

Pistachio

Strategic Investment Plan

2022-2026



CONTENTS

| | |
|--|-----------|
| Executive summary | 3 |
| The pistachio Strategic Investment Plan | 5 |
| Financial estimates | 6 |
| SECTION ONE: Pistachio industry outcomes | 7 |
| Industry outcomes | 7 |
| SECTION TWO: Pistachio industry strategies | 9 |
| Strategies to address industry investment priorities | 9 |
| SECTION THREE: Pistachio SIP monitoring and evaluation | 12 |
| Pistachio SIP Monitoring and Evaluation Framework | 12 |
| Reporting framework | 14 |
| SECTION FOUR: Collaboration and cross-industry investment | 15 |
| Aligning to the Pistachio Growers' Association Inc. Strategic Plan | 15 |
| Investment opportunities through Hort Frontiers | 15 |
| Hort Frontiers: investment opportunities | 15 |
| Australian-grown Horticulture Sustainability Framework | 16 |
| SECTION FIVE: Hort Innovation | 18 |
| Strategic Investment Plan logic | 18 |
| Aligning to the Hort Innovation investment priorities | 18 |
| SECTION SIX: Appendices | 19 |
| APPENDIX 1: Industry context | 19 |
| APPENDIX 2: Pistachio industry situation analysis | 21 |
| APPENDIX 3: People consulted | 24 |
| APPENDIX 4: Reference material | 24 |
| APPENDIX 5: List of acronyms | 25 |

DISCLAIMER:

Horticulture Innovation Australia Limited (Hort Innovation) makes no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of any information published or made available by Hort Innovation in relation to this SIP.

Your access, use and reliance on any information published or made available by Hort Innovation is entirely at your own risk. The information published or made available by Hort Innovation does not take into account your personal circumstances and you should make your own independent enquiries before making any decision concerning your interests or those of another party or otherwise relying on the information.

Hort Innovation is not responsible for, and will not be liable for, any loss (including indirect or consequential loss), damage, claim, expense, cost (including legal costs) or other liability arising in any way, including from any Hort Innovation or other person's negligence or otherwise from your use or non-use of this SIP, or from reliance on information contained in the material or that Hort Innovation makes available to you by any other means.

COPYRIGHT NOTICE:

Copyright © Horticulture Innovation Australia Limited 2021

Copyright subsists in this SIP.

Horticulture Innovation Australia Limited (Hort Innovation) owns the copyright in the publication, other than as permitted under the Copyright Act 1968 (Cth).

Copying in whole or in part of this publication is prohibited without the prior written consent of Hort Innovation.

Any request or enquiry to use this publication should be addressed to:

Communications Manager
Hort Innovation
Level 7, 141 Walker Street
North Sydney NSW 2060
Australia

Email: communications@horticulture.com.au
Phone: 02 8295 2300



EXECUTIVE SUMMARY

The overarching strategic intent of this Strategic Investment Plan (SIP) is to develop a highly profitable pistachio industry by producing sustainable yields of high-quality pistachio nuts that excite consumers and satisfy food manufacturers, both in Australia and overseas.

The pistachio SIP 2022-2026 provides a roadmap to guide Hort Innovation's investment of pistachio industry levies and Australian Government contributions, ensuring investment decisions are aligned with industry priorities.

The Australian pistachio industry situation in 2019/20 is described on **page 4** with further information provided in **Appendix 1**. The industry has expanded dramatically over the last five years and, with current plantings in the ground is expected to continue its growth with production volume increasing from the current average 2,400 tonnes (averaged across the 2019/20 off-crop/on-crop years) to approximately 12,000 tonnes by 2030. As a result, Australian orchards now achieve an average of about 3,000 kilograms per hectare, over the two-year off-crop/on-crop cycle, peaking at over 6,000 kilograms per hectare in an on-crop year.

Australian production has been largely directed at the domestic market. Australian domestic prices reflect the landed cost of imported pistachio nuts and therefore the return to growers exceeds what could be achieved by exporting the Australian product to European or Asian markets. Current (FY2020) Australian consumption is about 4,200 tonnes per annum with approximately half of the domestic demand supplied from Australian production and the remainder supplied from imported product. It is forecast that by 2025 Australian production will meet domestic demand with increasing production needing to be exported beyond this period.

The strategic intent of the pistachio SIP provides a summary of how the pistachio industry will drive change over the

life of the SIP. The key focus for the SIP will be to maximise sustainable yields of high-quality pistachio nuts from Australian orchards through improved production tools and to maximise consumer perceptions of Australian pistachio nuts by constantly improving appearance and taste.

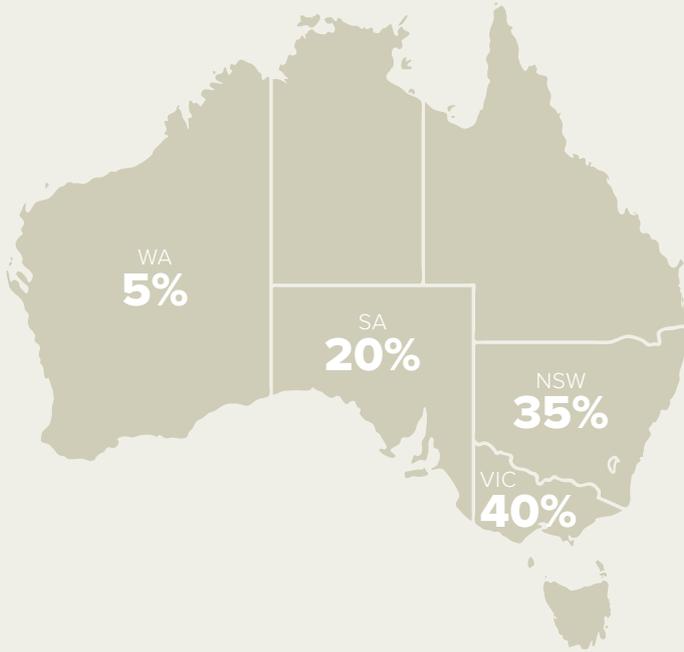
The financial estimates give an indicative overview of the funding available for the period of FY2022-FY2026. While a major portion of the available investment funds are currently allocated to key projects in the early years of the SIP, available funds for investment will increase over the life of the SIP, both because of current projects concluding, and the potentially increased levy because of forecast increasing production.

