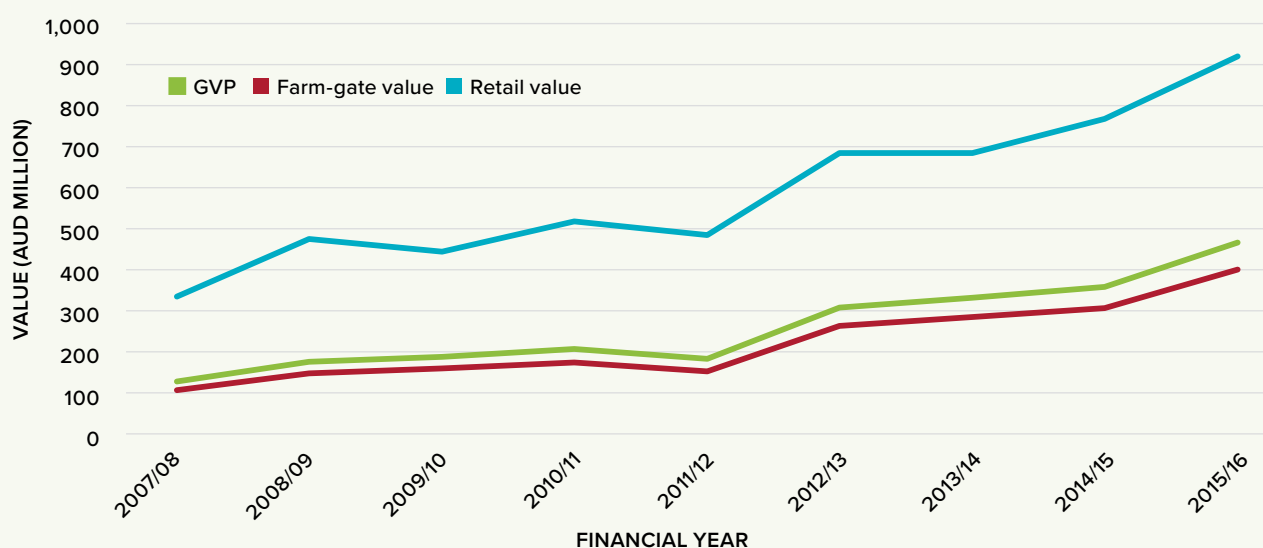


SECTION ONE

Context

The Australian avocado industry

Figure 1: Nine year industry financial growth (2007/08 to 2015/16)



The sustainability and future prosperity of the avocado industry is influenced by the quality of its strategy. It will lay the foundation for decision-making in levy investments and represents the balanced interests and priorities of avocado growers. This SIP is crucial to the long-term viability and success of the industry, and with a balanced approach, it must challenge Australian growers to seek further successes.

The most recent avocado Industry Strategic Plan 2011-2015 has now expired. The past strategy could be summarised as investing to:

- Develop the **domestic** market for **fresh** avocados
- Increase production volume/regions for **year round supply**
- **Maintain demand and price** through consumer marketing programs and supply of consistent quality avocados.

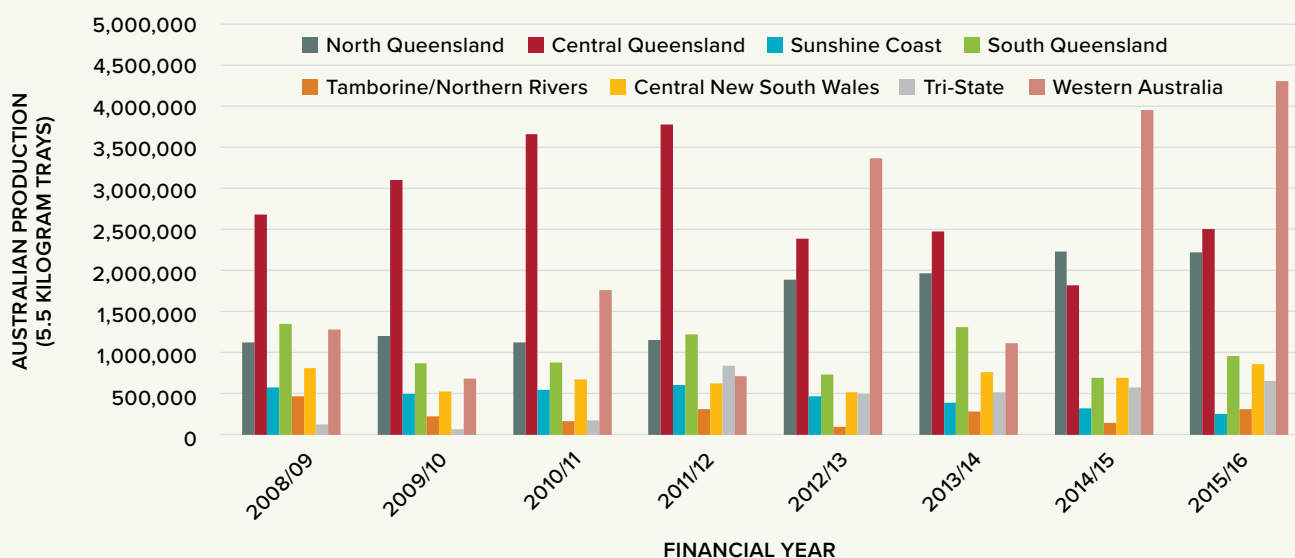
Over the past five years, there have been important changes in the avocado industry, which means that it is crucial for the new plan to respond to the changed market, increased number of large/corporate growers and production challenges. It will be how the industry responds to these challenges that will ensure continued success.

Products

Australian avocados are predominantly grown for the fresh market and are supplied year round. Whilst the numbers can vary slightly from year to year, the main varieties produced are Hass (80 to 85 per cent) and Shepard (10 to 15 per cent), with minor production of varieties such as Reed, Lamb Hass, Wurtz, Gwen and Sharwil¹.

¹ Avocados Australia Limited 2016, *Facts at a Glance*.

Figure 2: Australian production by region (2008/09 to 2015/16)



Industry production growth

The avocado industry has demonstrated strong, almost uninterrupted growth over the last decade (*Figure 1*).

By the year ending June 2015, the value of production was \$242.6 million and the wholesale value of fresh supply was \$403 million².

There were approximately 1,000 commercial avocado growers in 2011. Today that number is estimated to be about 850 growers across Australia. *Figure 2* shows production statistics from the major growing regions in Australia.

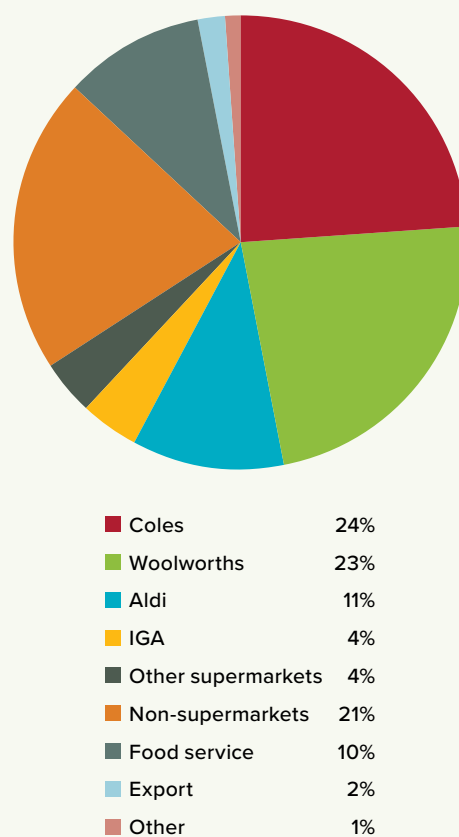
In the past three years, domestic avocado production has increased from 49,612 tonnes in the year ending June 2012 to 57,595 tonnes in the year ending June 2015³. This has largely been the result of major production growth in Western Australia and increases in North Queensland.

A key feature of the industry growth has been the significant increase in new plantings in areas that supply the domestic market during the summer period. Increased production in Western Australia is an example of how the industry is maturing and moving to leverage regional advantages in competing for market share.

Market segments

Australian avocados continue to be predominantly sold through domestic supermarkets (66 per cent). The second largest retail segment is fresh fruit grocers and markets (21 per cent) and the food service sector, which is estimated at 10 per cent⁴. Industry views gathered in consultations suggest that the food service sector has grown in prominence for some value chains.

