

Chestnut

Strategic Investment Plan

2022-2026



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EXECUTIVE SUMMARY

The overarching strategic intent of this Strategic Investment Plan (SIP) is to grow the chestnut industry by focusing on reducing crop losses through the implementation of sustainable pest and disease management practises (especially nut rot, Phytophthora root rot and chestnut blight) whilst continuing to develop demand for quality Australian chestnuts.

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

The Australian chestnut industry situation in 2019/20 is described on **page 4** with further information provided in **Appendix 1**. The majority of Australian production (about 70%) is from Victoria, with the balance spread across New South Wales/Australian Capital Territory, Tasmania, South Australia, Queensland, and south-west Western Australia.

Australian chestnut production has been largely directed at the domestic market. Chestnuts are almost all sold in a fresh in-shell form. Imports represent around 4.5% of the total Australian market with approximately 65 tonnes imported in kernel during 2019/20. Whilst many Australian consumers know little about chestnuts, there is a growing consumer base beyond the traditional consumer groups with cultural links with the product and familiarity with its preparation, benefits, and use.

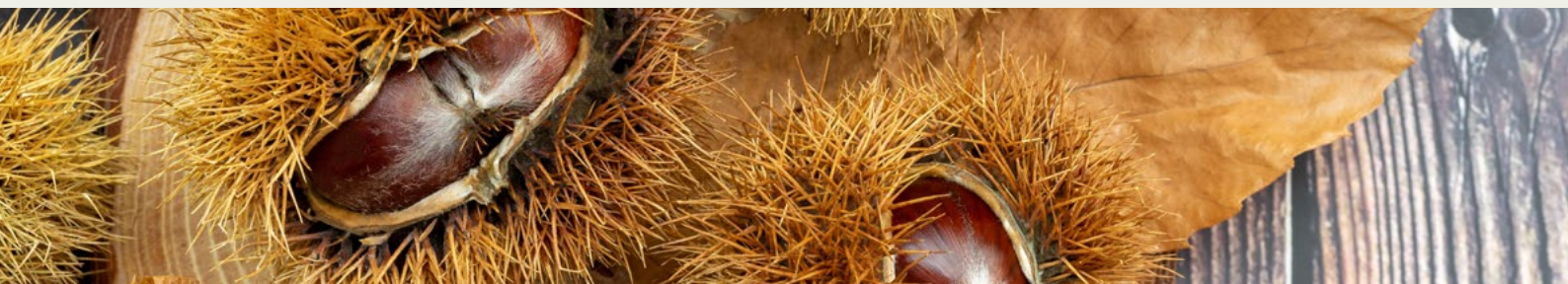
The strategic intent of the chestnut SIP provides a summary of how the chestnut industry will drive change over the life of the SIP. The key focus for the SIP will be to grow the chestnut industry by focusing on reducing crop losses through the implementation of sustainable pest and disease management practices (especially nut rot, Phytophthora root rot and

chestnut blight) whilst continuing to develop demand for quality Australian chestnuts through expanding the consumer knowledge and awareness of the versatility of chestnut consumption and use.

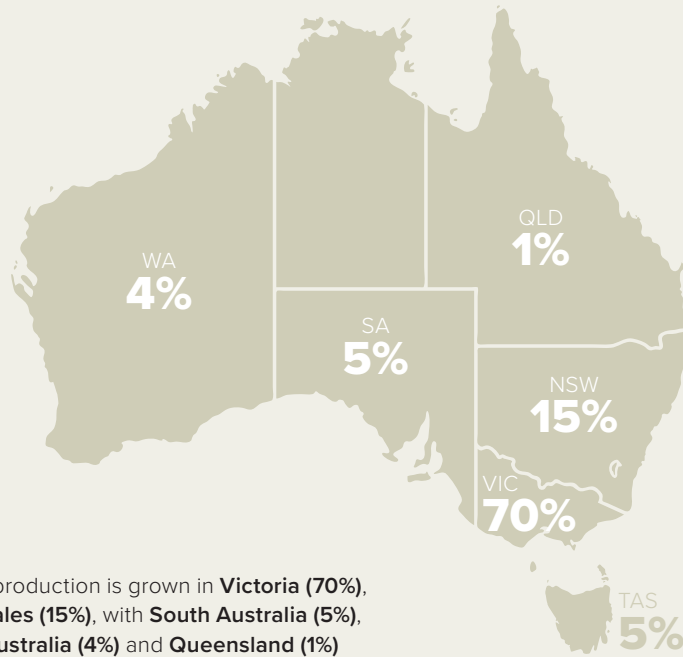
The financial estimates give an indicative overview of the funding availability for the period of FY2022-FY2026. Whilst a major portion of the available investment funds are currently allocated to key projects in the early years of the SIP, available funds for investment will increase over the life of the SIP as current projects conclude.