The four outcome areas of this SIP cover significant themes under which programs and investments will be focused. These are listed in priority order for the pistachio industry, emphasising production practices that optimise returns and reduce the risk to growers, particularly with respect to managing climate variability and chill requirements. Other key areas include a reduction in staining (particularly dark stain); a reduction in the percentage of blank nuts (parthenocarpic fruit); and effective nutrition, pest and disease, and water-use management. These key project areas will be fundamental drivers of this SIP.

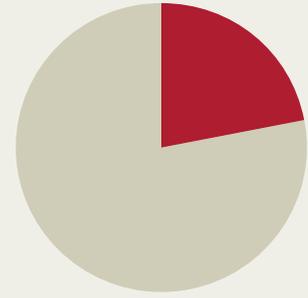
The key performance indicators (KPIs) detail how the impact of each strategy will be measured. For example, 75% (by count) of Australian mature orchards achieving average yields over the off-crop/on-crop cycle of over 3,000 tonnes per hectare; and pest and disease management strategies that mitigate crop loss.



PRODUCTION REGIONS:



EXPORT/DOMESTIC:



■ Export 22%
■ Domestic 78%

PRODUCTION AREA:



1,200 hectares

PRODUCTION WINDOW:



Feb-Apr

NUMBER OF GROWERS:



Approx. **45**

PER CAPITA CONSUMPTION:



0.22 kg

PRODUCTION VOLUMES:



2,900 tonnes

(in-shell weight) in 2019/20

FARMGATE VALUE OF PRODUCT:



\$35.8 million

in 2019/20

GROWTH TRENDS:



SINCE 2000...

AVERAGE ANNUAL GROWTH +9%



Average annual growth rate of **9% per annum** since 2000

THE PISTACHIO STRATEGIC INVESTMENT PLAN

This pistachio SIP is the roadmap that will guide Hort Innovation’s oversight and management of the pistachio industry’s investment programs. It lays the foundation for decision-making in investments and represents the balanced interest of the whole industry. The important function of this SIP is to ensure that the investment decisions align with pistachio industry priorities.

Hort Innovation has led the process for developing the pistachio SIP, listening and engaging with growers and key stakeholders including Industry Representative Bodies (IRBs) and expertise available through advisory mechanisms and delivery partners. The process involved consultation with and input from a wide range of levy payers, objective analysis of performance and learning from the industry’s strategic plan, and environmental scanning to identify emergent trends and issues that could impact on industry profitability and sustainability.

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

The whole-of-company approach taken by Hort Innovation to produce this SIP has harnessed existing external and internal knowledge, learning, partnerships and relationships.

The output is a tailored plan with which the pistachio industry can be confident of its strategic intent, with visibility on how investment impacts will be identified.

Hort Innovation has developed this SIP for the pistachio industry to strategically invest the pistachio collective industry fund (CIF) into the priority areas identified and agreed by the industry.

This SIP represents the Australian pistachio industry’s collective view of its research and development (R&D) needs over the next five years (2022-2026). Learning, achievements and analysis of the previous SIP, consultation with Australian pistachio levy payers, and synthesis of various strategic documents have been incorporated into the development of this SIP. **Appendix 3** acknowledges the people who were consulted in the preparation and validation of this SIP. Statistics and data within this publication are sourced from the Australian Horticulture Statistic Handbook 2019/20 and other documents unless stated otherwise and are listed in **Appendix 4**. A list of acronyms used within the document is available in **Appendix 5**.



The important function of this SIP is to ensure that the investment decisions align with pistachio industry priorities.

Financial estimates

The annual revenue from CIF income and Australian Government contributions for eligible R&D set the overall budget parameters for the pistachio SIP. Importantly, a portion of these funds is already committed, as the industry has a current multi-year project for research, development and extension (RD&E) activities. In addition, the levy income from year to year will vary due to changes in seasonal and market conditions. The financial estimates used for the purpose of developing this SIP are presented in **Table 1** below and are indicative. The intention of the table is to offer a strategic overview of the industry fund at a specific point in time, and the figures will be regularly reviewed to reflect the latest information for the industry and any changes in investment priority.

TABLE 1. Indicative financial estimates for the pistachio SIP over the life of the SIP

| | 2022 \$ | 2023 \$ | 2024 \$ | 2025 \$ | 2026 \$ |
|------------------------------------|------------------|----------------|---------------|---------------|---------------|
| R&D | | | | | |
| Balance end FY2021 | \$192,038 | | | | |
| Estimated CIF funds (growers) | 80,000 | 60,000 | 60,000 | 60,000 | 60,000 |
| Australian Government contribution | 96,158 | 96,158 | 115,811 | 85,324 | 85,324 |
| Current investments | 139,046 | 139,046 | 173,596 | – | – |
| New investments | 30,000 | 30,000 | 30,000 | 150,000 | 150,000 |
| Total project investments | 169,046 | 169,046 | 203,596 | 150,000 | 150,000 |
| CCR | 23,270 | 23,270 | 28,026 | 20,648 | 20,648 |
| Projected end balance | 160,000 | 125,000 | 71,660 | 47,850 | 24,000 |

Disclaimer: All figures are indicative only and may change depending on actual income and expenditure.

Balance end FY2021 – The closing balance of the fund as at 30 June 2021

Estimated levy funds – Net levy income/revenue that is generated and collected by levy revenue services (LRS)

CIF – Collective industry fund: voluntary grower levy

Australian Government contribution – Amount of contribution from the Australian Government on R&D levy-funded expenditure

Current investments – Current estimated value of contracted projects

New investments – The estimated dollar value that is available for potential new investments for industry subject to industry advice

CCR – Corporate cost recovery: the cost to implement and manage R&D and marketing investment programs for each industry

Projected end balance – Forecast of the anticipated final position of the fund





PISTACHIO INDUSTRY OUTCOMES

The overarching strategic intent of this SIP is to develop a highly profitable pistachio industry by producing sustainable yields of high-quality pistachio nuts that excite consumers and satisfy food manufacturers, both in Australia and overseas.

Industry outcomes

Outcome statements as identified and prioritised by the pistachio industry have been prepared under four key outcome areas: demand creation; industry supply, productivity and sustainability; extension and capability; and business insights.

OUTCOME 1: Demand creation

Contribute to improving consumer knowledge, attitudes and purchase intent to drive volume growth.