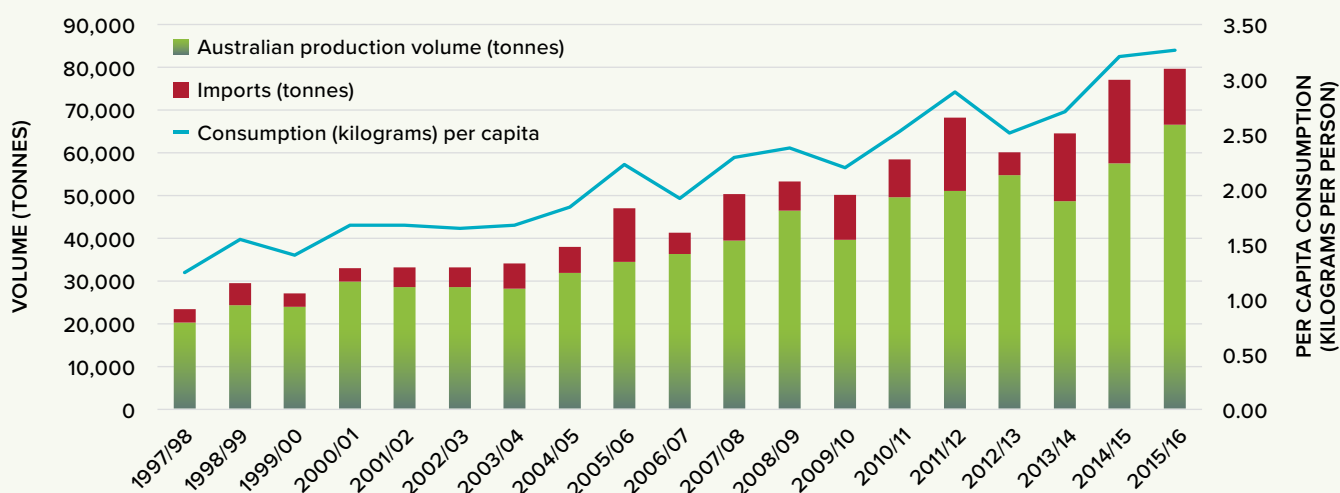
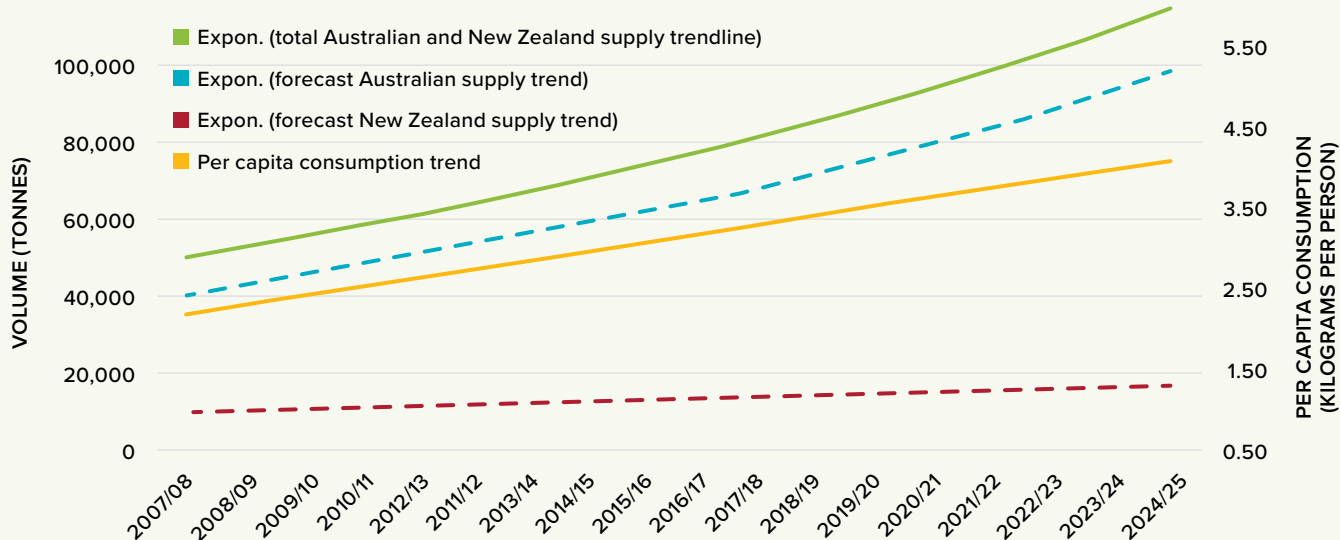
Figure 3: Avocado market segments (June 2015)



² Horticulture Innovation Australia 2016, *Australian Horticulture Statistics Handbook 2014/15*, <http://horticulture.com.au/australian-horticulture-statistics-handbook-201415/>

³ Horticulture Innovation Australia 2016, *Australian Horticulture Statistics Handbook 2014/15*, <http://horticulture.com.au/australian-horticulture-statistics-handbook-201415/>

⁴ Avocados Australia Limited 2016, *Industry Update and Program Presentation*

Figure 4: Australian production, imports and consumption per capita (1997/98 to 2015/16)⁶Figure 5: Supply vs consumption trends⁷

Domestic consumption and demand

Australian avocado production has increased significantly from 34,515 tonnes in 2005/06 to 66,716 tonnes in 2015/16 in response to domestic demand. Over the same period, consumption has increased at approximately 6.3 per cent per annum, or from 46,103 tonnes to 78,276 tonnes.

Strong growth in prices and a steady increase in consumption is evidence of strong underlying consumer demand.⁵

The rapid rate of increase in avocado production has created an imperative for the industry to find ways to further increase domestic demand and to access and develop new markets.

Avocados remain a relatively new food option and many consumers, particularly in overseas markets, are yet to become familiar with the product. Domestic consumer analysis has confirmed that there are opportunities to achieve further growth in the domestic market by targeting those consumer segments that are less frequent purchasers of avocados.⁸

In 2014/15, Australian avocado consumption increased to record levels, with an estimated 3.10 kilograms consumed per capita⁹. The current trend towards healthy diets and fresh sustainable produce will also help the avocado industry expand both domestically and internationally.

⁵ Australian Avocado Export Development Plan 2014-2019.

⁶ Avocados Australia Limited 2016, *Industry Update and Program Presentation*

⁷ Avocados Australia Limited 2016, *Industry Update and Program Presentation*

⁸ Review Partners, 2016. Review of Australian avocado advertising.

⁹ Avocados Australia Limited 2016, *Australians can boast highest industry standards for our avocado* [Media Release, 15/08/16]

¹⁰ Avocados Australia Limited

Figure 6: Total damage by year of Hass avocados¹⁰

Quality

The industry has improved the supply of consistent quality of fruit through the supply chain to consumers which has supported and enabled growth in demand over the past decade or more. However, consistency with fruit quality continues to be a major issue, as the volumes of second-grade fruit supplied to the domestic market risks a negative impact on prices and consumer confidence.

In 2006/07, the industry undertook a major consumer sensory research study to establish baseline data on consumer expectations and has since had a target of 10 per cent for internal defects. **Figure 6** shows the quality change of Hass avocados (total damage by year) from 2008 to 2015. It shows some improvements, but around 20 per cent of fruit at retail level continues to have internal damage, indicating that consistency of fruit quality remains a major challenge for the industry to overcome.

Despite some small improvements, quality still remains a significant barrier for consumers. Considerable work must be undertaken in areas such as cool chain management to ensure that the consumer is given a consistently high quality product to ensure improved buying behaviour and repeat purchases. If this issue is not addressed it will limit the future potential of the industry.

Bruising

Bruising remains one of the main drivers of poor quality in avocados. The causes of bruising are predominantly post farm-gate with most bruising occurring at retail or in the home. This does not eliminate the effect that on-farm practices have on bruising.

Productivity and competitiveness

Australia is a high cost avocado producer relative to overseas competitors with local growers generally receiving higher farm-gate prices relative to growers in other countries. These factors introduce industry-wide risks if the Australian industry aspires to succeed in increasing avocado exports and/or competing with imports.

Productivity improvements are also important to maintain and improve margins in the domestic market. Consultations with growers indicate that there can be significant variability in the productivity of Australian farms within regions and nationally.

