

Onion

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 onion industry through increasing demand, exploring new export opportunities and increasing global competitiveness.

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

The Australian onion industry situation in 2019/20 is described on **page 4** with further information provided in **Appendix 1**. Production volume has not fluctuated significantly over many years, and was 265,162 tonnes in 2019/20, though farmgate value increased substantially to \$244 million in 2019/20. The majority of production is based in South Australia (48%) and Tasmania (22%) with lower seasonal volumes from Queensland (12%) and local market supply in Western Australia (10%).

Fresh domestic demand continues to be the focus of the industry, which accounted for 77% of the Australian onion supply in 2019/20. Exports are valued at \$30 million, though fluctuate year on year based on short term global trading conditions.

The strategic intent of the onion SIP provides a summary of how the onion industry will drive change over the life of the SIP. Ultimately the industry aims for growth by increasing demand, exploring new, longer-term strategic export opportunities and increasing global competitiveness.

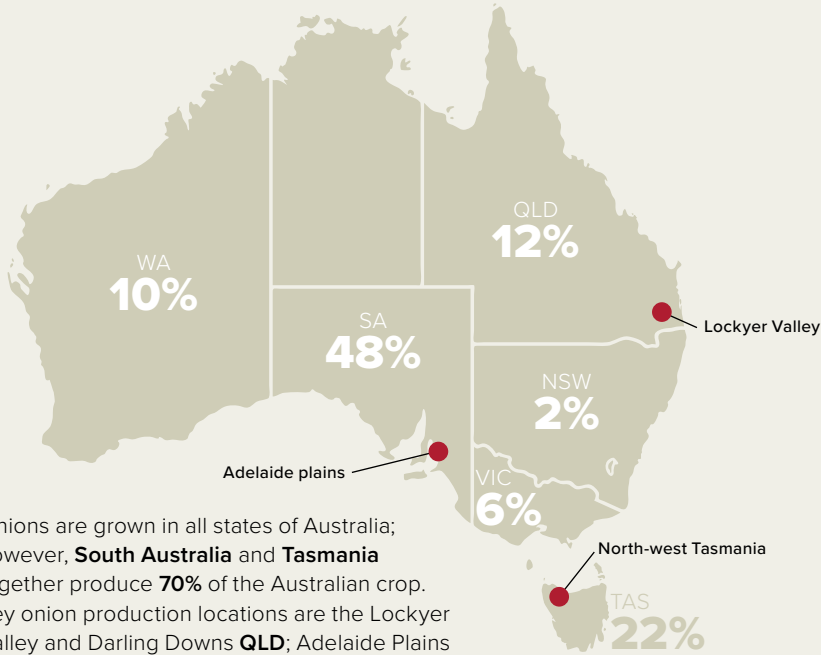
The financial estimates give an indicative overview of the funding availability for the period of FY2022-FY2026. Currently the onion research and development (R&D) fund has capacity to invest, with significant opportunity to invest in R&D investments over the next five years.

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 onion industry. Growing demand, especially longer-term export markets is the highest priority for the industry. This is followed closely by improved supply, productivity and sustainability, which will occur through developing fit-for-purpose pest and disease management strategies, biosecurity awareness and preparedness along with continued improvements for soil health.

The key performance indicators (KPIs) detail how the impact of each strategy will be measured, such as use of nutritional information to support consumer demand, growth in production volume to the foodservice sector, increase in adoption of integrated pest and disease management (IPDM) strategies, and decrease of crop losses from key weeds, insect pests and diseases.

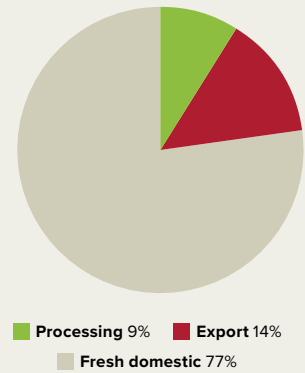


PRODUCTION REGIONS:

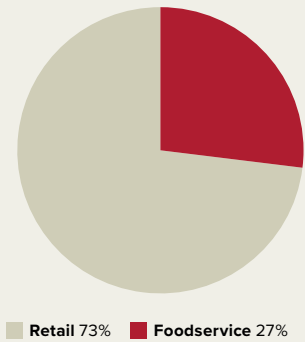


Onions are grown in all states of Australia; however, **South Australia** and **Tasmania** together produce **70%** of the Australian crop. Key onion production locations are the Lockyer Valley and Darling Downs **QLD**; Adelaide Plains and South-eastern **South Australia**; and the North-west region of **Tasmania**.