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 chestnut industry with an emphasis on increasing chestnut demand and production practices that optimise returns and reduce the risk to growers, especially with respect to pest and disease management, biosecurity and orchard best management practice (BMP) implementation. 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, utilisation of nutrition information to support demand, and the adoption of disease management and monitoring strategies to reduce crop loss from chestnut blight, and other major diseases will ensure the strategic intent of the chestnut SIP is achieved.



PRODUCTION REGIONS:



The majority of Australian production is grown in **Victoria (70%)**, followed by **New South Wales (15%)**, with **South Australia (5%)**, **Tasmania (5%)**, **Western Australia (4%)** and **Queensland (1%)** making up the balance of production.

PRODUCTION WINDOW:



Mar-Jun

with some varieties available from storage through to September.

NUMBER OF GROWERS:



300

PRODUCTION VOLUMES:



1,250 tonnes

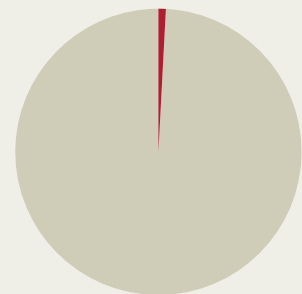
in 2019/20

PER CAPITA CONSUMPTION:



0.5 kg

EXPORT/DOMESTIC:



■ Export 1% ■ Fresh domestic 99%

FARMGATE VALUE OF PRODUCT:



\$9.1 million

in 2019/20

THE CHESTNUT STRATEGIC INVESTMENT PLAN

The chestnut SIP is the roadmap that will guide Hort Innovation's oversight and management of the chestnut 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 chestnut industry priorities.

Hort Innovation has led the process for preparing the refresh of the chestnut SIP, listening and engaging with levy payers and key stakeholders, including Industry Representative Bodies (IRBs), and expertise available through advisory mechanisms and delivery partners. The refresh process involved consultation with and input from a wide range of levy payers, objective analysis of performance and learning from the previous SIP, as well as 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 chestnut 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 chestnut industry can be confident of its strategic intent, including visibility on how investment impacts will be identified. Specific investments to address the SIP strategies and align with industry strategic priorities will be outlined in detail via the chestnut Annual Investment Plan (AIP). The AIP will be published each year over the lifespan of the SIP and detail the investments that will be prioritised based on potential industry impact, as well as the availability of levy funds. Hort Innovation will advise industry stakeholders when the AIP has been published via established communication channels each year. The AIP will be developed with input from the chestnut Strategic Investment Advisory Panel (SIAP), IRBs and other key stakeholders.

Producers in the chestnut industry pay levies to the Department of Agriculture, Water and the Environment, which is responsible for the collection, administration and disbursement of levies and charges on behalf of Australian agricultural industries.

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

Levy is payable on chestnuts that are produced in Australia and either sold by the producer or used by the producer in the production of other goods. The research and development (R&D) levy rate on chestnuts is set at \$45 per tonne. The marketing levy is set at \$50 per tonne.

Hort Innovation manages the chestnut levy funds proportion directed to R&D (\$45 per tonne), and separately Plant Health Australia (PHA) manages plant health programs (\$5 per tonne).

Hort Innovation has developed this SIP for the chestnut industry to strategically invest the collected chestnut levy funds into the priority areas identified and agreed by the chestnut industry.

This SIP represents the Australian chestnut industry's collective view of its R&D and marketing needs over the next five years (2022-2026). Learning, achievements and analysis of the previous SIP, consultation with Australian chestnut 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**.

Financial estimates

The annual revenue from levy income and Australian Government contributions for eligible R&D set the overall budget parameters for this SIP. Importantly, a portion of these funds is already committed, as the industry has current multi-year projects for R&D and marketing 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. Further details will be available within the AIP each year.