Demand creation will support the industry to improve consumer perceptions of Australian pistachio nuts by constantly improving appearance and taste, and promoting health benefits in the marketplace.

The strategic intent of this outcome is to maintain and strengthen consumer demand as the foundation for sustainable expansion of production and consumption in domestic markets. It means the industry is investing to:

- Further develop the domestic market
- Promote and market quality Australian pistachio nuts to the consumer
- Maintain the highest food quality standards
- Ensure that health professionals and other key influencers promote pistachios as a part of a healthy diet
- Identify potential niche export markets that may provide price premiums for Australian pistachios
- Maintain a cooperative and coordinated marketing strategy across the industry.

“This pistachio SIP is the roadmap that will guide Hort Innovation’s oversight and management of the pistachio industry’s investment programs.”

OUTCOME 2: Industry supply, productivity and sustainability

Improve industry productivity (inputs/outputs) to maintain local and international competitiveness, while maintaining viability and sustainability of supply.

Productivity will be driven through reducing costs and inputs and increasing outputs and value. Supply and productivity will be supported through improvements to production efficiencies, which will maximise sustainable yields of high-quality pistachio nuts from Australian orchards through improved production tools.

The strategic intent of this outcome is to accelerate the application of production practices to optimise returns and reduce risk to growers. Achieving the outcome will involve:

- Reviewing and promoting optimum nutritional requirements and standards for pistachio trees under Australian conditions
- Assisting producers to manage climate variability
- Reviewing and promoting irrigation requirements and application to improve water-use efficiencies
- Implementation of effective pest and disease management systems
- Efficient and effective nut harvesting, hulling, drying and storage
- Identification and promotion of suitable varieties and rootstocks
- Summarising key pest and disease knowledge and determining existing knowledge gaps
- Developing, maintaining and promoting effective industry biosecurity preparedness by regularly updating the biosecurity plan for the tree nut industry and implementing on-farm biosecurity and sanitation programs.

OUTCOME 3: Extension and capability

Building capability and innovative culture.

Building capability and an innovative culture will support industry cohesion and increase knowledge, attitudes, skills and aspirations (KASA) to use the relevant investment outputs across the supply and demand initiatives to better manage risk and create positive change.

The strategic intent of this outcome is to manage knowledge, relationships, systems and processes required to communicate effectively with internal and external stakeholders. Achieving the outcome will involve:

- A change in KASA leading to increased adoption of R&D findings, proven management practices, and technologies that will help growers to enhance productivity and reduce production costs associated with irrigation, nutrients, and control of pests and diseases
- Proactive strategic and evidence-based decision-making in businesses and for industry on Investment, priorities and risk management
- Growers, supply chain, media and governments being well informed on industry initiatives and achievements as a vital part of regional communities and networks.

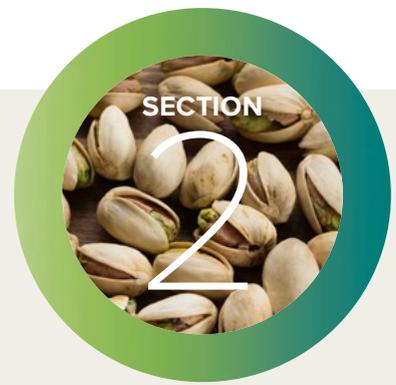
OUTCOME 4: Business insights

Measure industry supply (production) and demand (consumer behaviour) data and insights to inform decision-making.

Business insights will support the industry to remain aware of market and industry trends to drive informed decision-making.

Reliable baseline data and analysis to provide insights and understand current and emerging trends. Key investments will support the provision of consumer knowledge to enable better decision-making process at industry level and individual businesses.

These investments underpin and are complementary to the delivery of the other outcome areas.



PISTACHIO INDUSTRY STRATEGIES

Strategies to address industry investment priorities

The strategies and identified impacts for each of the key outcome areas are described in the tables below. The highest priority investments lay the foundation for the SIP, and its implementation will require a balanced approach to ensure the industry has a high likelihood of success over the short term (0-3 years), medium term (3-5 years) and long term (5-10 years).

The ability to deliver on these strategies (and subsequent investments) will be determined by the ability of the CIF to provide adequate or sufficient resources. Further resources and efficiencies may become available through alternative funding sources such as Hort Frontiers strategic partnership initiative, external grants and/or cross-industry initiatives.

OUTCOME 1: Demand creation

Demand creation supports the Australian pistachio industry to improve consumer perceptions of Australian pistachio nuts by constantly improving appearance and taste, and promoting health benefits in the marketplace.

| STRATEGIES | POTENTIAL BENEFIT OR IMPACT |
|--|--|
| 1. Continue marketing the fresh taste of Australian pistachios directly to Australian consumers | <ul style="list-style-type: none"> Increased Australian demand for pistachios |
| 2. Maintain and improve access to current and potential international markets for Australian pistachios | <ul style="list-style-type: none"> Increased export sales to target markets |
| 3. Investigate the opportunities for the export of fresh pistachio nuts via an export feasibility study and pursue opportunities if viable | |
| 4. Educate health care professionals (HCPs) and other key influencers using current nutritional information and data | <ul style="list-style-type: none"> Increased consumer awareness of the nutritional benefits of pistachios on human health |



“Demand creation will support the industry to improve consumer perceptions of Australian pistachio nuts by constantly improving appearance and taste, and promoting health benefits in the marketplace.”

OUTCOME 2: Industry supply, productivity and sustainability

The Australian pistachio industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable best management practices (BMPs).

| STRATEGIES | POTENTIAL BENEFIT OR IMPACT |
|--|--|
| 1. Improve industry preparedness and resilience to biosecurity threats | <ul style="list-style-type: none"> The industry is prepared to rapidly respond to an exotic outbreak and minimise on-farm impacts Growers are aware of endemic and exotic threats and actively prevent biosecurity threats from entering farms |
| 2. Develop orchard BMP technologies for water use, pruning, integrated pest and disease management (IDPM), and nutrition to improve production efficiency and maximise yield, size, appearance, and taste while addressing climate variability | <ul style="list-style-type: none"> Sustainable yield gains for Australian pistachio orchards from improved, efficient production techniques and new orchards Water-use efficiency enhanced, meeting industry and horticultural best practice Reduced losses from pest and disease Improved processing efficiency Continual improvement in appearance and consumer appeal of Australian pistachio nuts |
| 3. Define the Australian pistachio industry sustainability program and credentials | <ul style="list-style-type: none"> The Australian pistachio industry has a sustainable carbon footprint and options to continue to reduce this footprint |
| 4. Ensure premium scions and rootstocks are available to producers | <ul style="list-style-type: none"> Security of current industry germplasm repository Nursery trees are well structured and are free of pests and pathogens |
| 5. Develop and maintain programs that ensure quality nuts from producers | <ul style="list-style-type: none"> The Australian pistachio industry maintains its high-quality reputation for quality and safety Continual improvement in appearance and consumer appeal of Australian pistachio nuts meets and exceeds consumer expectations Higher returns for growers through increased overall production of highest-quality pistachio nuts |