EXPORT/FRESH DOMESTIC/ PROCESSING:



RETAIL VS FOODSERVICE:



PRODUCTION WINDOW:



Year-round

NUMBER OF GROWERS:



256

PER CAPITA CONSUMPTION:



8.22 kg

in 2019/20

PRODUCTION VOLUMES:



265,162 tonnes

in 2019/20

FARMGATE VALUE OF PRODUCT:



\$244 million

in 2019/20

TRADE:



Onions are the second largest vegetable crop exported with exports valued in 2019/20 of

\$30 million

VARIETIES:



Brown 79%

Shallots <1%

White 1%

Red 19%

THE ONION STRATEGIC INVESTMENT PLAN

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

Hort Innovation has led the process for preparing the refresh of the onion 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 onion 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 onion 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 onion 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 onion Strategic Investment Advisory Panel (SIAP), IRBs and other key stakeholders.

Producers in the onion 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 onions that are produced in Australia and either sold by the producer or used by the producer in the production of other goods.

Hort Innovation manages the onion levy funds proportion directed to R&D set at \$2.90 per tonne and the marketing levy, which is set at \$1.00 per tonne. Separately Plant Health Australia (PHA) manages plant health programs (10 cents per tonne).

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

This SIP represents the Australian onion 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 onion 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 the SIP. Importantly, a portion of these funds are 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 indicative financial estimates used for the purposes of developing this SIP are presented in **Table 1** below. These figures are regularly reviewed to reflect the latest information and statistics for the industry and any changes in investment priority. For further details refer to the onion AIP.

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

	2022 \$	2023 \$	2024 \$	2025 \$	2026 \$
R&D					
Balance end FY2021	2,055,981				
Estimated levy funds (growers)	740,000	740,000	740,000	750,000	750,000
Australian Government contribution	1,463,235	1,192,393	1,031,006	866,982	594,586
Current investments	987,500	785,500	510,000	480,000	15,000
New investments	1,500,000	1,250,000	1,250,000	1,000,000	1,000,000
Total project investments	2,487,500	2,035,500	1,760,000	1,480,000	1,015,000
CCR	438,971	349,287	302,012	253,964	174,172
Projected end balance	1,300,000	822,000	500,000	350,000	470,000
MARKETING					
Balance end FY2021	105,618				
Estimated levy funds (growers)	240,000	240,000	250,000	250,000	250,000
Current investments	10,000	10,000	10,000	10,000	10,000
New investments	220,000	200,000	200,000	200,000	200,000
Total project investments	230,000	210,000	210,000	210,000	210,000
CCR	48,114	43,930	43,930	43,930	43,930
Projected end balance	65,000	52,000	45,000	45,000	44,000

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



ONION INDUSTRY OUTCOMES



The overarching strategic intent of the onion SIP is to grow the onion industry through increasing demand, exploring new export opportunities and increasing global competitiveness.

Industry outcomes

Outcome statements as identified and prioritised by the onion 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.

The Australian onion industry will develop existing and future domestic and international markets. This will contribute to improved consumer knowledge and attitudes and encourage 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 domestic and international markets. It means the industry is investing to:

- Broaden consumer awareness so that onions are more top of mind and purchased more frequently
- Develop strong relationships across the supply chain with a shared goal to grow the category
- Identify and prioritise domestic and international market niches (market segmentation) where there is demand and growth potential for competitive supply of quality Australian onions.

OUTCOME 2: Industry supply, productivity and sustainability

Improve industry productivity (inputs/outputs) to maintain domestic and international 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:

- Developing fit-for-purpose sustainable pest and disease management strategies
- Biosecurity awareness and preparedness
- Continuous improvement in soil health
- Improved input management that reduces costs while maintaining yield and quality
- 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

Building capability and innovative culture.

Building capability and an 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 knowledge, relationships, systems and processes required to communicate effectively with internal and external stakeholders. Achieving the outcome will involve:

- Increasing knowledge, attitude, skills, aspiration (KASA) and practice for grower and industry profitability and sustainability through use of best practices and innovation
- Maintaining and improving industry cohesiveness, with most businesses and the industry supply chain actively engaged
- Growers, value chain, media and governments being well informed on industry initiatives and achievements as a vital part of regional communities and networks
- Increased on-farm use of R&D outcomes which will build a stronger, more resilient industry, in addition to improved networks and cross-industry collaboration
- Proactive strategic and evidence-based decision-making in businesses and for industry on investment, priorities and risk management.

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 of demand creation: supply, productivity and sustainability; and extension and capability.

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, trade data, production statistics, and forecasting, benchmarking and independent reviews to enable better decision-making process at industry level and individual businesses.

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

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



ONION 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 onion industry to develop existing and future domestic and international markets.	
STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Implement an onion industry export strategy focusing on categorising and segmenting market opportunities to deliver strategic growth	<ul style="list-style-type: none"> Coordinated and increased export growth in identified markets
2. Increase domestic consumer demand for Australian onions through improving knowledge, attitudes and purchase intent	<ul style="list-style-type: none"> Increased consumer demand for Australian onions Increased awareness of health benefits of Australian onions Increased use of Australian onions in foodservice and menus Increased awareness of the different varieties of Australian onions
3. Collaborate with other industries on trade development to enhance the capability of growers to export	<ul style="list-style-type: none"> Increased grower export capability Increased demand internationally for Australian onions
4. Increase industry access to online export training material and mechanisms for business-to-business engagement	<ul style="list-style-type: none"> Increased exports and grower capability