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

	2022 \$	2023 \$	2024 \$	2025 \$	2026 \$
R&D					
Balance end FY2021	51,118				
Estimated levy funds (growers)	45,000	45,000	45,000	45,000	45,000
Australian Government contribution	68,862	57,151	49,853	50,111	47,648
Current investments	42,066	22,156	9,750	10,188	11,001
New investments	75,000	75,000	75,000	75,000	70,000
Total project investments	117,066	97,156	84,750	85,188	81,001
CCR	20,659	17,145	14,956	15,033	14,294
Projected end balance	28,000	16,500	11,800	6,500	4,000
MARKETING					
Balance end FY2021	39,435				
Estimated levy funds (growers)	45,000	45,000	45,000	45,000	45,000
Current investments	35,000	–	–	–	–
New investments	–	35,000	35,000	35,000	35,000
Total project investments	35,000	35,000	35,000	35,000	35,000
CCR	8,424	8,424	8,424	8,424	8,424
Projected end balance	33,000	36,000	38,000	41,000	43,000

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)

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



CHESTNUT INDUSTRY OUTCOMES

The overarching strategic intent of this SIP is to grow the chestnut industry by focusing on reducing crop losses through the implementation of sustainable pest and disease management practises (especially nut rot, Phytophthora root rot and chestnut blight) whilst continuing to develop demand for quality Australian chestnuts.

Industry outcomes

Outcome statements as identified and prioritised by the chestnut 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 expand the domestic market. This will contribute to improved consumer knowledge and attitudes, in addition to encouraging purchase intent to drive category volume growth.

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

- Broaden consumer awareness so that chestnuts are more top of mind and purchased more frequently
- Support product positioning with consistent quality, evidence of beneficial product health attributes and responsible industry production practices
- Develop strong relationships across the supply chain with a shared goal to grow the category
- Identify and prioritise domestic market niches (including value-added product options) where there is demand and growth potential for competitive supply of quality Australian chestnuts.



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

OUTCOME 2: Industry supply, productivity and sustainability

Improve industry productivity (inputs/outputs) to maintain local competitiveness and viability of supply.

Supply and productivity will be supported through improvements to production efficiencies that will drive profitability outcomes, while ensuring long-term sustainability outcomes.

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

- Reducing crop losses through the implementation of sustainable pest and disease management practises (especially nut rot, Phytophthora root rot and chestnut blight)
- Maintaining effective industry biosecurity systems
- Identifying value-added product opportunities to maximise product usage
- Proactively monitoring potential crop protection regulatory threats and having access to a broader suite of effective, socially acceptable and environmentally sound crop protection solutions.

OUTCOME 3: Extension and capability

Build capability and innovative culture.

Building capability and innovative culture will support industry to make use of 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 the knowledge, relationships, systems and processes required to communicate effectively with internal and external stakeholders. Achieving the outcome will involve:

- A change/progression in awareness, knowledge and attitudes for grower profitability and sustainability which support the adoption of best practice and innovations
- Maintaining and improving industry cohesiveness, with most businesses and most industry supply chain actively engaged.

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.

The strategic intent of this outcome is to deliver data and insights which is foundational to achieving success in the other three outcome areas.

Achieving the outcome will involve reliable baseline data and analysis to provide insights and understand current and emerging trends. Key investments will support the provision of consumer knowledge and tracking and independent reviews 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.



CHESTNUT 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 statutory levy to provide the resources to do so. Further resources and efficiencies may potentially become available through alternative funding sources by way of Hort Frontiers strategic partnership initiative, external grants and/or cross-industry initiatives.

OUTCOME 1: Demand creation

Demand creation supports the Australian chestnut industry to expand the domestic market.

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Increase domestic consumer demand for Australian chestnuts through improving knowledge, attitudes and purchase intent	<ul style="list-style-type: none"> Increased consumer demand for Australian chestnuts including in-shell, processed and value-added products Increased awareness of health benefits of Australian chestnuts

OUTCOME 2: Industry supply, productivity and sustainability

The Australian chestnut industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable BMPs.