OUTCOME 3: Extension and capability

Improved capability and an innovative culture in the Australian pistachio industry maximises investments in productivity and demand.

| STRATEGIES | POTENTIAL BENEFIT OR IMPACT |
|--|--|
| 1. Deliver extension and communication capabilities to support industry achievement of priorities across the other outcome areas | <ul style="list-style-type: none"> A change/progression in awareness, knowledge and attitudes for grower profitability and sustainability which support the adoption of best practice and innovations |
| 2. Provide the opportunity for required engagement levels for industry across industry members and relevant stakeholders to innovate through trusted relationships | <ul style="list-style-type: none"> Improved engagement contributes to a stronger, more resilient industry. In addition, improved networks and cross-industry collaboration increase efficiencies and use of R&D outputs build a stronger, more resilient industry |

OUTCOME 4: Business insights

The Australian pistachio industry is more profitable through informed decision-making using consumer knowledge and tracking.

| STRATEGIES | POTENTIAL BENEFIT OR IMPACT |
|---|---|
| 1. Increase industry alignment with quality and brand-positioning opportunities driven by consumer insights* | <ul style="list-style-type: none"> • Provision of business insights to deliver against demand, supply and extension outcomes • New information to better target pistachio products and meet consumer expectations |
| 2. Use industry production benchmarking activity to measure and track industry productivity, profitability and sustainability metrics | <ul style="list-style-type: none"> • Increased yield, size, appearance and taste of Australian pistachio nuts |

* Foundational investments provide data and information that underpin the delivery of other SIP outcome areas and will be aligned to this strategy. Foundational investment areas include:

- Consumer behavioural data
- Consumer usage and attitudes, and brand health tracking data
- Impact assessments
- Trade data
- Crop protectant data.





PISTACHIO SIP MONITORING AND EVALUATION

The pistachio SIP Monitoring and Evaluation (M&E) Framework development has been informed by Hort Innovation’s Organisational Evaluation Framework.

Progress against the SIP will be reported in Hort Innovation publications and through industry communication channels. The SIP outcomes and strategies are used to inform KPIs that in turn drive the investments and individual projects to deliver on the SIP. Projects responsible for delivering the strategy aligned with each KPI will collect the data.

An M&E and reporting framework is shown below. The framework shows what will be measured to demonstrate progress against the SIP and how metrics will be tracked. Reporting on KPIs will be processed through various formal channels to inform industry and government investors of progress, performance, and impact. Data sources to support M&E will be identified and collected as part of the requirements for each levy investment.

Hort Innovation will facilitate the regular review of the SIP to ensure it remains relevant to industry.

Pistachio SIP Monitoring and Evaluation Framework

The pistachio SIP M&E Framework is shown below. It includes KPIs and data collection methods both at a macro/industry (trend) level and at more specific SIP strategic level/s.

| OUTCOME | STRATEGIES | KPIs |
|--|--|--|
| Demand creation | | |
| Outcome 1: Demand creation supports the Australian pistachio industry to improve consumer perceptions of Australian pistachio nuts by constantly improving appearance and taste, and promoting health benefits in the marketplace. | 1. Continue marketing the fresh taste of Australian pistachios directly to Australian consumers | <ul style="list-style-type: none"> Increased domestic consumption |
| | 2. Maintain and improve access to current and potential international markets for Australian pistachios | <ul style="list-style-type: none"> Support for technical market access Improved access to export markets |
| | 3. Investigate the opportunities for the export of fresh pistachio nuts via an export feasibility study and pursue opportunities if viable | <ul style="list-style-type: none"> Utilisation of export feasibility material to support increased trade |
| | 4. Educate HCPs and other key influencers using current nutritional information and data | <ul style="list-style-type: none"> Increased knowledge of HCPs and key influencers regarding nutritional status of pistachios |



| OUTCOME | STRATEGIES | KPIs |
|--|---|---|
| Industry supply, productivity and sustainability | | |
| <p>Outcome 2: The Australian pistachio industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable BMPs.</p> | <ol style="list-style-type: none"> 1. Improve industry preparedness and resilience to biosecurity threats 2. Develop orchard BMP technologies for water use, pruning, IPDM, and nutrition to improve production efficiency and maximise yield, size, appearance, and taste while addressing climate variability 3. Define the Australian pistachio industry sustainability program and credentials 4. Ensure premium scions and rootstocks are available to producers 5. Develop and maintain programs that ensure quality nuts from producers | <ul style="list-style-type: none"> • Maintenance/tracking of the implementation of an industry biosecurity plan • Development of risk analyses of high priority pests including entry pathways, establishment and spread potential • Increased on-farm uptake of a biosecurity plan • Increased knowledge and adoption of sustainable orchard BMPs by 75% of industry • Pest and disease management strategies that mitigate crop loss co-developed with growers and utilised by 75% of industry • Maintenance of the insect damage free status of pistachio orchards • Improved water-use efficiency that meets industry and horticultural best practice • 75% (by count) of Australian mature orchards achieving average yields over the off-crop/ on-crop years of over 3,000 kilograms per hectare (7.5 kilograms/female tree) by 2025 • 75% (by count) of Australian orchards achieving a medium nut count of less than 90 nuts/100 grams by 2025 • 75% (by count) of Australian orchards achieving less than 4% of dark stain in all seasons • Defined Australian pistachio industry sustainability program and credentials • Positive change in KASA within the grower community for the Australian pistachio industry sustainability program • Increased grower knowledge and uptake of premium scions and rootstocks • Improved nut quality as reported by the industry quality benchmarking studies |