OUTCOME 2: Industry supply, productivity and sustainability

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

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Develop and optimise fit-for-purpose pest, weed and disease management strategies during crop growth and include postharvest quality risks	<ul style="list-style-type: none"> Improved productivity Crop loss reduced by sustainable pest and disease practices addressing key threats (e.g., white rot and basal rot)
2. Improve industry preparedness and resilience to biosecurity threats and develop a new path for the importation of clean seeds	<ul style="list-style-type: none"> Improving industry resilience by reducing the potential impact of exotic pests Enabling business continuity during an incursion Improved access to clean seed stock
3. Improve soil health by building soil structure and condition, reducing erosion, adding nitrogen, improving nutrient recycling, and contributing to weed and soil-borne disease control (e.g., integrated cover crops)	<ul style="list-style-type: none"> Resilient and regenerative production systems Healthy soils with lower input requirements
4. Develop optimised input management to reduce costs and maintain yield and quality in a changing climate, including labour, water and nutrient use efficiency	<ul style="list-style-type: none"> Maintained competitiveness and profitability Enhanced sustainability of the industry with help for growers to prepare and mitigate against the cost of climate change Reduced major production costs through initiatives such as precision agriculture
5. 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
6. Provide regulatory support and co-ordination for 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
7. 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 onion industry maximises investments in productivity and demand.

STRATEGIES	POTENTIAL BENEFIT OR IMPACT
1. Deliver extension and communication capability to create positive change in the areas of biosecurity, soil and plant health, meeting consumer expectations and trade development	<ul style="list-style-type: none"> A change/progression in KASA for grower/industry profitability and sustainability which supports the adoption of best practices and innovations
2. Provide opportunity for engagement and collaboration across onion and vegetable industry members and other stakeholders throughout the supply chain to innovate	<ul style="list-style-type: none"> Improved networks and cross-industry collaboration to increase efficiencies and use of R&D outputs to build a stronger, more resilient industry
3. Strengthen industry leadership through initiatives and training	<ul style="list-style-type: none"> Proactive strategic and evidence-based decision-making in businesses and for industry on investment priorities and risk management

OUTCOME 4: Business insights

The Australian onion industry is more profitable through informed decision-making using consumer knowledge and tracking, trade data, production statistics, benchmarking and forecasting, 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
2. Use trade data to guide ongoing export development opportunities*	<ul style="list-style-type: none"> Increased knowledge of potential markets Positioning of strategic markets
3. Use production forecasts to inform long-term and/or in-season market planning and supply strategies	<ul style="list-style-type: none"> Increase in industry or other stakeholder capacity (e.g., export capacity)
4. Use market leader global benchmarking to review Australian production competitiveness	<ul style="list-style-type: none"> Increased knowledge for growers on production competitiveness

* 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.





ONION SIP MONITORING AND EVALUATION

The onion 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.

Onion SIP Monitoring and Evaluation Framework

The onion 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 onion industry to develop existing and future domestic and international markets.	1. Implement an onion industry export strategy focusing on categorising and segmenting market opportunities to deliver strategic growth	<ul style="list-style-type: none"> Development of an export strategy that is supported by industry
	2. Increase domestic consumer demand for Australian onions through improving knowledge, attitudes and purchase intent	<ul style="list-style-type: none"> Use of nutritional information that supports consumer demand Increased use of Australian onions in menus Growth in production volume for the foodservice industry
	3. Collaborate with other industries on trade development to enhance the capability of growers to export	<ul style="list-style-type: none"> Support and facilitation of exporters to build networks online and/or in market
	4. Increase industry access to online export training material and mechanisms for business-to-business engagement	<ul style="list-style-type: none"> Use of export training material that supports increased trade Support and facilitation of exporters that builds networks online and/or in market