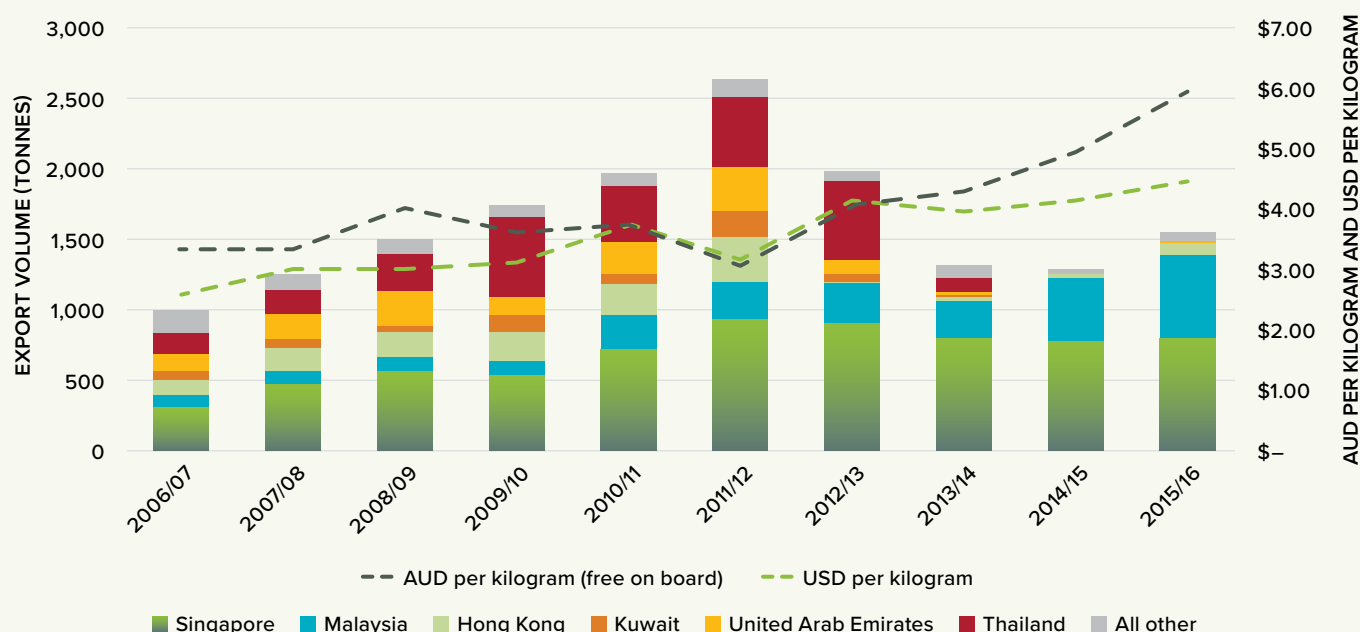
Irregular Bearing

One of the fundamental causes of variability in supply is irregular bearing and/or biennial bearing. This undermines the ability of the industry to meet year round domestic demand without the reliance on imports. Research must to be undertaken to ensure irregular bearing is understood and its impact is minimised. This work is critical for the long-term success of the industry.

Imports

New Zealand is currently the only exporter of avocados to Australia. Rising Australian production has not kept pace with the growth in domestic demand, with imports from New Zealand making up the shortfall. The difference is equivalent to 20 per cent of the increase in consumption.¹¹ The strong supply of Australian avocados in the spring, winter and autumn months is complemented by New Zealand production, with imports arriving during summer.

¹¹ Australian Avocado Export Development Plan 2014-2019.

Figure 7: Australian avocado exports – annual volume by key market and AUD per kilogram and USD per kilogram (June to June)¹⁷

Although import volumes have fluctuated significantly, annual imports reached a peak of over 19,626 tonnes in 2014/15¹². Forecasts indicate a gradual increase in the coming years, but a relative decrease in the proportion of New Zealand imports, which are not forecast to grow much above 20,000 tonnes per annum on average.¹³

Mexico and Chile have requested market access to Australia. Mexico is the world's largest producer and exporter of avocados and has sought market access to Australia for over a decade.

A Senate inquiry in October 2015 into Australia's relationship with Mexico identified the time taken for Australia to consider Mexico's avocados market access request as a significant issue and point of frustration for Mexico's trading relationship with Australia. The Senate Committee recommended that DAWR make the completion of a Biosecurity Import Risk Analysis Report for Mexican avocados a high priority by the end of 2016.¹⁴

Import displacement

A potential future scenario is that more countries could gain access to the Australian market during the term of the SIP. The industry must focus on replacing the need for imports by supplying quality year-round product to the domestic market. Australia is seen by overseas competitors as a high price market, especially during certain times of the year. To facilitate prioritisation of Australian fruit into the market, growers must focus on providing products of exceptional quality and freshness.

Growing export markets

Avocado exports are minor in volume relative to the quantity produced for the domestic market with 1,287 tonnes or \$6.4 million exported in 2014/15.¹⁵ This represents approximately two per cent of total production volume.¹⁶

The Australian industry is a small player in global production and trade, but is considered high in product quality. In the past, exports were dominated by Queensland growers, although Western Australia is now positioned to supply similar or greater export volumes than Queensland in the coming years.

Australian avocado export prices are among the highest in the world due to a combination of factors including high costs of production and exchange rates. With a high quality product and premium price, the industry opportunity is to secure high value niche market segments in selected export countries.

International market access

Australian agricultural industries have a geographical advantage due to Australia's close proximity to growing markets in Asia. Rising incomes per capita will drive consumption and increase the opportunity to attract premiums for high quality and consistent produce.

¹² Horticulture Innovation Australia 2016, *Australian Horticulture Statistics Handbook*, <http://horticulture.com.au/australian-horticulture-statistics-handbook-201415/>

¹³ Australian Avocado Export Development Plan 2014-2019.

¹⁴ Commonwealth of Australia 2015, Australia's relationship with Mexico, http://www.apf.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/Australia_Mexico/Report

¹⁵ Horticulture Innovation Australia 2016, *Australian Horticulture Statistics Handbook*, <http://horticulture.com.au/australian-horticulture-statistics-handbook-201415/>

¹⁶ Avocados Australia Limited 2016, *Avocado Industry Statistics June 2016*

¹⁷ ABS Data, Fresh Intelligence Analysis

The Australian avocado industry supplies markets such as Singapore, Malaysia and Hong Kong, where it has market access and air-freight advantages. However, the industry still faces limited access to high value markets such as Japan, South Korea, Taiwan and China. Fruit fly and other plant/fruit health issues are important obstacles to be resolved to gain better access to these potential markets for Australian avocados.

In China (and other Asian markets), avocados are becoming a popular imported fruit, especially in the large cities on the east coast. Mexico and Chile have access to the Chinese market, while Peru received permission to export to China in 2016¹⁸. The Australian industry has had limited exposure to overseas markets and is in competition with well-resourced, low cost competitors.

Operating environment

The avocado industry	
Strengths	<ul style="list-style-type: none"> • Geographic proximity to growing, high value markets in Asia • Industry awareness, interest and action in developing export markets • Geographically diverse production regions enable year round supply • Established and increasing capacity to supply large volumes of fruit to markets • Australian avocados regarded as high quality and 'safe' in domestic and overseas markets • High production standards across the value chain • Established industry systems to gather production data and prepare forecasts • Industry image for environmentally sustainable production • Sustained domestic demand for avocados • Avocados are a unique product with no direct substitutes • Marketing levy funds available to promote Australian avocados • R&D levy funds available for production, value chain and consumer research • Industry has proven ability to collaborate nationally and across value chains for industry development.
Weaknesses	<ul style="list-style-type: none"> • Limited or no technical access to high value export markets due to phytosanitary issues • Domestic-focused industry with limited export experience • High reliance on sales through the two major domestic supermarket chains • High costs of production including labour, relative to overseas competitors • Ongoing issues with consistency of fruit quality (around 20 per cent affected) • Variable productivity across producers, regions and compared with some overseas producers • Irregular bearing in major production regions undermines market development efforts • Declining access to crop protectants and regulants needed for optimal production • Limited evidence of industry environmental performance • Low or no awareness in international markets about Australian avocados • Large increases (actual and potential) in supply places more emphasis on quality and timeliness of industry data and forecasting • Vulnerability to drought, water security • Industry cohesion being impacted as businesses, markets and industry service bodies evolve.