| OUTCOME | STRATEGIES | KPIs |
|---|--|--|
| Extension and capability | | |
| Outcome 3: Improved capability and an innovative culture in the Australian pistachio industry maximises investments in productivity and demand. | 1. Deliver extension and communication capabilities to support industry achievement of priorities across the other outcome areas | <ul style="list-style-type: none"> Establishment of a baseline and then increased share of industry with positive change in KASA and practice and implementation of targeted high priority areas (e.g., IPDM, biosecurity, and soil and water management) |
| | 2. Provide the opportunity for required engagement levels for industry across industry members and relevant stakeholders to innovate through trusted relationships | <ul style="list-style-type: none"> Demonstrated growth in cooperation within industry and across industries leading to business and industry innovations (i.e., survey data) |
| Business insights | | |
| Outcome 4: The Australian pistachio industry is more profitable through informed decision-making using consumer knowledge and tracking. | 1. Increase industry alignment with quality and brand-positioning opportunities driven by consumer insights* | <ul style="list-style-type: none"> Delivery of consumer insights strategy Evidence that consumer insights inform strategic market engagement New consumer knowledge available for growers |
| | 2. Use industry production benchmarking activity to measure and track industry productivity, profitability and sustainability metrics | <ul style="list-style-type: none"> Evidence in annual benchmarking reports of targeted metrics in other outcomes |

* Foundational investments provide data and information that underpin the delivery of other SIP outcome areas and will be aligned to this strategy. Foundational investment areas include:

- Consumer behavioural data
- Consumer usage and attitudes, and brand health tracking data
- Impact assessments
- Trade data
- Crop protectant data.

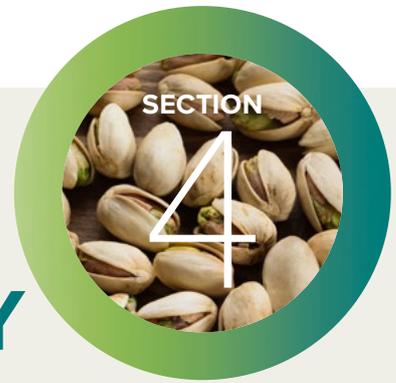
Reporting framework

Hort Innovation will use dynamic reporting aligned to the Organisational Evaluation Framework to report regularly on progress and performance. Reporting will be processed through formal channels to inform industry and government investors.

A review of investment performance against the respective industry outcome and/or strategy-level KPIs for the pistachio SIP will be completed annually as the primary reporting mechanism. The SIP performance report will provide:

- Evidence of progress towards achieving the industry-specific outcomes and strategies through an assessment of the KPIs identified in the SIP
- Evidence of progress towards cross-industry investment strategies and outcomes. This will involve Hort Innovation's whole-of-horticulture reporting obligations and corporate plan, annual reports and Hort Innovation's Annual Operating Plan.

SIP performance reports will also inform the Australian Government of progress towards achieving government priorities. In particular, reporting will support Hort Innovation to meet the Performance Principles and requirements contained in the [Deed of Agreement 2020-2030](#).



COLLABORATION AND CROSS-INDUSTRY INVESTMENT

Based on advice from industry throughout the engagement process, Hort Innovation understands that Australian horticulture industries have common issues, and in turn have identified prospective areas for collaboration and cross-industry or regional investment.

These opportunities have been included as strategies across multiple industry SIPs where relevant and required. By delivering more multi-industry collaboration in research, development and extension (RD&E), marketing and international trade, Hort Innovation aims to support more effective and efficient outcomes for growers and the wider horticulture sector. This includes driving investment through the Hort Frontiers strategic partnership initiative. Importantly, while this approach acknowledges there is value in solving issues across industries and regions, it does not reduce the importance of industry-specific initiatives.

Aligning to the Pistachio Growers' Association Inc. Strategic Plan

The key outcomes and strategies in this SIP align with the Pistachio Growers' Association Inc. (PGAI) Strategic Plan (2021-2026), which includes overall industry strategies and 'key RD&E investment strategies'. This document can be found on the PGAI website here: www.pgai.com.au/industry.

Investment opportunities through Hort Frontiers

Innovation is key to the future success of Australian horticulture. The next evolution of the long-range, higher risk and transformational R&D that has the potential to make a significant impact will be possible through Hort Innovation's Hort Frontiers strategic partnership initiative.

Hort Frontiers is a strategic partnership initiative that facilitates collaborative, cross-industry investments focused on the longer term and more complex themes identified as critical for Australian horticulture by 2030. The partnership framework is currently being established and will include a number of key investment themes for potential investment to guide the initiative and drive transformational R&D across horticulture. Key investment themes will include:

- Environmental sustainability (water, soil and climate)
- Pollination
- Green cities
- Biosecurity
- Health, nutrition and food safety
- Advanced production systems
- International markets
- Leadership
- Novel food and alternate uses (waste reduction).

The development of these areas for investment will benefit all of horticulture, with support from partners with aligned priorities to co-invest in deliverables identified that require alternative funds available outside the levy. Hort Frontiers is being developed to align with the Australian-grown Horticulture Sustainability Framework to invest in specific impact areas to drive innovation and sustainability initiatives.

The pistachio industry views a number of these investment areas as opportunities for success into the future, including:

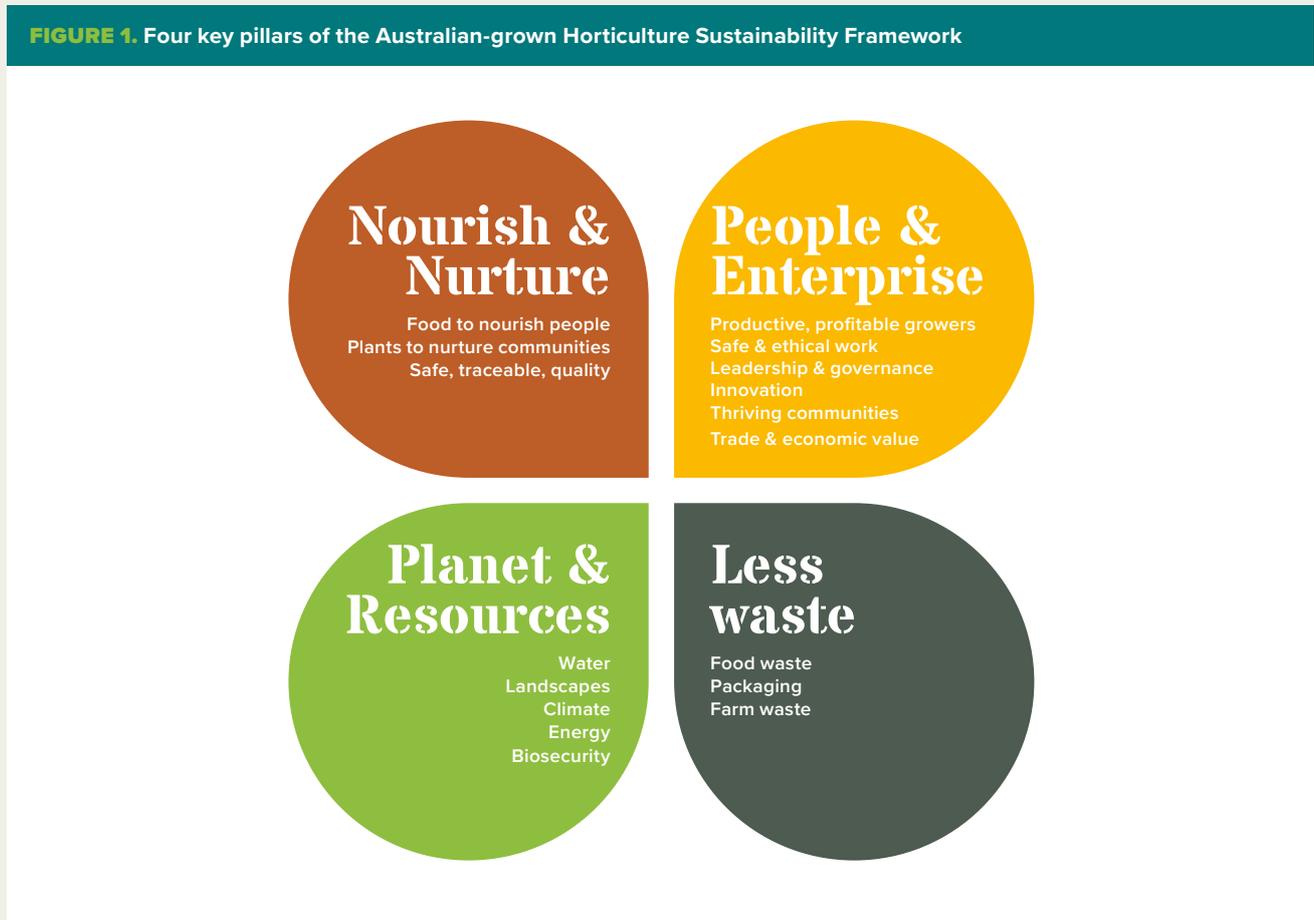
- Climate variability
- Leadership
- Human health and nutrition
- Food safety.

Partnering with Hort Frontiers on these areas would provide the pistachio industry with opportunities for access to world-class research, specialised project management teams and large-scale R&D. All partnerships with Hort Innovation will be done with full knowledge and support of the industry.

Australian-grown Horticulture Sustainability Framework

Hort Innovation has developed the Australian-grown Horticulture Sustainability Framework, aiming to strengthen the horticulture industry’s sustainability to meet the changing expectations and needs of growers, consumers, the community, investors and governments. The framework applies across the whole of Australian horticulture, including fruits, vegetables, nuts, nursery stock and turf. Through widespread consultation with industry and external groups, proposed sustainability goals and indicators were identified and are detailed within the framework. The framework is aligned to the UN Sustainable Development Goals.

Four key pillars were identified in the framework (*Figure 1*).



The framework should be cross-referenced when undertaking prioritisation of investments. At the time of publication, Hort Innovation is working with industry groups regarding the overall responsibility for the framework, setting and reporting progress against the framework targets and performance measures.

View the Australian-grown Horticulture Sustainability Framework on the Hort Innovation website [here](#).

Table 2 provides an example of a pistachio SIP strategy that illustrates how the industry is already aligning to the framework.

TABLE 2. A pistachio SIP strategy example showing how the industry is already aligning to the Australian-grown Horticulture Sustainability Framework

| STRATEGY | POTENTIAL BENEFIT OR IMPACT | SUSTAINABILITY GOAL |
|---|--|---------------------|
| Develop orchard BMP technologies for water use, pruning, IPDM, and nutrition to improve production efficiency and maximise yield, size, appearance, and taste while addressing climate variability. | <ul style="list-style-type: none"> • Sustainable yield gains for Australian pistachio orchards from improved, efficient production techniques and new orchards • Water-use efficiency enhanced, meeting industry and horticultural best practice • Losses from pest and disease reduced • Improved processing efficiency • Continual improvement in appearance and consumer appeal of Australian pistachio nuts | Planet & Resources |