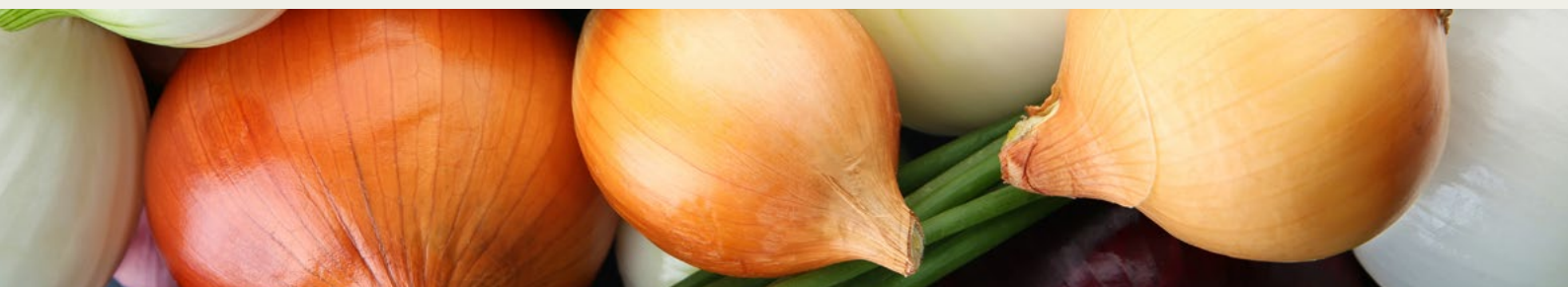
OUTCOME	STRATEGIES	KPIs
Industry supply, productivity and sustainability		
<p>Outcome 2: The Australian onion industry has increased profitability, efficiency and sustainability through innovative R&D and sustainable BMPs.</p>	<ol style="list-style-type: none"> 1. Develop and optimise fit-for-purpose pest, weed and disease management strategies during crop growth and include postharvest quality risks 2. Improve industry preparedness and resilience to biosecurity threats and develop new a path for the importation of clean seeds 3. Improve soil health by building soil structure and condition, reducing erosion, adding nitrogen, improving nutrient recycling, and contributing to weed and soil-borne disease control (e.g., integrated cover crops) 4. Develop optimised input management to reduce costs and maintain yield and quality in a changing climate, including labour, water and nutrient use efficiency 5. Prioritise the major crop protection gaps through a SARP* 6. Provide regulatory support and co-ordination for crop protection regulatory activities with the potential to impact plant protection product access, both in Australia and internationally* 7. 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"> • Increase in adoption of integrated pest and disease management (IPDM) strategies and decrease in crop loss from key weeds, insect pests and diseases • Maintenance/tracking of the implementation of an industry biosecurity plan • Support for efforts that use technology to improve importation processes for seed • Evidence of cover cropping in production systems • Healthy soil best practices developed with growers • Strategies developed with growers that optimise input management and increase climate resilience • 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		
<p>Outcome 3: Improved capability and an innovative culture in the Australian onion industry maximises investments in productivity and demand.</p>	<p>1. Deliver extension and communication capability to create positive change in the areas of biosecurity, soil and plant health, meeting consumer expectations and trade development</p>	<ul style="list-style-type: none"> Establishment of a baseline to develop relevant measurables and demonstrate increased share of industry (hectares) with positive change in KASA, practice and impact in targeted high-priority areas (e.g., trade, quality, biosecurity, soil health, plant health)
	<p>2. Provide opportunity for engagement and collaboration across onion and vegetable industry members and other stakeholders throughout the supply chain to innovate</p>	<ul style="list-style-type: none"> Grower satisfaction with industry growth in cooperation within industry and across industries leading to business and industry innovations (i.e., survey data)
	<p>3. Strengthen industry leadership through initiatives and training</p>	<ul style="list-style-type: none"> Increased participation in industry leadership initiatives
Business insights		
<p>Outcome 4: The Australian onion industry is more profitable through informed decision-making using consumer knowledge and tracking, trade data, production statistics, benchmarking and forecasting, and independent reviews.</p>	<p>1. Increase industry alignment with quality and brand-positioning opportunities driven by consumer insights*</p>	<ul style="list-style-type: none"> Delivery of consumer insights strategy Evidence that consumer insights inform market engagement (e.g., case studies) New consumer knowledge available for growers
	<p>2. Use trade data to guide ongoing export development opportunities*</p>	<ul style="list-style-type: none"> Trade data maintained and tailored data outputs supplied to meet stakeholders needs
	<p>3. Use production forecasts to inform long-term and/or in-season market planning and supply strategies</p>	<ul style="list-style-type: none"> Availability of production forecasts Evidence that production forecasts support marketing and production decisions
	<p>4. Use market leader global benchmarking to review Australian production competitiveness</p>	<ul style="list-style-type: none"> Data available to support extension activities and individual grower decision-making Evidence of data used to support industry-level decision-making and grower practice change

* 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 onion 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](#).



“The overarching strategic intent of this SIP is to grow the onion industry through increasing demand, exploring new export opportunities and increasing global competitiveness.”



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 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.

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

- Opportunities to support export markets through nutritional benefits
- Standard benchmarking best practice guide for implementation across industries
- Export supply chain pathways (new way of doing business).

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 for demand-driving outcomes across the lifespan of the onion SIP 2022-2026 include:

- All-of-horticulture consumer marketing campaigns designed to drive awareness, consideration, and purchase behaviour change

- Communications to bring horticulture to top of mind (saliency) and reposition the benefits they provide 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 drive preference with international consumers.

Strategic science and research focus

The onion SIP takes into consideration the research priorities of various industry stakeholders, including Onions Australia and Australian Fresh Produce Alliance (AFPA), and acknowledges the representation of these organisations. In developing the strategies presented within the onion SIP, **Table 2** lists the strategic research areas that were considered.

TABLE 2. Onion research priorities

Onions Australia strategic priorities	AFPA priorities
Increase profitability for Australian producers	Sustainability (climate change, water, packaging and shelf life)
Encourage the adoption of sustainable production systems	Trade (market access, industry capability development)
Improve the quality of Australian onions	Biosecurity (managing pest and disease, integrated pest management (IPM), chemistry)
Maintain a strong industry association	Food Safety (systems and technology)

Collaboration across the agriculture research community is also essential, including with 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.