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Develop and optimise fit-for-purpose pest and disease management strategies (especially nut rot, Phytophthora root rot and chestnut blight)	<ul style="list-style-type: none"> Crop loss reduced by sustainable pest and disease practises (e.g., nut rot, Phytophthora root rot, chestnut blight)
2. Improve industry preparedness and resilience to biosecurity threats	<ul style="list-style-type: none"> Significant mitigation of risks of/improved response to exotic pests, especially chestnut blight Improved efficiency and cost effectiveness of biosecurity program through collaboration with nut industries
3. Develop and implement orchard BMPs	<ul style="list-style-type: none"> Industry growth based on accurate and up to date information on pests/diseases, water application, climate variability, nutrition, soil health, pruning, pollination, harvest and orchard mechanisation
4. Prioritise the major crop protection gaps through a Strategic Agrichemical Review Process (SARP)*	<ul style="list-style-type: none"> Available registered or permitted pesticides are evaluated for overall suitability against major disease, insect pests and weed threats. The SARP aims to identify potential future solutions where tools are unavailable or unsuitable
5. Support and co-ordinate crop protection regulatory activities with the potential to impact plant protection product access, both in Australia and internationally*	<ul style="list-style-type: none"> Regulatory Risk Assessments have informed proactive strategic priority setting to avoid pest management gaps in the event access or use is negatively impacted

Continued >>

OUTCOME 2: Industry supply, productivity and sustainability

The Australian chestnut industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable BMPs.

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
6. Generate residue, efficacy and crop safety data to support applications to the Australian Pesticides and Veterinary Medicines Authority (APVMA) that seeks to gain, maintain or broaden access to priority uses for label registrations and/or minor use permits for crop protection needs*	<ul style="list-style-type: none"> • Crop protection solutions meet industry priority needs as identified in the industry SARP or biosecurity plan

OUTCOME 3: Extension and capability

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

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Deliver communication capability to support positive change in the areas of biosecurity, integrated pest and disease management (IDPM) practices and orchard BMPs	<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. Facilitate innovation by providing opportunities for business engagement between and across nut industries, across industry members and relevant stakeholders	<ul style="list-style-type: none"> • Improved understanding contributing to effective networks, collaboration, coordination and cohesion for shared learnings between nut industries

OUTCOME 4: Business insights

The Australian chestnut industry is more profitable through informed decision-making using consumer knowledge and tracking, and independent reviews.

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

* 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.





CHESTNUT SIP MONITORING AND EVALUATION

The chestnut 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.

Chestnut SIP Monitoring and Evaluation Framework

The chestnut 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		
<p>Outcome 1: Demand creation supports the Australian chestnut industry to expand the domestic market.</p>	<p>1. Increase domestic consumer demand for Australian chestnuts through improving knowledge, attitudes and purchase intent</p>	<ul style="list-style-type: none"> • Positive influence on consumer attitudes to consumption of chestnuts • Use of nutritional information to support consumer demand • Increased consumer understanding of chestnut selection and storage



OUTCOME	STRATEGIES	KPIs
Industry supply, productivity and sustainability		
<p>Outcome 2: The Australian chestnut industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable BMPs.</p>	<ol style="list-style-type: none"> 1. Develop and optimise fit-for-purpose pest and disease management strategies (especially nut rot, Phytophthora root rot and chestnut blight) 2. Improve industry preparedness and resilience to biosecurity threats 3. Develop and implement orchard BMPs 4. Prioritise the major crop protection gaps through a SARP* 5. Support and co-ordinate crop protection regulatory activities with the potential to impact plant protection product access, both in Australia and internationally* 6. Generate residue, efficacy and crop safety data to support applications to the APVMA that seeks to gain, maintain or broaden access to priority uses for label registrations and/or minor use permits for crop protection needs* 	<ul style="list-style-type: none"> • New knowledge on disease management and monitoring strategies for nut rot, Phytophthora root rot, chestnut blight, and other key diseases available to industry • Reduced crop loss from internal nut rot, Phytophthora root rot, chestnut blight, and other major diseases • Maintenance/tracking of the implementation of an industry biosecurity plan • Development of updated BMPs in collaboration with industry • Coordinated industry priority setting with a clear outlook of gaps and risks in existing pest control options • Industry priority needs published and shared with stakeholders, including registrants • Regulatory Risk Assessments maintained • Data to support applications to the APVMA and the establishment of Maximum Residue Limits (MRLs)