18 Rudolf Mulderij, 2016, Overview Global Avocado Market, <http://www.freshplaza.com/article/156557/OVERVIEW-GLOBAL-AVOCADO-MARKET>

The avocado industry	
Opportunities	<ul style="list-style-type: none"> • Increase in supply provides capacity to meet demand in export markets • Improve access to existing and new export markets • Awareness of/interest in Australian avocados in overseas markets • Import displacement to ensure year round consumption of Australian product • Health conscious consumers interested in new food experiences • Increasing consumer demand for safe, clean food • Consumer awareness/expectation of environmentally sustainable production • Growing recognition by consumers of the positive health attributes of avocados. • Smaller size fruit preferred in Asian markets which complements domestic market preference for larger fruit • Value chain desire for strategic industry engagement • Supermarkets seeking security of supply • Access to technology providing new avenues for data collection, analysis, information sharing and communications • Information and communications technology is enabling rapid and global information flows between consumers, community, businesses and governments.
Threats	<ul style="list-style-type: none"> • Major increases in avocado supply could exceed consumer demand and cause prices to fall • Consumer trust in the product erodes with experiences of inconsistent quality • Well-resourced overseas competitors, with the ability to compete on the basis of lower price • Potential market access for Mexican avocados could impact on Australian price and market share • Industry environmental practices (or perceptions of) come under public scrutiny • Biosecurity risks to plant health status • Limited restrictions on imported processed avocado products • Supermarket private labels eroding food supplier brands • Rising production places pressure on current infrastructure and cool chain capacity • Climate change and variability in growing conditions • Irregular bearing is a significant threat to the industry.

2

SECTION TWO

Avocado industry outcomes

Industry outcomes

The below outcomes outline the strategic priorities of the avocado industry. These outcomes are all significantly interrelated to one another. Together they outline a challenge to the industry to underpin its continued success.

OUTCOME 1

By 2021, domestic demand for Australian avocados has increased by at least 20 per cent

The strategic intent here is to implement programs that help to maintain avocado prices in the domestic market as supply increases over the term of the SIP.

It will mean:

- Domestic marketing services that elevates the value to consumers for Australian avocados while encouraging them to buy more avocados more often
- Establishing strategic relationship management with the major supermarket chains
- Modern production and market information collection, analysis and sharing across the value chain
- Improving the reliability and consistency of year round supply of Australian avocados and reduce reliance on imported product
- Collecting and promoting evidence of sustainable industry practices.

OUTCOME 2

By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality

The strategic intent here is to make consistent quality a fundamental source of competitive advantage for Australian avocados. Consistent quality is critical for the ability of the industry to credibly position its products on value; sustain and increase domestic demand and to compete internationally. Quality remains a significant challenge and needs to be addressed to ensure the continued success of the industry.

It will mean:

- Deep understanding and evidence of the main sources of quality issues
- Quantifying the levels of quality variability between farms and across value chains to consumers
- Targeted programs to implement best practice in those areas with the highest risk/lowest performance
- Collection and sharing of information on performance in the supply of consistent quality at consumer level
- Quality improvements will underpin the ability of the industry to meet domestic demand with fresh Australian product.

OUTCOME 3

By 2021, over 10 per cent of production will be exported to markets where customers have a willingness and capacity to pay a premium for Australian avocados

The strategic intent here is to reduce current high dependency on the domestic market and enable the industry to scale up efficient production while maintaining margins.

It will mean:

- Developing trade with existing export markets
- Gaining technical access in targeted high value markets
- Value chain collaboration and gathering of market intelligence
- Improving the reliability and consistency of year round supply of Australian avocados
- Collaboration with government and other industries.

OUTCOME 4

By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram

The strategic intent here is to accelerate the application of proven good practices in production as a means of improving on-farm profitability, business resilience and ability to compete in domestic and international markets.

It will mean:

- Establish and sharing of baseline and time series information on farm productivity by production region
- Uptake of established on farm good practices tailored to variety/region
- Facilitating access to crop protectants and regulants of high value to growers
- Accessing technology and innovations to improve farm production and efficiency
- Prioritising the main constraints to increasing farm productivity and putting R&D plans in place to address those priorities
- Maintaining and improving biosecurity
- Fundamental production research is undertaken including the technology transfer from international production regions
- Improved marketable yield will give the industry the best opportunity to remove its reliance on imported products
- Gaining a greater understanding of irregular bearing and minimising the impact it has on tree productivity.

3

SECTION THREE

Avocado industry priorities

Industry investment priorities

The overall strategy for the industry is to expand domestic demand, reduce the reliance on imported fruit and develop export markets for fresh Australian avocados. Underpinning this is a need to undertake leading-edge research combined with industry-wide group extension. This will increase the capacity of the industry in terms of access to Australian researchers and consultants, ultimately benefiting all Australian growers. 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.

OUTCOME 1 – By 2021, domestic demand for Australian avocados has increased by at least 20 per cent	
STRATEGIES	POSSIBLE DELIVERABLES
Domestic marketing services that elevates value to consumers for Australian avocados while encouraging them to buy more avocados more often	<ul style="list-style-type: none"> High quality consumer research and insights that characterise and informs consumer segmentation Three year marketing strategy with annual marketing programs including consistent consumer segmentation that measures and tracks growing preference and loyalty for fresh Australian avocados
Establish strategic relationship management with the major supermarket chains	<ul style="list-style-type: none"> Key account management for each major retailer is in place by December 2017
Modern production and market information collection, analysis and sharing across value chain	<ul style="list-style-type: none"> Dynamic national production and market information system providing digitally based, real time analysis and reporting tailored to different users (June 2018)
Improve the reliability and consistency of year round supply of Australian avocados to replace the reliance on imported fruit	<ul style="list-style-type: none"> Agreed R&D plans to overcome key constraints that limit industry capacity for year round supply
Collect and promote evidence of industry practices that strengthen the reputation of value chain businesses and avocado products	<ul style="list-style-type: none"> Review that identifies and prioritises the major risks (for example, environmental or labour practices) to industry and product reputation including available evidence, research gaps and options for mitigation Key messages incorporated into industry communications and marketing strategies

OUTCOME 2 – By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality	
STRATEGIES	POSSIBLE DELIVERABLES
Establish objective evidence and understanding of the primary sources of continued quality issues	<ul style="list-style-type: none"> National assessment of current practices across the value chain, identifying the primary sources of the continuing quality problems for consumers including advice on gaps or opportunities for improvement of existing best practice guidelines Cutting edge production systems are investigated
Quantify the levels of quality variability between farms and across value chains to consumers	<ul style="list-style-type: none"> Audits of industry uptake of the best practice guidelines, with first audit conducted by December 2017 including mapping of uptake levels by region/value chain participants and sharing of that information with growers and value chain participants
Develop targeted programs to implement best practice in those areas identified as being the highest risk/lowest performance	<ul style="list-style-type: none"> Extension and communication program to accelerate awareness and behavioural change in priority areas (for example, regions, value chain firms, consumers) Improve current guidelines as required
Collection and sharing of information on performance in the supply of consistent quality avocados at point of sale	<ul style="list-style-type: none"> Regular reports on the incidence of damaged Hass avocados at point of sale are provided to growers and value chain participants Annual report showing relative performance across relevant variables such as growing region and type of value chain business

OUTCOME 3 – By 2021, over 10 per cent of production will be exported to markets where customers have a willingness and capacity to pay a premium for Australian avocados	
STRATEGIES	POSSIBLE DELIVERABLES
Develop trade with existing export markets	<ul style="list-style-type: none"> Tailored market development plans that are formulated in collaboration with exporters are in place for each existing export (June 2018) Informed by research on overseas consumer needs and expectations
Improve the reliability and consistency of year round supply of Australian avocados	<ul style="list-style-type: none"> Agreed R&D plans to overcome key constraints that limit industry capacity for year round supply
Gain technical access in high value markets as defined by avocado exporters	<ul style="list-style-type: none"> Market access strategy developed for each priority market by June 2018 Including developing collaborative relationships with the Australian government and other horticulture industries with a mutual interest
Coordinate integrated industry response to expand exports into newly accessed high value markets	<ul style="list-style-type: none"> Plans in place to bolster industry capacity for satisfying technical and customer requirements in new markets
Value chain collaboration for gathering and sharing of market intelligence on existing and new export markets	<ul style="list-style-type: none"> Dedicated group of avocado exporting businesses that develop and implement export plans