During the engagement process, key delivery partners were contacted including lead agencies within the NHRN Framework as well as specific delivery partners for each industry. The lead agency involved with the onion industry investment program, South Australian Research and Development Institute (SARDI), was engaged during the development of this SIP to ensure consideration and strategically aligned priorities for the onion industry. In addition, priorities and opportunities identified within the strategic plans of national and state agencies and research organisations have been considered where applicable.

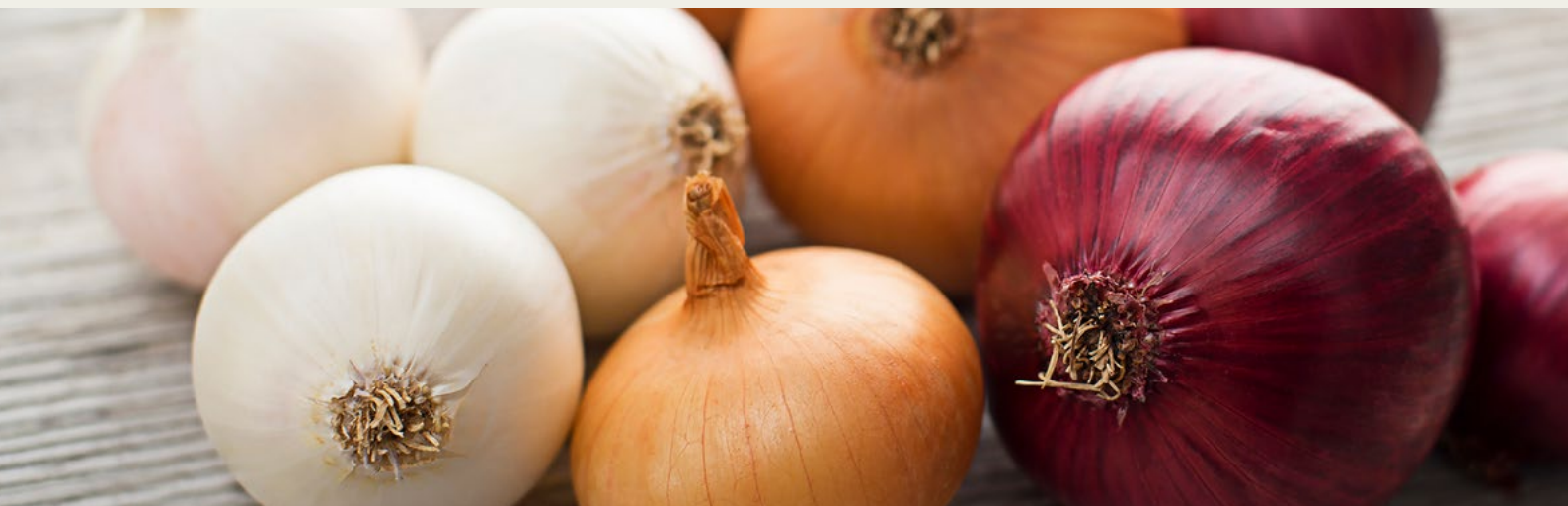
TABLE 3. Government and key agency priorities

SARDI priorities	Rural RD&E for Profit priorities	Australian Government Science and Research priorities
Implementation technology and monitoring in crop management	Advanced technology	Food
Integrated pest, disease and weed management	Biosecurity	Soil and water
Expansion of higher value products	Soil, water and managing natural resources	Advanced manufacturing
	Adoption of R&D	Environmental change
		Health

This SIP has been developed alongside the government and key agency priorities listed in **Table 3**, with consideration of issues faced by the onion 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 onion 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 onion 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 to invest in specific impact areas to drive innovation and sustainability initiatives.

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

- Biosecurity
- International markets
- Leadership.

Partnering with Hort Frontiers on these areas would provide the onion 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).



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 4 provides an example of an onion SIP strategy that illustrates how the industry is already aligning to the framework.

TABLE 4. An onion SIP strategy example showing how the industry is already aligning to the Australian-grown Horticulture Sustainability Framework

STRATEGY	IMPACT	SUSTAINABILITY GOAL
Improve soil health by building soil structure and condition, reducing erosion, adding nitrogen, improving nutrient recycling, and contributing to weed and soil-borne disease control (e.g., integrated cover crops)	<ul style="list-style-type: none"> Resilient and regenerative production system Healthy soils with lower input requirements 	Planet & Resources