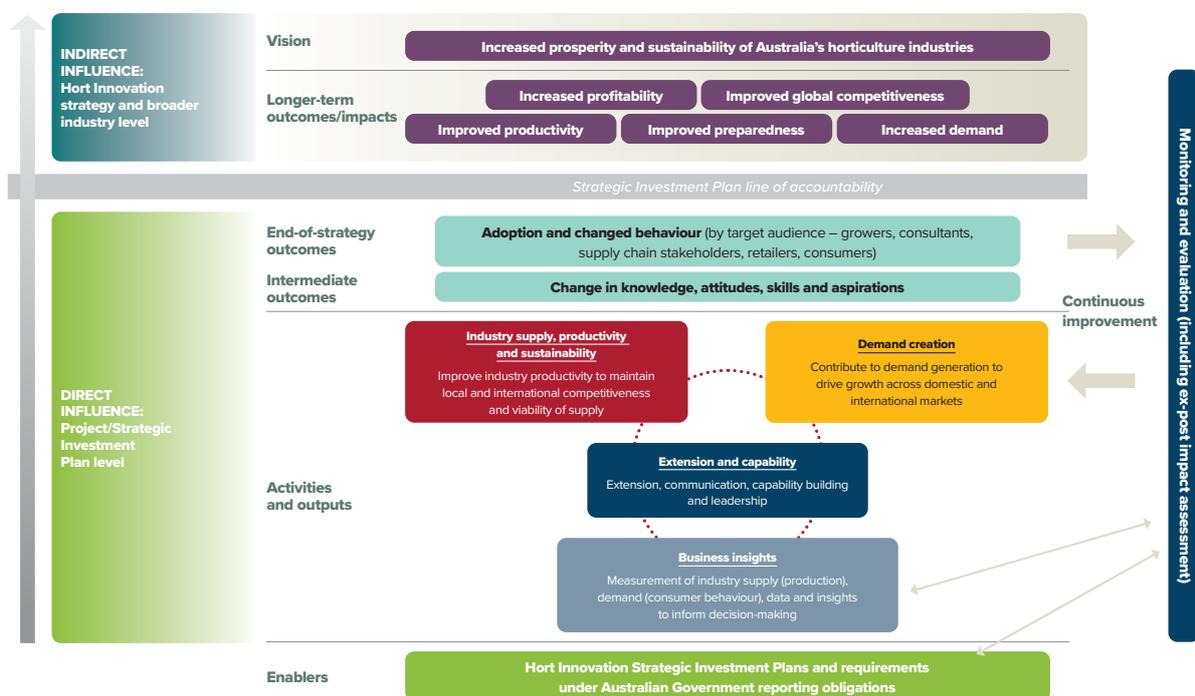
HORT INNOVATION



Strategic Investment Plan logic

The SIP logic (Figure 2) identifies how investment activities and outputs (delivered through each SIP outcome area) will support changes in industry KASA, which drive adoption and behaviour change. Beyond the SIP, investment will contribute to driving longer-term impacts for the sector like increased preparedness, demand, productivity, global competitiveness and profitability. Realising these impacts will support Hort Innovation’s vision of increased prosperity and sustainability of Australia’s horticulture industries.

FIGURE 2. Strategic Investment Plan logic



Aligning to Hort Innovation investment priorities

Hort Innovation is committed to sustainable growth in horticulture, with the overarching aim of increasing the sector’s value to \$20 billion by 2030. We will do this through implementing the SIP and investments against the three core pillars, committed to:

1. Drive knowledge and innovation into horticulture industries
2. Deliver the highest value R&D, marketing and international trade investments across industries now and into the future
3. Enable activities that drive all strategic imperatives.

Hort Innovation is governed by a Deed of Agreement with the Australian Government, which allows for the transfer and

investment of levies and Australian Government contributions. As a Research and Development Corporation (RDC), Hort Innovation is able to leverage industry levy investments in RD&E with Australian Government contributions up to a value of 0.5% of the industry’s gross value of production. All investments made by Hort Innovation are thoroughly considered to ensure they contribute to the guiding performance principles:

- Productivity
- Profitability
- Preparedness for future opportunities and challenges
- Competitiveness
- Demand: demonstrates how productivity, preparedness and demand lead to profitability and competitiveness and sustainability.



APPENDICES

APPENDIX 1: Industry context

Industry production

Pistachio production has fluctuated in line with the usual alternate bearing nature of pistachios over the past four years, with two large production years yielding approximately 3,000 tonnes of production and two years yielding approximately 1,700 tonnes. On average, however, since 2012/13 the pistachio industry has expanded significantly, when production value was only \$19 million, compared to \$40 million in 2020 (Figure 3).

FIGURE 3. Pistachio production, 2012/13 to 2019/20 and forecast to 2025/26



Source: Australian Pioneer Pistachio Company



Exports

The Australian Bureau of Statistics (ABS) export data can be misleading as includes in-shell nuts shipped for shelling and returned as kernels. Exports will expand as crop production exceeds domestic demand from 2024 onwards. Increasing domestic demand remains the primary objective for the period of the SIP.

FIGURE 4. Pistachio exports, 2012/13 to 2019/20



Source: Australian Horticulture Statistics Handbook 2019/20

Pistachio exports made up 21% of industry production by volume in 2019/20, which is relatively high for horticulture. There was a large decrease, however, from 1,324 tonnes in 2018/19 to 597 tonnes in 2019/20. As production volume in total was lower in 2018/19, exports accounted for 72% of industry production for this year, a very large proportion (Figure 4).



APPENDIX 2: Pistachio industry situation analysis

At the time of refreshing the SIP in 2021, the global coronavirus (COVID-19) pandemic continues to affect horticulture industries to varying degrees. Although the outcome and ultimate impact of the pandemic are unknown, areas of investment across horticulture that may be influenced over the period of this SIP include export and trade relationships, domestic and international demand, logistics and supply chain, labour supply – all having potential impacts on grower profitability.

Environmental, economic and social sustainability are vitally important to Australian horticultural growers and industries. Customers, consumers, and investors also seek information about the sustainability and ethics of how their food is produced. Sustainability is particularly crucial as topics such as climate variability, health and ethics continue to shape the social, environmental, and political landscape for agricultural industries. The impact of these issues may have influence on a whole range of investment areas for horticulture from production practices and land management, demand and reputation of products, quality expectations and cultural/community engagement.

Strengths, weaknesses, opportunities and threats

Table 3 has been used to analyse the pistachio industry's strengths, weaknesses, opportunities, and threats (SWOT). The SWOT tool assists the industry to build on what works, observe what is lacking, minimise risks, and take the greatest possible advantage of chances for success.

TABLE 3. Pistachio SWOT analysis

| The pistachio industry | |
|------------------------|---|
| Strengths | <ul style="list-style-type: none"> • Almost all growers use the Australian Pioneer Pistachio Company (APPC) at Robinvale for hulling, drying, sorting and sale. APPC effectively handles almost the entire Australian crop of pistachio nuts • A near 'clean and green' crop. No insecticides and few high toxicity chemicals are used by growers, if any at all • Little evidence of aflatoxin problems that is of high value within the trade environment. Infrequent incidents are well managed • The Australian pistachio industry now has several people with over 20 years' experience in the growing of pistachios • Almost all known growers are members national Pistachio Growers' Association Inc. (PGAI) which enables good co-operation between small and large growers and strong industry co-operation in general • Almost all growers of dry pistachios support the PGAI Research Fund by way of a voluntary contribution • The Australian pistachio industry is seen as one worthy of support by Australian consumers as an Australian-bred and grown healthy nut snack • Australia produces high-quality pistachios (flavour, green kernel colour, light shell colour, high split rate) • Well-funded research program • Industry confidence with production forecast to quadruple over next ten years based on current plantings |