OUTCOME 4 – By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram	
STRATEGIES	POSSIBLE DELIVERABLES
Establish and share baseline and time series information on farm productivity by growing region	<ul style="list-style-type: none"> Agreed methodology for collecting productivity information by region National and regional productivity levels visible to growers
Promote uptake of established on-farm good practice tailored to variety/region	<ul style="list-style-type: none"> Extension program tailored to the needs of different types of farm businesses to accelerate uptake of proven technologies and management practices Continual improvement is undertaken to ensure best world wide practice is undertaken
Facilitate access to crop protectants and regulants of high value to growers	<ul style="list-style-type: none"> Agreed national priorities with action plans and research evidence to achieve access to required crop protectants and regulants
Identify and use proven technologies and automation that reduces costs and improves marketable yields	<ul style="list-style-type: none"> Collaborations and initiatives with influential Australian farm businesses to apply innovative on-farm practices sourced from Australia and overseas Industry publications and forums targeted at raising awareness and promoting innovative on-farm practices with different types of farm business across the industry New production systems are investigated to optimise efficiencies
Review and prioritise the main constraints (for example, irregular bearing, pest and disease, rootstock selection, nutrition, irrigation management) to increasing farm productivity and address those with the greatest national impact	<ul style="list-style-type: none"> Agreed R&D plans to address high priority constraints to on-farm productivity in place, in particular, irregular bearing Including extension and reporting system to measure improvements achieved by 2021
Maintain and improve biosecurity	<ul style="list-style-type: none"> Assess and monitor biosecurity risks posed by countries seeking to export avocados to Australia

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 8**. **Figure 8** also shows how each cross-sectoral investment theme relates to the five investment priorities.

Figure 8: Hort Innovation's investment priorities



SECTION 3: AVOCADO INDUSTRY PRIORITIES

The alignment of the avocado 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 1**.

Table 1: Avocado SIP outcomes alignment to the Hort Innovation investment priorities

Hort Innovation investment priorities	Avocado SIP outcomes
Support industry efficiency and sustainability	
Improve productivity of the supply chain	Outcome 4: By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram
Grow the horticulture value chain capacity	
Drive long-term domestic and export growth	Outcome 1: By 2021, domestic demand for Australian avocados has increased by at least 20 per cent Outcome 2: By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality Outcome 3: By 2021, over 10 per cent of production will be exported to markets where customers have a willingness and capacity to pay a premium for Australian avocados
Lead strategically to enhance the development of the Australian horticulture industry through operational excellence	Enabler

4

SECTION FOUR

Avocado industry monitoring and evaluation

Avocado SIP monitoring, evaluation and reporting

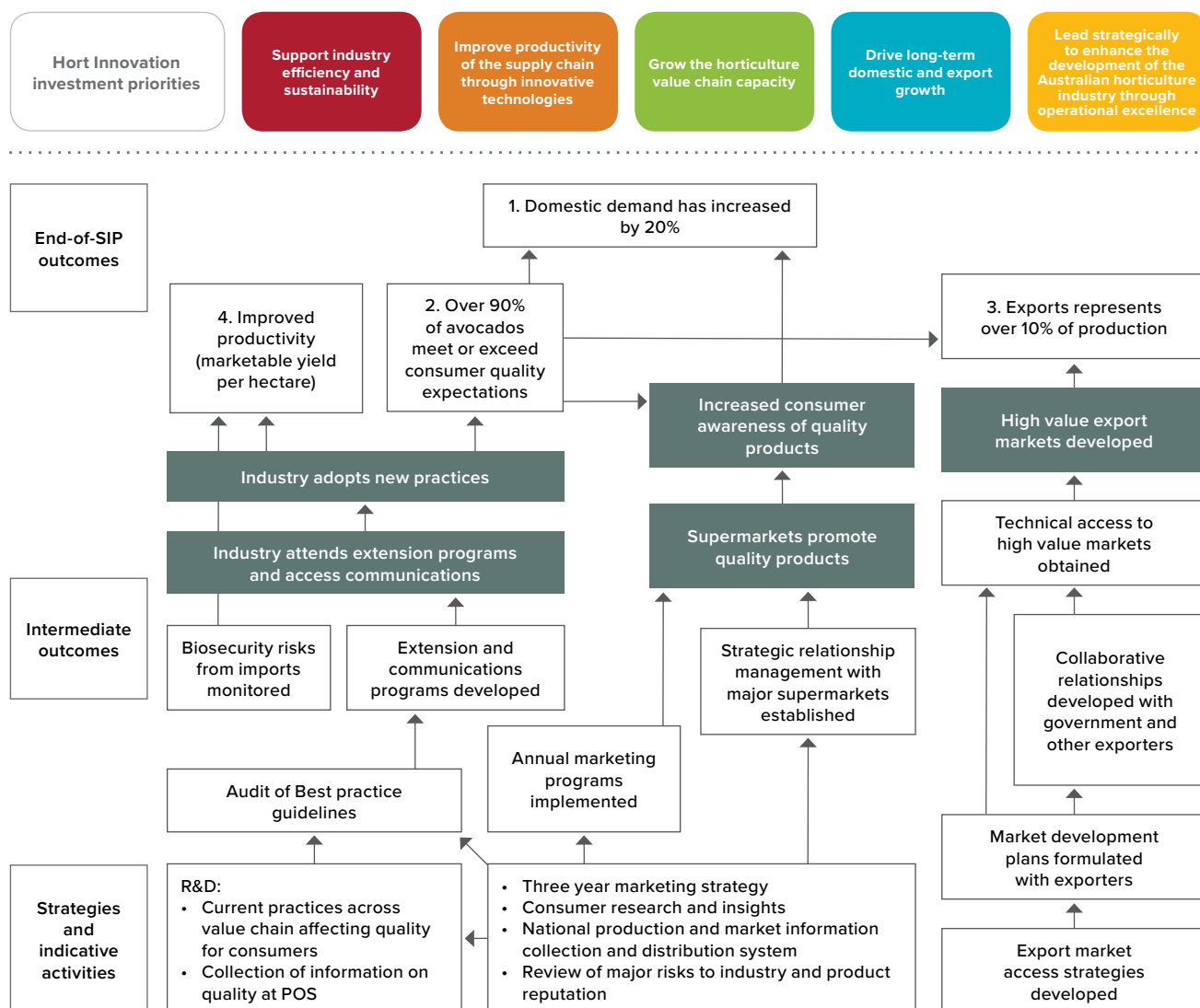
A SIP program logic and monitoring and evaluation (M&E) plan has been developed for the avocado SIP. These are informed by the Hort Innovation Organisational Evaluation Framework. The logic maps a series of expected consequences of SIP investment. The M&E plan shows the performance measures that will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

Avocado SIP logic

An indicative avocado SIP program logic is shown in **Figure 9**. The logic is based on the Hort Innovation SIP logic hierarchy (**Appendix 2**). The shaded boxes are not fully explicit in the SIP but necessary conditions for the achievement of expected outcomes.

Figure 9: Avocado SIP logic



Avocado SIP M&E plan

The avocado M&E plan is shown in **Table 2**. 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.

Table 2: Monitoring and evaluation plan for the avocado SIP

Outcomes	Strategies	KPIs	Data collection methods and sources
OUTCOME 1: By 2021, domestic demand for Australian avocados has increased by at least 20 per cent	Domestic marketing services that elevates value to consumers for Australian avocados while encouraging them to buy more avocados more often	<ul style="list-style-type: none"> An increase in sales of Australian avocados; sales volume through major retailers, price tracking and consumer purchase frequency 	<ul style="list-style-type: none"> Retail data Consumer research findings Grower and value chain participant survey Industry risks desktop research and grower workshop Risk performance research project records (repeated every five years to measure performance against first baseline)
	Establish strategic relationship management with the major supermarket chains	<ul style="list-style-type: none"> Annual increases in percentage of consumers in the 'avocado lovers' and 'avocado enthusiasts' segments 	
	Modern production and market information collection, analysis and sharing across value chain	<ul style="list-style-type: none"> Evidence of relationships; key account management in place with clear and practiced responsibilities 	
	Improve the reliability and consistency of year round supply of Australian avocados to replace the reliance on imported fruit product	<ul style="list-style-type: none"> Evidence of production and marketing information; grower and value chain participant satisfaction with quality and timeliness of information 	
	Collect and promote evidence of industry practices that strengthen the reputation of value chain businesses and avocado products	<ul style="list-style-type: none"> Framework for assessing performance in key areas of industry risk agreed First assessment completed and incorporated into communications and marketing plans 	
OUTCOME 2: By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality	Establish objective evidence and understanding of the primary sources of continued quality issues	<ul style="list-style-type: none"> Evidence of trend for increasing proportion of avocados meeting consumer quality expectations 	<ul style="list-style-type: none"> Quality data collected at point of sale Industry data and communications Grower and value chain participant survey
	Quantify the levels of quality variability between farms and across value chains to consumers	<ul style="list-style-type: none"> Reduced variability in avocado quality; quality data benchmarks established with value chain participants aware of the quality performance of the industry 	
	Develop targeted programs to implement best practice in those areas identified as being the highest risk/lowest performance	<ul style="list-style-type: none"> Evidence of best practice programs developed and behaviour change by businesses 	
	Collection and sharing of information on performance in the supply of consistent quality avocados at point of sale	<ul style="list-style-type: none"> Growers and value chain participants are satisfied with the tools and management options available to reduce the incidence of avocado quality problems Evidence of sharing of quality data 	