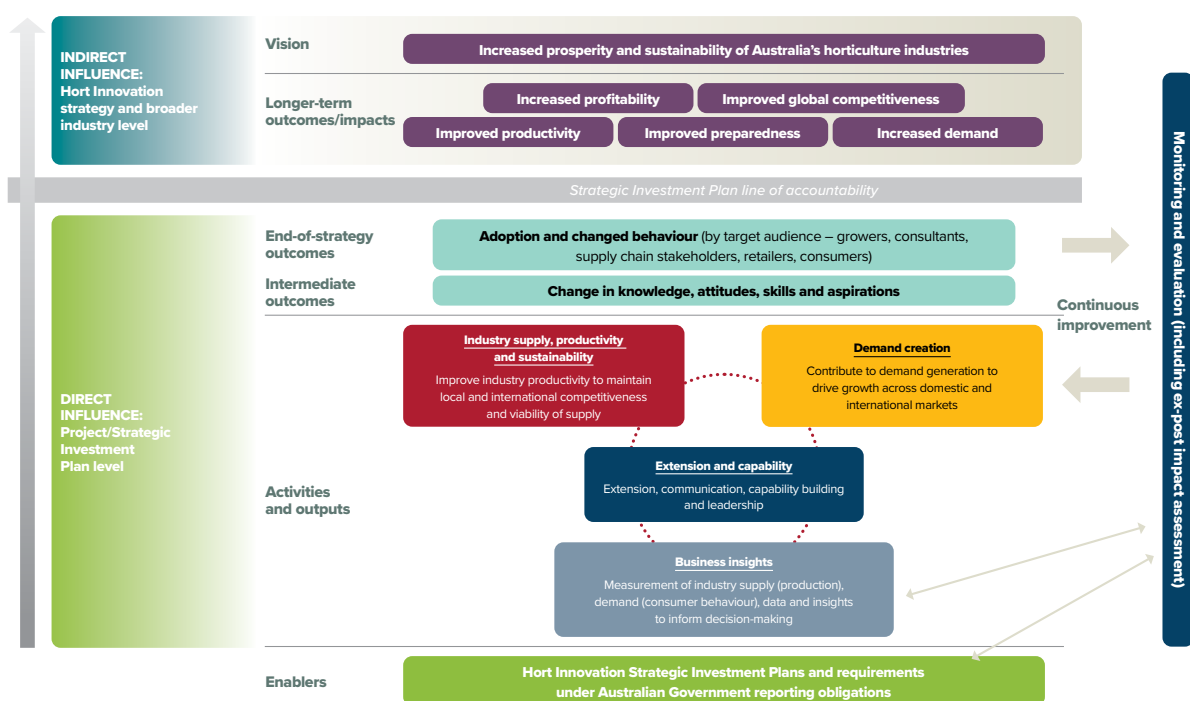
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Strategic Investment Plan logic

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 a Research and Development Corporation (RDC), Hort Innovation is able to leverage industry levy investments in research, development and extension (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 supply chain

Onions are grown in most states of Australia, but South Australia and Tasmania together produce 70% of the Australian crop. Key onion production locations are the Lockyer Valley and Darling Downs in Queensland, Adelaide Plains and South-eastern regions of South Australia, and the Devonport/Launceston region of Tasmania.

The onion industry in Australia is characterised by three very large producers who supply the supermarkets via closed-loop supply chains. Most production is orchestrated through about eight large businesses and many smaller growers who are either contracting to the larger producers or reliant on wholesale fresh markets for distribution.

The main type of onion grown in Australia is traditional brown onion, which accounts for 79% of fresh production. Onion production is during late spring, summer and autumn. Planting starts around March through to September; harvesting from August to March; and storage supplies the market for the winter months.

There is year-to-year production volatility, largely due to fluctuations in the hectares planted. Because barriers to entry for onions are relatively low, opportunistic croppers can plant or increase their acreage if the returns look promising relative to alternative crops.

Yield variability from year-to-year highlights the vulnerability of onions to weather, pests and diseases. Yield variability could also be attributed to less experienced growers coming in and out of the industry to chase better returns than other cropping enterprises.

Domestic consumers and drivers of demand

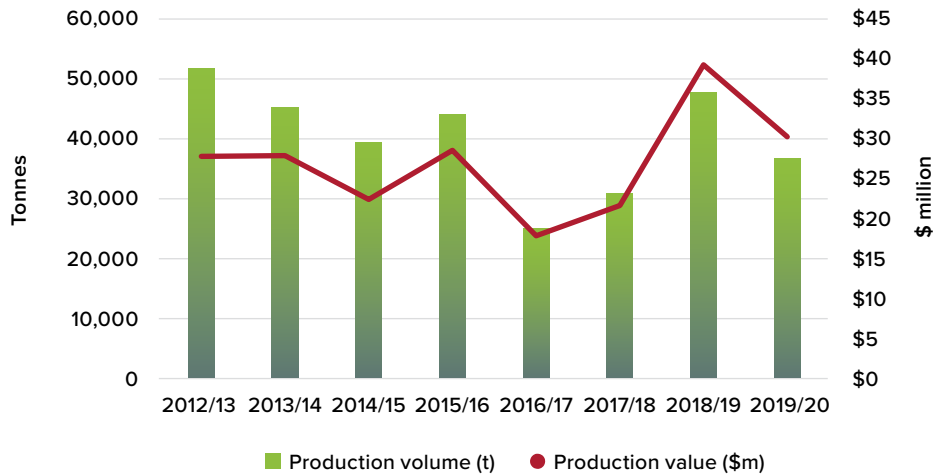
In the domestic market, most onions are sold through supermarkets, followed by independent retailers. Foodservice is a key market, with 27% of fresh supply sent to this channel in 2019/20. This exceeds the average share of total vegetables sent to foodservice, which was 17% in 2019/20. This figure will likely increase post-COVID as the sector rebounds.