OUTCOME	STRATEGIES	KPIs
Extension and capability		
Outcome 3: Improved capability and an innovative culture in the Australian chestnut industry maximises investments in productivity.	1. Deliver communication capability to support positive change in the areas of biosecurity, IPDM practices and orchard BMPs	<ul style="list-style-type: none"> An increase in engagement, awareness and knowledge of R&D project outputs especially in relation to crop protection and the health benefits of chestnuts
	2. Facilitate innovation by providing opportunities for business engagement between and across nut industries, across industry members and relevant stakeholders	<ul style="list-style-type: none"> Demonstrated growth in cooperation within industry and across nut industries leading to business and industry innovations
Business insights		
Outcome 4: The Australian chestnut industry is more profitable through informed decision-making using consumer knowledge and tracking, and independent reviews.	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

* 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 chestnut 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. It will involve Hort Innovation’s whole-of-horticulture reporting obligations and corporate plan and involve 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 targeted 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. Where cross-sectoral priorities are identified Hort Innovation will seek to work with other Research and Development Corporations (RDCs) and cross-RDC initiatives such as the Plant Biosecurity Research Initiative. 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.

Cross-industry/regional R&D opportunities identified for the chestnut industry include:

- Nutritional health benefits
- Sustainability
- Leadership and training
- Quality – freshness in supply chain
- Extension.

Cross-industry areas of collaboration for demand-driving outcomes provide the opportunity to advance the prosperity of the sector through gaining efficiencies in the delivery of the program and contributing to stronger overall outcomes. By collaborating as one sector to win the hearts and minds of the consumers, in addition to individual demand-driving programs, there is the potential to enhance the total category value proposition, contributing to driving returns for Australian growers.

Areas of consideration for collaboration across the lifespan of the chestnut SIP 2022-2026 include:

- Communications to bring horticulture to top of mind (saliency) and reposition the benefits it provides to Australian and international consumers
- Retail partnerships to advance total category and shopper demand-driving programs
- A global brand platform to reinforce the unique selling proposition of Australian-grown horticultural produce and to drive preference with international consumers
- Linkages with other nut industries – addressing orchard BMPs and IPDM practices.

Strategic science and research focus

Collaboration across the agriculture research community is essential, including with IRBs and organisations such as the CSIRO, universities, private enterprise and state government agencies. Hort Innovation is a member of the National Horticulture Research Network (NHRN) together with other senior horticultural R&D representatives from state and Australian Government agricultural agencies. The NHRN is responsible for the development and implementation of the broader Horticulture RD&E Strategy under the National Primary Industries RD&E Framework.

Strategic priorities and opportunities identified by Chestnuts Australia Inc. (CAI) have been considered in the development of the chestnut SIP where applicable.

TABLE 2. Government and key agency priorities

Chestnuts Australia Inc. priorities	Rural RD&E for Profit priorities	Australian Government Science and Research priorities
Grower education	Advanced technology	Food
Promotion	Biosecurity	Soil and water
Research	Soil, water and managing natural resources.	Advanced manufacturing
Sharing of information	Adoption of R&D	Environmental change
		Health

In addition, the key outcomes and strategies held within this SIP are in alignment with the CAI R&D priorities provided to Hort Innovation. Continual feedback from CAI members on R&D priorities gained from growers at multiple industry events such as field days and conferences over the last 10 years has consistently been focused on the areas of internal nut rot, Phytophthora root rot and chestnut blight. These priorities will be further addressed each year in the chestnut AIP and aligned to the appropriate SIP strategy.

This SIP has been developed alongside the government and key agency priorities listed in **Table 2**, with consideration of issues faced by the chestnut industry. These strategic areas further emphasise the opportunity and importance of cross-industry and regional collaboration. All the priority areas are of importance to Australian horticulture, and these will play a role in driving the efficiency and effectiveness of investment across the sector.

Annual investment planning

Specific investments to address the SIP strategies and align with industry strategic priorities will be outlined in detail each year via the chestnut AIP. Investment decisions are guided by the SIP and prioritised based on potential industry impact, as well as the availability of levy funds each year. The AIP will be developed with input from the chestnut SIAP, which is made up of growers and other industry representatives as well as IRBs and other key stakeholders. Wherever possible, investments will be aligned to form multi-industry projects to increase the efficiency of funding availability. Details of the SIAP can be found on the Hort Innovation website [here](#), and the AIP will be published on the same page each year.