SECTION 4: AVOCADO INDUSTRY MONITORING AND EVALUATION

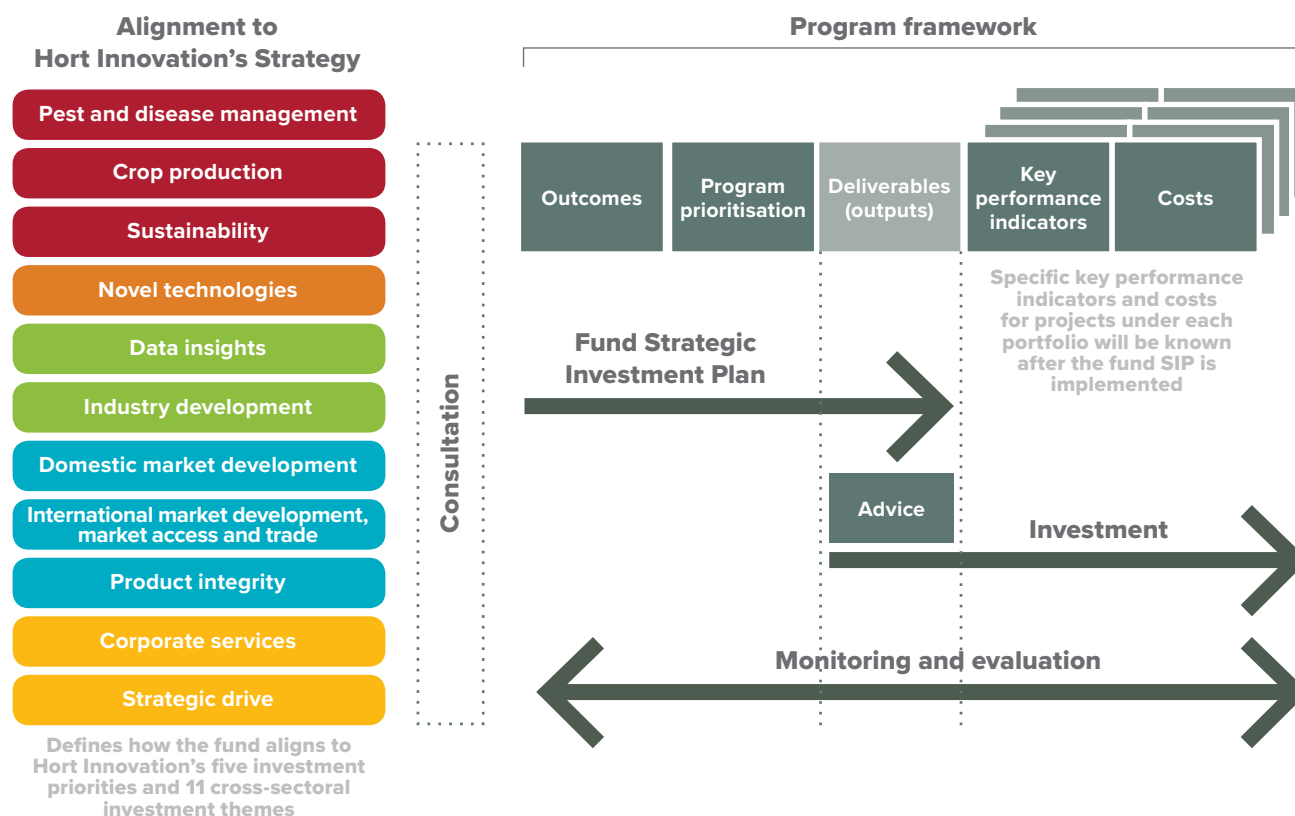
Outcomes	Strategies	KPIs	Data collection methods and sources
OUTCOME 3: By 2021, over 10 per cent of production will meet demand in export markets where customers have a willingness and capacity to pay a premium for Australian avocados	Develop trade with existing export markets	<ul style="list-style-type: none"> Increased exports to existing markets 	<ul style="list-style-type: none"> Grower and exporter survey
	Improve the reliability and consistency of year round supply of Australian avocados	<ul style="list-style-type: none"> Evidence of access to new markets 	<ul style="list-style-type: none"> Trade data – volume and value
	Gain technical access in high value markets as defined by avocado exporters	<ul style="list-style-type: none"> Export marketing strategy and plans; market development plans in place for top three markets 	<ul style="list-style-type: none"> DAWR
	Coordinate integrated industry response to expand exports into newly accessed high value markets	<ul style="list-style-type: none"> Evidence of improved reliability and quality of Australian avocados 	<ul style="list-style-type: none"> Export market development plans
	Value chain collaboration for gathering and sharing of market intelligence on existing and new export markets	<ul style="list-style-type: none"> Co-investment by exporters in market development programs/projects Satisfaction of exporters and associated value chain businesses 	<ul style="list-style-type: none"> In-market consumer research Export market development project records
OUTCOME 4: By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram	Establish and share baseline and time series information on farm productivity by growing region	<ul style="list-style-type: none"> Methodology for collecting national and regional productivity data developed and agreed; understanding of constraints on farm productivity 	<ul style="list-style-type: none"> Grower survey/ Extension event feedback
	Promote uptake of established on-farm good practice tailored to variety/ region	<ul style="list-style-type: none"> Evidence of participation in extension programs/knowledge transfer events by growers and industry 	<ul style="list-style-type: none"> Economic analysis
	Facilitate access to crop protectants and regulants of high value to growers	<ul style="list-style-type: none"> Evidence of awareness and behaviour change with respect to uptake of proven technologies and management practices 	<ul style="list-style-type: none"> R&D project records
	Identify and use proven technologies and automation that reduces costs and improves marketable yields	<ul style="list-style-type: none"> New technology is understood and implemented in Australian production systems where possible 	
	Review and prioritise the main constraints, such as, irregular bearing, pest and disease, rootstock selection, nutrition and irrigation management, to increasing farm productivity and address those with the greatest national impact	<ul style="list-style-type: none"> Management practices to reduce irregular bearing confirmed and implemented on-farm 	
	Maintain and improve biosecurity	<ul style="list-style-type: none"> No new incursions of pests and diseases 	

Reporting

The program framework in **Figure 10** 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 and 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.