Onions have a wide consumption base, with 75% of Australian households purchasing onions in 2019/20. They are also consumed in large volumes, with supply at 8.2 per capita per kilogram.



Export markets

FIGURE 3. Onion exports, 2012/13 to 2019/20



Source: Australian Horticulture Statistics Handbook (2019/20)

Onions exports have been relatively volatile from 2012/13 to 2019/20, with a peak of 51,581 tonnes in 2012/13 and a low of 24,798 tonnes in 2016/17. Onions are more price sensitive than other horticultural exports. The export market is important for the industry as it prevents oversupply in the domestic market, so can mitigate price volatility arising from variable production volumes.

Europe has historically been the most important market for onion exports, but Asia is becoming increasingly important. The top five export markets in 2019/20 in terms of production volume were Thailand (16%), Taiwan (9%), Belgium (9%), Netherlands (9%) and UAE (9%).

Australia’s competitive advantage in the global market is perceived quality, product integrity, proximity to markets and lower freight cost to Asian and Middle Eastern markets, relative to competitors, together with some narrow seasonal window advantages. Because onions are a low value category, freight costs are a big part of landed cost.

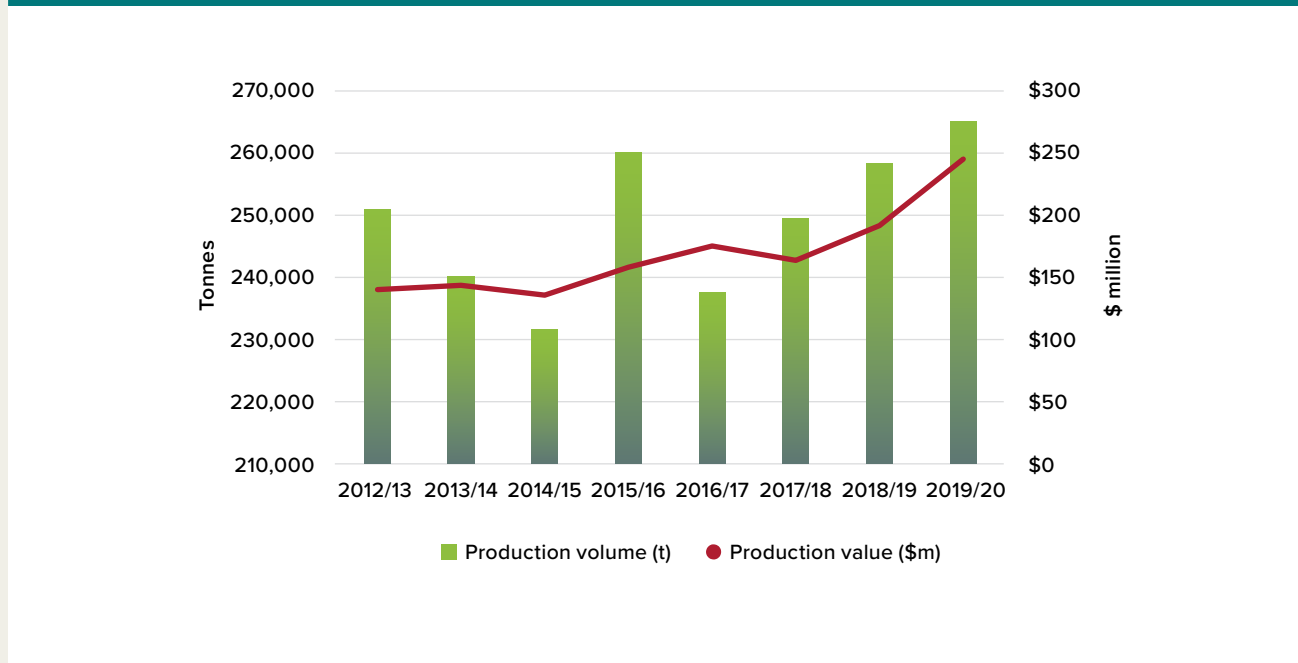
While China is a formidable competitor to Australia in many vegetable categories, Australia currently has an advantage over China in terms of product integrity, particularly with supermarkets that are targeting affluent consumers in Asia and the Middle East.

Relative to other categories, onions have wide access to several markets (apart from China and Russia). The lack of access to China is almost certainly an artificial technical trade barrier to protect the local industry, as China is a very large onion exporter. Even if market access to China could be attained, it is unlikely that Australia could be competitive in that market.