| The pistachio industry | |
|------------------------|--|
| Weaknesses | <ul style="list-style-type: none"> • Alternate bearing cycle of pistachios produce hulling peaks and sales troughs, creating substantial inefficiencies and higher costs in the capital-intensive hulling plant • Too many nuts with shell staining and other damage detracting from profitable returns • Some Australian orchards are not yet achieving optimum yields • Mechanically harvesting is not being efficiently done for some growers resulting in less-than-optimal yields and less than optimal quality • Very slow return on investment combined with adverse tax treatment limits investments in new orchards • The current small industry size is less than the critical mass required to satisfy the Australian market with no existing surplus capacity to cover alternate bearing cycles. NB – this weakness will disappear in the next decade as new plantings come into production • The current single hulling plant provides no alternative should a disaster hit at the beginning of the hulling season. APPC will open a second plant in 2024 to reduce this risk |
| Opportunities | <ul style="list-style-type: none"> • The youth and inexperience of the Australian pistachio industry ensures continued enthusiasm and open minds to achieve the vision of its participants • Expand the demand for Australian Sirora pistachios to ensure that it continues to trade at a premium price to imports. The unified Australian industry sales channel improves the possibility for this to occur • Ensure the Kerman variety or other variety can perform as the second industry variety • Continue to expand total pistachio consumption into the Australian market whilst maintaining the Australian-Mediterranean base • Developing additional niche export markets exploiting the difference of Australian pistachios • Exploiting the clean green growing conditions of Australian pistachios • Industry expansion could be based on the ability of pistachios to succeed with moderately saline water (up to 4,000 ECUs) and high pH soils • Introduce the fresh pistachios to the Australian market, apart from the traditional Mediterranean base in which it is well known and prized • Ensure that the HCPs and other key influencers promote pistachios as a part of a healthy diet • Prolong the shelf life of the fresh in-hull pistachio fruit through research into packaging and the maintenance of the cold chain – blue sky research opportunity • Develop export markets for fresh-in-hull pistachio fruit, as the traditional markets are in the Northern Hemisphere and out of season to Australia. • To include and exploit organic and other non-traditional farming methods • Utilise new social media opportunities to spread the good news of pistachios • Development of Australian-based kernel and AO processing facilities • Determine the Australian pistachio industry's carbon and environmental footprint |



The pistachio industry

Threats

- Complacency – as any moderately successful industry, it should be mindful of unforeseen competition and danger
- A positive detection of aflatoxin in consumer product would be a disaster for the Australian industry
- The dependence on a single commercial variety, Sirora is a risk as it could be susceptible to a variety of pests or diseases
- The immediate threat from the Xanthomonas bacterial disease has eased but it could return
- An insect pest incursion could emerge
- Fungal diseases that have ravaged Californian crops (Botryosphaeria and Alternaria) are appearing more frequently and are causing significant economic loss to affected Australian growers
- A fungal epidemic such as Anthracnose in 2011 could occur again
- The old perception that “nuts = fat = bad” that is restricting purchase by some consumers is not correct, and in fact, pistachios largely contain healthy monounsaturated fats
- Access to reliable supplies of water
- The incident of allergies to nuts that could cause general fears and a reduction in consumption
- The rising value of the Australian dollar. Whilst only currently supplying 30% to 60% of Australian demand provides some cushion against lower import prices, it does not provide total insulation
- The continued surge in world production will probably lower international prices, as has already happened
- Rising energy costs will significantly impact on hulling and farming costs
- The efficient application of irrigation water ensures little drainage into the environment, but this also ensures that all fertilisers remain within the root zone and hence increased risk of the acidification of the root zone
- Climate change may produce insufficient winter chill for the required pistachio dormancy; drier conditions increase the risk of late spring frosts



APPENDIX 3: People consulted

The following people are acknowledged for their contribution to the pistachio SIP development process.

| NAME | INDUSTRY ROLE | REGION |
|-------------------|---|---------------------|
| Chris Joyce | Chair, R&D Committee; Grower; Processor; Marketer | Sydney/Kyalite |
| Ryan Norton | Grower; R&D Committee member | Sunraysia/Robinvale |
| Ian Mau | Grower; R&D Committee member | Mallee |
| Chris Lee | Grower; R&D Committee member; PGAI Executive | Mallee |
| Andrew Bowring | Grower; R&D Committee member | Kyalite |
| Ben Robinson | R&D Committee member | Adelaide |
| Pru McMichael | R&D Committee member | Adelaide |
| Darin Gladigau | Grower; R&D Committee member | Swan Reach |
| Phillipa Crawford | Grower; R&D Committee member | Robinvale |
| David Crawford | Grower; Processor; Marketer | Adelaide/Robinvale |
| Jianlu Zhang | Researcher; R&D Committee observer | Sydney |
| Barbara Isaacson | Grower; R&D Committee observer; PGAI Executive | Riverland |
| Tim Beard | Grower; R&D Committee observer; PGAI Executive | Sunraysia |
| Paul Wurst | Grower; R&D Committee | Riverland |
| Trevor Ranford | PGAI Executive Officer | Adelaide |
| Craig Feutrill | PGAI PIT Group Project Leader | Adelaide |

APPENDIX 4: Reference material

Horticulture Innovation Australia Limited, 2019, Growing into the Future: Strategy 2019-2023

Horticulture Innovation Australia Limited, 2020, Australian Horticulture Statistics Handbook 2019/20

Horticulture Innovation Australia Limited, 2021, Australian-grown Horticulture Sustainability Framework

Pistachio Growers Association, 2021, PGAI Strategic Plan (2021–2026), <https://www.pgai.com.au/>



APPENDIX 5: List of acronyms

| | |
|-----------------|---|
| AIP | Annual Investment Plan |
| APPC | Australian Pioneer Pistachio Company |
| BMP | best management practice |
| CIF | collective industry fund |
| FY | financial year |
| HCP | health care provider |
| IPDM | integrated pest and disease management |
| IRB | Industry Representative Body |
| KASA | knowledge, attitudes, skills and aspirations |
| KPI | key performance indicator |
| M&E | monitoring and evaluation |
| MRL | Maximum Residue Limit |
| PGAI | Pistachio Growers' Association Inc. |
| R&D | research and development |
| RDC | Research and Development Corporation |
| RD&E | research, development and extension |
| SIAP | Strategic Investment Advisory Panel |
| SIP | Strategic Investment Plan |
| SWOT | strengths, weaknesses, opportunities, and threats |



Hort Innovation

Horticulture Innovation Australia Limited
ACN 602 100 149

Level 7, 141 Walker Street
North Sydney NSW 2060 Australia

02 8295 2300 | communications@horticulture.com.au

www.horticulture.com.au