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 and to invest in specific impact areas to drive innovation and sustainability initiatives.

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

- Intensive production systems
- Farm automation
- Human health and nutrition
- Pollination
- Leadership.

Partnering with Hort Frontiers on these areas would provide the chestnut industry with opportunities for access to world-class research, specialised project management teams and large-scale R&D.

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*).

FIGURE 1. Four key pillars of the Australian-grown Horticulture Sustainability Framework



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 3 provides an example of a chestnut SIP strategy that illustrates how the industry is already aligning to the framework.

TABLE 3. A chestnut SIP strategy example showing how the industry is already aligning to the Australian-grown Horticulture Sustainability Framework

STRATEGY	IMPACT	SUSTAINABILITY GOAL
Develop and implement orchard BMPs	<ul style="list-style-type: none"> Industry growth based on accurate and up to date information on pests/ diseases, water application, climate variability, nutrition, soil health, pruning, pollination, harvest and orchard mechanisation 	Planet & Resources



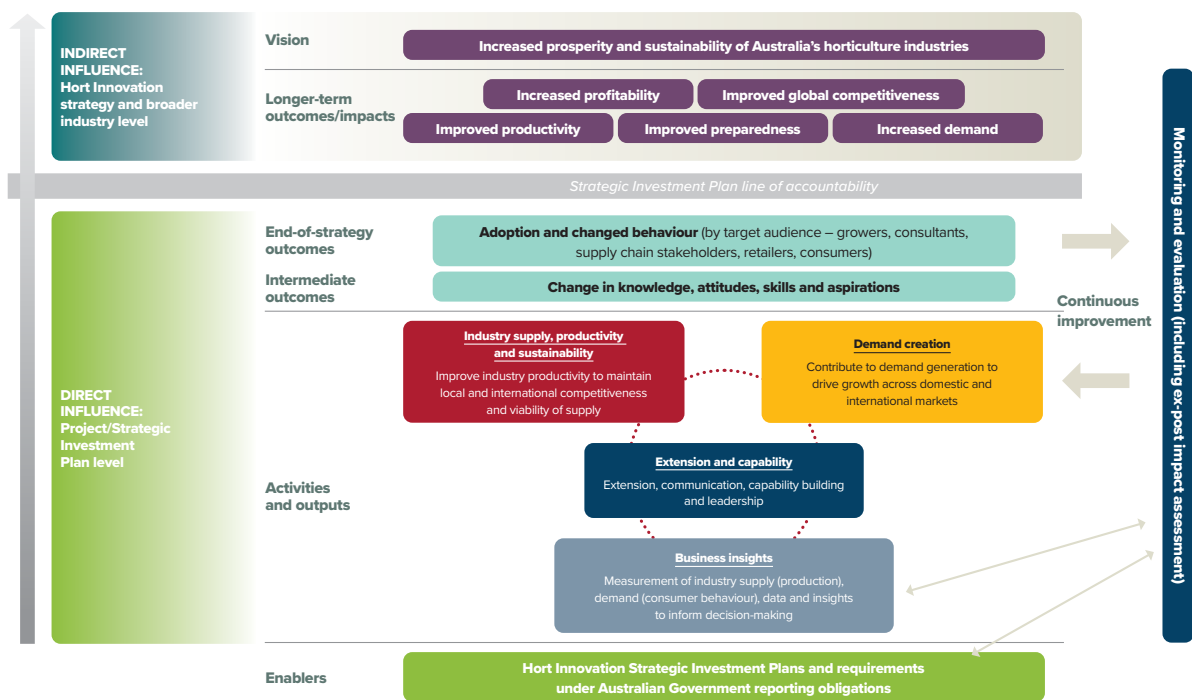
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Strategic Investment Plan logic

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 an 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

Chestnut supply chain

Although chestnuts have been grown in Australia for over a hundred years, the commercial industry was only established in the 1970s. As the industry grows, it is developing supply chains and establishing industry standards in relation to varieties and orchard BMPs and product handling practices.