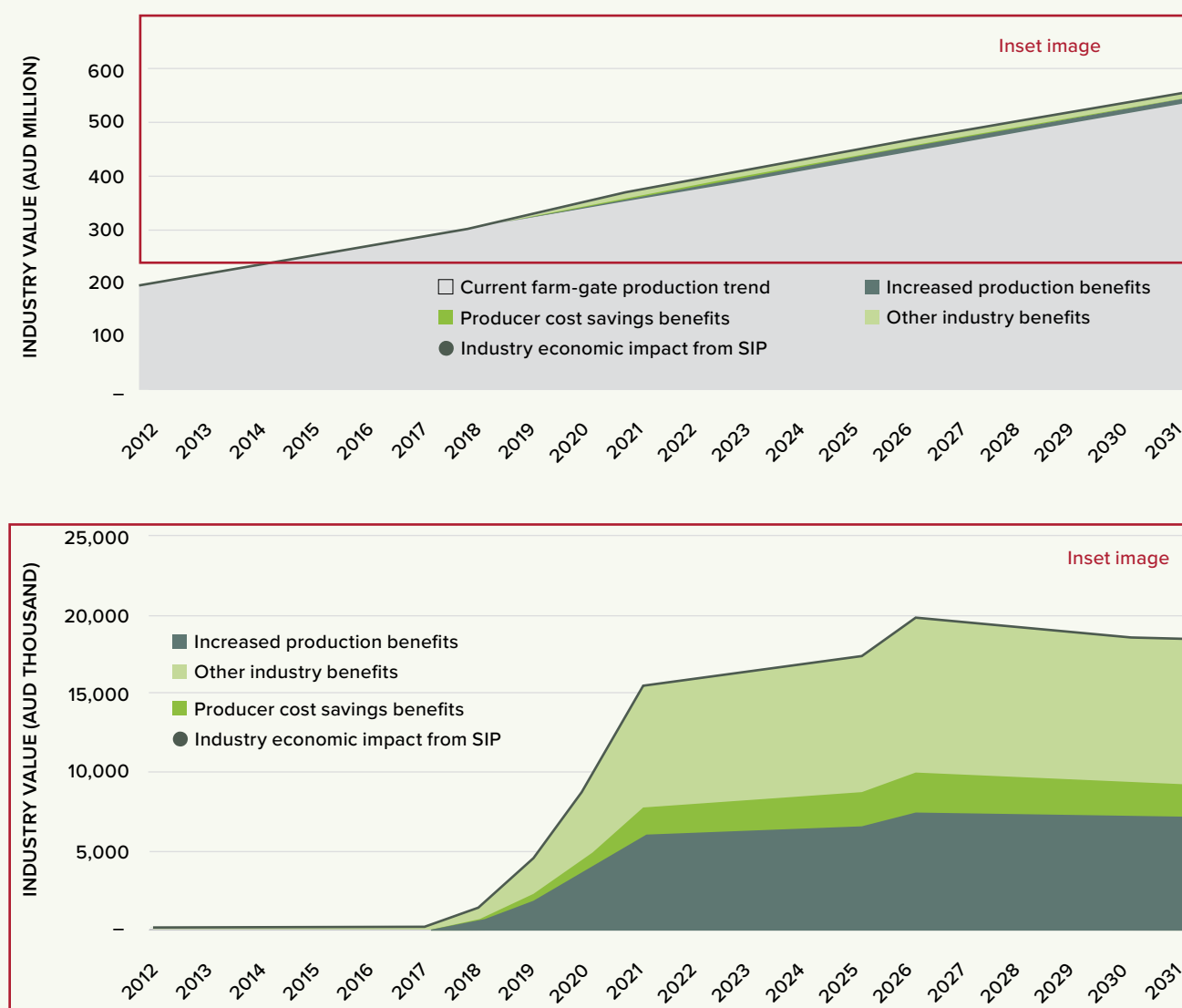
Figure 10: Hort Innovation's program framework



SECTION FIVE

Impact assessment

Figure 11: Economic benefit from investment in the SIP



An independent assessment of the potential economic impacts from investment into the avocado SIP indicated a positive return on investment for the industry (**Figure 11**). The anticipated investment of \$31.48 million over the next five years in R&D, extension and marketing activities is expected to generate \$211.20 million in net benefits for the industry, representing a benefit cost ratio of 6.71 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 3 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 3: Overview of impacts assessed and alignment with SIP targets

Outcome	Expected deliverables <i>Refer section 3 for further details</i>	Anticipated SIP investment (over five years)	Net benefits (over 15 years)	Return on Investment
Increase domestic demand for Australian avocados	<ul style="list-style-type: none"> Domestic marketing strategy and program Strategic relationship management with major retailers Production and market information system R&D plan to improve reliability and consistency of year-round supply Industry practices that strengthen the reputation of the industry 	\$7,871,011	\$42,931,208	5.45
Exceed consumer expectations on quality	<ul style="list-style-type: none"> National assessment of current practices across the supply chain Audits of industry uptake of best practices Extension and communication program Regular reports of the incidence of damaged Hass avocados 	\$7,871,011	\$52,769,045	6.70
Increase exports in high value markets	<ul style="list-style-type: none"> Tailored market development plans for existing export markets R&D plan to improve reliability and consistency of year-round supply Technical market access strategy in high value markets Plans to improve industry capability and capacity to export Dedicated group of avocado businesses implementing export plans 	\$7,871,011	\$56,574,506	7.19
Increase in on-farm productivity	<ul style="list-style-type: none"> Farm productivity baseline time series Collaboration, extension and dissemination program to accelerate uptake of proven technologies Access required crop protectants and regulants R&D plan to address high priority constraints to farm productivity Monitor and assess biosecurity risks 	\$7,871,011	\$58,921,954	7.49

The quantified impacts associated with Outcome 1 include:

- Increased consumption per capita and price premiums from a new marketing strategy and program for the domestic avocado market
- Market expansion and price premiums from improved relationships with the major supermarkets chains such as Coles and Woolworths
- Market expansion, price premiums and reductions in production costs from the production and market information system – supporting greater alignment to market needs and better decision making throughout the supply chain
- Market expansion and price premium from industry practices that increase consumer confidence and improves the reputation of avocados
- Increased consumption per capita in the domestic market from the implementation of new R&D plans to improve year round supply of avocado.

The quantified impacts from Outcome 2 include:

- Market expansion, price premiums and reductions in waste across the supply chain from the implementation of practices that increase product quality
- Market expansion, price premiums and reductions in production costs from greater uptake of industry best practices
- Increased adoption of best practices including levy funded research outcomes through the extension and communication program
- Increase in consumption per capita due to a reduced percentage of damaged Hass avocados on the market, encouraging more frequent consumer purchases.

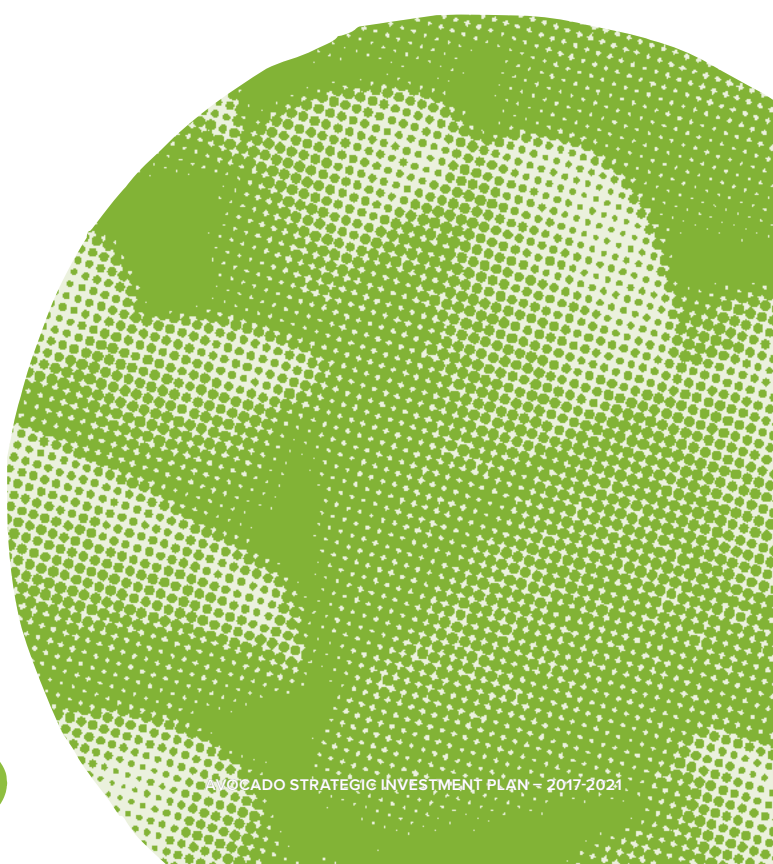
The quantified impacts from Outcome 3 include:

- Market expansion, price premiums and increases in domestic prices from the implementation of tailor market development plans for existing export markets such as Singapore, Malaysia and Hong Kong
- Market expansion, price premiums and increases in domestic prices from greater access to high value markets
- Improved benefits achieved in high value export markets from improvements in industry capacity to meet technical and consumer requirements in these markets
- Improved benefits achieved in exports from the establishment of a dedicated group of avocado exporting businesses to support the development and implementation of the export plans
- Market expansion into export markets from the implementation of new R&D plans to improve year round supply of avocado.

The quantified impacts from Outcome 4 include:

- Increase in production yields and reductions in production costs from improvements in productivity through the use the farm productivity baseline and time series
- Increases in production yields and reductions in production costs from the implementation of an extension program to accelerate adoption of proven technologies and practices
- Increases in crop yield and profitability, and reductions in production losses from greater access to chemicals through a minor use program
- Increases in production yields and reductions in production costs from the implementation of new productivity enhancing solutions to key challenges such as irregular bearing, rootstock selection and nutrition
- Reductions in biosecurity impacts for the industry including industry revenue losses and increases in production costs from the implementation of biosecurity risk monitoring and assessments.