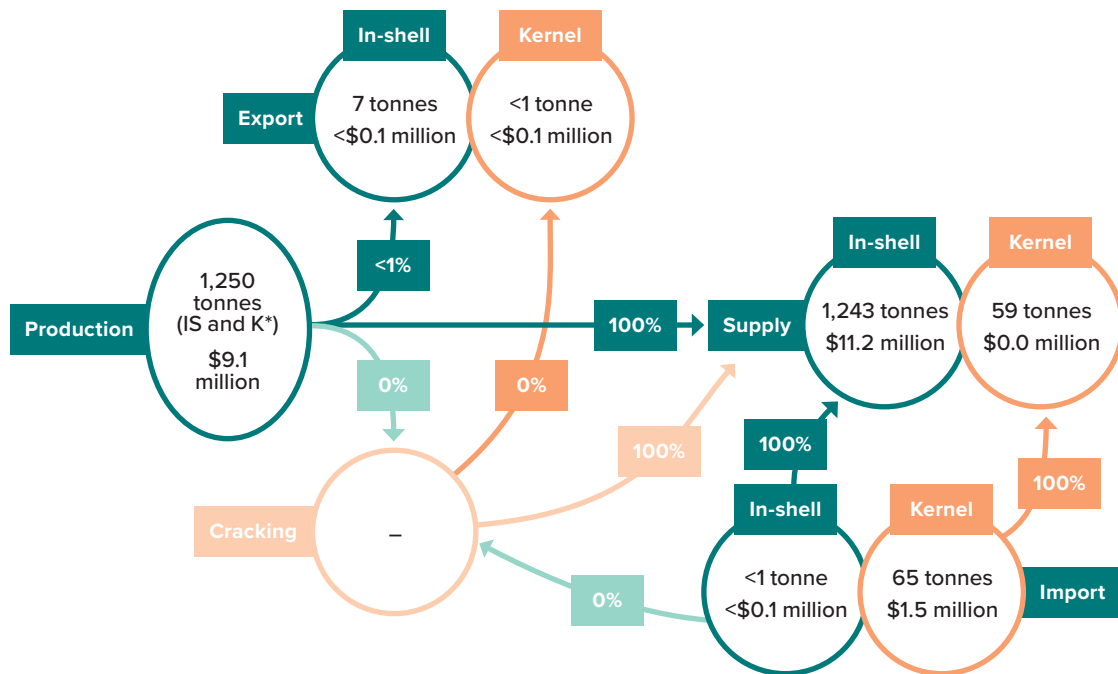
Chestnuts are ideally grown in areas that are hot in summer and cold in winter and preferably 800 metres or more above sea level. Most Australian production is in Victoria (70%) followed by in New South Wales (15%), with South Australia (5%), Tasmania (5%), Western Australia (4%) and Queensland (1%) making up the balance of production¹.

There are approximately 300 chestnut growers in Australia. The industry is characterised by many small family-owned farms, with a handful of large production businesses that make significant income from chestnut production².

1,250 tonnes of chestnuts were produced in 2019/20, with a production value of \$9.1 million (**Figure 3**). Approximately 1,480 hectares are planted to chestnuts.

Chestnuts are in season from March to June, with some varieties available from storage through to September.

FIGURE 3. Chestnut supply chain, 2019/20



* IS = in-shell; K = kernel

1. Horticulture Innovation Australia Limited, 2020, Australian Horticulture Statistics Handbook 2020/21
2. Chestnuts Australia Inc., 2021, RD&E Strategic Program 2015-2018, <https://www.chestnutsaustraliainc.com.au/>

APPENDIX 2: Chestnut 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 4 has been used to analyse the chestnut 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 4. Chestnut SWOT analysis

The chestnut industry	
Strengths	<ul style="list-style-type: none"> • Australia has suitable climatic conditions, know-how and infrastructure to support a vibrant and profitable chestnut industry • The chestnut industry is becoming more professional and commercially focused; marketing groups have formed, and value-added products are being produced • There is strong demand for chestnuts in specific demographic segments, such as European-Australian and Asian-Australian consumers • Chestnuts are suitable as a food for gluten-intolerant people, a key strength to consider for marketing purposes • Chestnuts are a healthy product (e.g., low GI; there is scope to capitalise on advantageous reporting of the health benefits of eating chestnuts)
Weaknesses	<ul style="list-style-type: none"> • Return on investment of growing chestnuts is modest, and production costs are increasing • In 2010/11, about 4,000 trees affected with chestnut blight (an exotic disease) were removed and destroyed. In 2019 eradication of chestnut blight from Australia was considered no longer technically feasible or cost effective and that the emergency response entered a Transition to Management Phase • The industry needs access to new environmentally benign pest and disease control technology that is cost effective to apply • A lack of consumer knowledge about chestnuts weakens consumer demand and price • Variable quality and internal rot weaken demand and work against repeat sales • Not all varieties supplied to the market meet consumer needs; there is demand for better-tasting, easy-to-peel varieties • No strong, recognised chestnut brands. Unlike other horticultural products, such as apples or potatoes, varieties are not differentiated at the retail level • A continuous cool chain is essential for good quality chestnuts; retailers are not always aware or prepared to meet this requirement

The chestnut industry	
Opportunities	<ul style="list-style-type: none"> • Further develop demand by introducing new consumers to the product, including capitalising on restaurant interest in chestnut-based recipes • As supply increases, develop the export sector and capture markets, including those for fresh chestnuts in Asia • Work with other nut industries to research and promote the health benefits of nut consumption. • Form effective R&D and marketing links with chestnut industries in other countries
Threats	<ul style="list-style-type: none"> • Traditional and higher volume purchasers of chestnuts is ageing; younger potential consumers are not currently embracing the product • Imported processed chestnuts add diversity to the market but is significantly cheaper and could be a threat if the Australian industry is unable to market and successfully differentiate its product • Fresh imports are a potential threat if the New Zealand industry can address its issues with disease and other countries are able to meet Australia's strict biosecurity requirements • Industry is adversely affected by nut allergy concerns of consumers



APPENDIX 3: People consulted

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

NAME	INDUSTRY ROLE	REGION
Brian Casey	Grower; Acting President, Chestnuts Australia Inc.	Bright
Tanya Edwards	Communications Officer, Chestnuts Australia Inc.	Myrtleford
Adam Gatford	Grower; Executive Member, Chestnuts Australia Inc.	Albury/Tumbarumba
Luciano Chester	Grower; Executive Member, Chestnuts Australia Inc.	Melbourne
Andrew Hall	Grower; Executive Member, Chestnuts Australia Inc.	Stanley
Darren Cribbes	Executive Member, Chestnuts Australia Inc.	Coleraine
Fred Pucci	Grower; Executive Member, Chestnuts Australia Inc.	Batlow
David McIntyre	Grower; Executive Member, Chestnuts Australia Inc.	Stanley
Trevor Ranford	Industry Development Officer	Adelaide Hills
Alison Saunders	Grower; Chestnut SIAP Member	Canberra/Sassafras
John Stanley	Grower	Manjimup
Josefine Pettersson	Australian Organic Limited	Brisbane

APPENDIX 4: Reference material

Footnotes

1. Horticulture Innovation Australia Limited, 2020, Australian Horticulture Statistics Handbook 2020/21
2. Chestnuts Australia Inc., 2021, RD&E Strategic Program 2015-2018, <https://www.chestnutsaustraliainc.com.au/>

Reference documents

Chestnuts Australia, 2021, Australian Chestnuts <https://www.chestnutsaustralia.com.au/industry/industry-information/general-information.html>

Horticulture Innovation Australia Limited, 2012, Chestnut Strategic Investment Plan 2012-17

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

Horticulture Innovation Australia Limited, 2020, Australian Horticulture Statistics Handbook 2020/21

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



APPENDIX 5: List of acronyms

AIP	Annual Investment Plan
APVMA	Australian Pesticides and Veterinary Medicines Authority
BMP	best management practice
CAI	Chestnuts Australia Inc.
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FY	financial year
GI	glycemic index
IRB	Industry Representative Body
KASA	knowledge, attitudes, skills and aspirations
KPI	key performance indicator
M&E	monitoring and evaluation
MRL	Maximum Residue Limit
NHRN	National Horticulture Research Network
PHA	Plant Health Australia
R&D	research and development
RDC	Research and Development Corporation
RD&E	research, development and extension
SARP	Strategic Agrichemical Review Process
SIAP	Strategic Investment Advisory Panel
SIP	Strategic Investment Plan
SWOT	strengths, weaknesses, opportunities, and threats



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