The above economic impact assessment is based on estimates projected 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. Benefits have been adjusted to account for risks associated with achieving research outputs, expected adoption and impacts.



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.

There are two main risks with successful implementation of the SIP:

1. Outcome and timing of potential importation of avocados from Mexico is uncertain
2. Incremental improvement of existing services. Past success with marketing and R&D services is not a guarantee of future success. The very significant increases in the volume of avocados that will be supplied to the market over the next five years will require new thinking with innovation and a concurrent increase in the sense of urgency to anticipate and respond to the changing needs of levy payers. Past marketing and R&D services and associated systems and processes are likely to require step changes to meet the challenges ahead.

APPENDIX 1: Consultation and validation

Industry consultation involved a combination of: interviews with individuals; regional workshops; a meeting with Avocado Australia's board; feedback from three SIAP meetings and an online survey with growers and other industry stakeholders. A report on the findings of the online survey is available separately. The following people are acknowledged for their contribution to the Australian avocado SIP process.

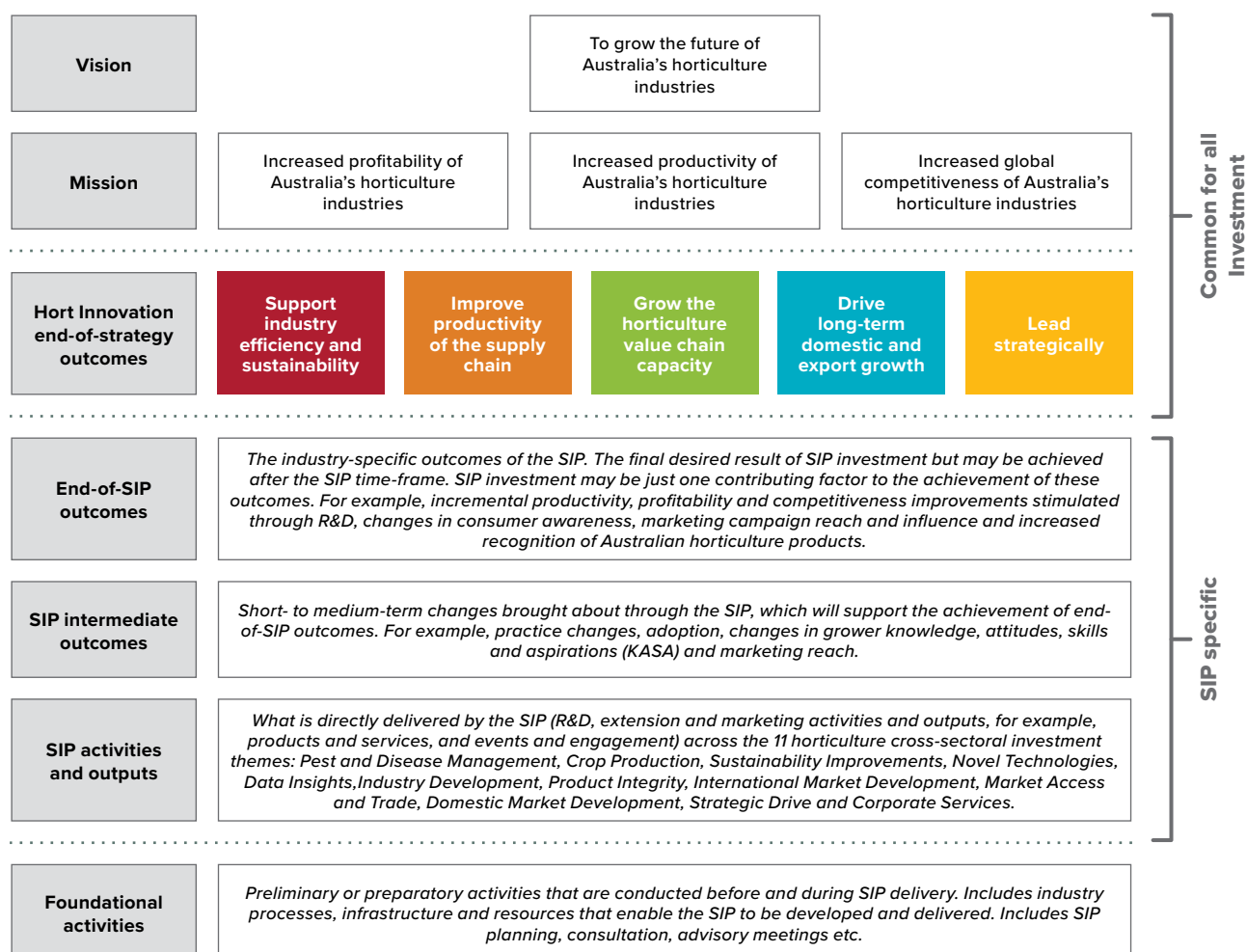
Table 4: Meeting and workshop attendees

Workshop Carabooda, WA	Workshop Pemberton, WA	Workshop Mareeba, Qld	SIAP Meeting Brisbane, Qld	SIAP Meeting Brisbane, Qld
30 August 2016	31 August 2016	15 September 2016	20 October 2016	12 December 2016
Alan Blight	David Bazzani	Fabian Della Bosca	Richard de Vos (Interim Chair)	Richard de Vos (Interim Chair)
Craig Duncan	Laura Bazzani	Anthony Carusi	Daryl Boardman	Daryl Boardman
David Duncan	Sophia Cremasco	Kylie Collins	Kylie Collins	Neil Delroy
Helen Duncan	Neil Delroy	Chelley Howe	Jennie Franceschi	Simon Grabbe
David Morcombe	Wayne Edwards	Peter Howe	Simon Grabbe	Jim Kochi
Angelo Spiccia	Jennie Franceschi	John Jennings	Stewart Ipsen	Simon Newett
Roma Spiccia	Wayne Franceschi	Willen Joubert	Jim Kochi	Cormac te Kloot
Tim Archibald	Vick Grozotis	Louise Kleyn	Simon Newett	John Walsh
	George Ipsen	Matthew Kleyn	Cormac te Kloot	
	Mitchell Ipsen	Henk Van Niekerk	John Walsh	
	Stewart Ipsen	Joe Masasso		
	Dudley Mitchell	Peter Masasso		
	Jason Read	Bernice Terranova		
	Neil Shenton	Anthony Villella		
	John Tyas	Tony Villella		
	Tim Archibald	John Tyas		
		Astrid Hughes		

Table 5: Individual telephone interviews

Name	Name
Antony Allen	Robert Price
Daryl Boardman	Neil Shenton
Lachlan Donovan	Tom Silver
Robert Gray	Kym Thiel
Jim Kochi	John Walsh

APPENDIX 2: Logic hierarchy



APPENDIX 3: Reference documents

ABS Data, *Fresh Intelligence Analysis*

Australian Avocado Export Development Plan 2014-2019

Avocados Australia Limited 2016, *Industry Update and Program Presentation*

Avocados Australia Limited 2016, *Australians can boast highest industry standards for our Avocado* [Media Release, 15/08/16]

Avocados Australia Limited 2016, *Avocado Industry Statistics June 2016*

Avocados Australia Limited 2016, *Facts at a Glance*

Avocados Australia Limited, *Growers, Levy Information*, http://industry.avocado.org.au/Growers/Levy_Information.aspx

Avocados Australia Limited 2016, *Industry Update and Program Presentation*

Commonwealth of Australia 2015, *Australia's relationship with Mexico*, http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Foreign_Affairs_Defence_and_Trade/Australia_Mexico/Report

Horticulture Innovation Australia 2016, *Australian Horticulture Statistics Handbook*, <http://horticulture.com.au/australian-horticulture-statistics-handbook-201415/>

Review Partners 2016, *Review of Australian avocado advertising*

Rudolf Mulderij 2016, *Overview Global Avocado Market*, <http://www.freshplaza.com/article/156557/OVERVIEW-GLOBAL-AVOCADO-MARKET>

Horticulture Innovation Australia Limited

ACN 602 100 149
Level 8, 1 Chifley Square
Sydney NSW 2000
Telephone 02 9295 2300
Fax 02 8295 2399
www.horticulture.com.au