Industry production

FIGURE 4. Onion production, 2012/13 to 2019/20



Source: Australian Horticulture Statistics Handbook (2019/20)

Onion production has been steadily rising since 2016/17, increasing from 237,674 tonnes to 265,162 tonnes in 2019/20. Production value also increased from \$174 million in 2016/17 to \$244 million in 2019/20. Compared to the previous peak production in 2015/16 at a similar volume, production value in 2019/20 is 55% higher showing unit price has increased greatly over this period.

Australian vegetable-growing farms: an economic survey 2016-17 and 2017-18 by ABARES provided detailed information on the performance of vegetable farms, including specific information on onion production. The highest proportion of costs for onions is hire labour (18%), fertiliser (9%), repairs and maintenance (9%).

These costs, however, vary based on the scale of production, with total costs of \$400 per tonne for growers on 15 hectares or less and \$345 per tonne for growers on more than 15 hectares. Farms with larger areas planted had lower family labour costs per tonne, with hired labour or contracts comprising a greater proportion of total labour costs per hectare. It is possible that this is simply due to a higher scale of production requiring more labour than a family can provide, or it could be attributed to the higher scale of production making it more appealing to hire contractors or to have permanent staff.

Water use on onion farms is relatively low for vegetable farms at 0.08 megalitres per tonne of output, compared to 0.30 megalitres per tonne for broccoli and 4.71 megalitres per tonne for pumpkins. Other vegetables at a similar level to onions are tomatoes at 0.09 megalitres per tonne, potatoes at 0.09 megalitres per tonne and carrots at 0.07 megalitres per tonne¹.

¹ Frilay J, Weragoda A, Litchfield F, Thompson T & Ashton D 2019, Australian vegetable-growing farms: an economic survey, 2017-18 and 2018-19, ABARES research report 19.12, Canberra, November. CC BY 4.0.

APPENDIX 2: Onion 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 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 5 has been used to analyse the onion 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 5. Onion SWOT analysis

The onion industry	
Strengths	<ul style="list-style-type: none"> • Year-round supply • The staple, essential and versatile nature of onions drives a stable, albeit flat domestic market demand • The industry is well positioned to take advantage of emerging export market opportunities particularly in Asia and the Middle East, by virtue of the southern hemisphere location and market proximity. Onions also have favourable market access protocols
Weaknesses	<ul style="list-style-type: none"> • The oversupply relative to current demand which is depressing industry profitability • Stagnant category demand and devaluation of onion products domestically and the lack of consumer engagement due to the commoditisation and frequent price promotions • Supermarket dominance in the category and under development of non-supermarket channels • Declining industry profitability that limits investment and innovation • Lack of access to consistent world's best practice agronomic advice • Lack of robust industry data (production/costs/profitability/market intelligence) on which industry can make informed investment decisions • Prospects of declining market share in European exports • High cost of production relative to other global suppliers
Opportunities	<ul style="list-style-type: none"> • Build category value through consumer engagement and product differentiation • Build awareness of health attributes of onions and leverage the increasing demand for 'healthy' foods • Export market opportunities growing demand for food globally; growing economies particularly in Asian and Middle Eastern markets • Replace imports by building a year-round supply capability • Fresh value-adding presents growth opportunities for food service and processing channels

The onion industry

Threats

- Impact of climate change and variability/weather events on supply
- Appreciation of the Australian dollar
- Biosecurity risks
- Food safety risks
- Loss of market access
- Inability to access required chemicals as needed
- Importation of processed and semi-processed onions threatening the foodservice market
- Freight logistic disruptions and increased costs



APPENDIX 3: People consulted

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

NAME	INDUSTRY ROLE	REGION
Peter Shadbolt	Grower; Chair, Onions Australia Executive Committee; Onion SIAP member	Victoria
Tim Groom	Grower; Onions Australia Executive Committee; Onion SIAP member	Tasmania
Darren Rathjen	Grower; Deputy Chair, Onions Australia Executive Committee; Onion SIAP member	South Australia
Steven Rathjen	Grower; Onion SIAP member	South Australia
Jason Daniell	Grower; Onions Australia Executive Committee	South Australia
Pennie Patane	Grower; Potato SIAP member; Director, AUSVEG	Western Australia
Alan Thierry	Marketer; Deputy Chair, Onions Australia Executive Committee	Victoria
Lewis Lydon	Seed producer; Onions Australia Executive Committee	New South Wales
Brett Dolling	Grower	South Australia
Jarryd Dolling	Grower	South Australia
Greg Bragg	Seed producer; Onions Australia Executive Committee	South Australia
Lechelle Earl	Executive Officer, Onions Australia	South Australia
Yvonne Smith	Grower; Onion SIAP member	South Australia
Jan (Kees) Versteeg	Grower; Onion SIAP member	Queensland
Frank Mitolo & Sue Edwards	Grower	South Australia
Renee Pye	Grower; Director, AUSVEG	South Australia
Andrew Moon	Grower; Vegetable SIAP member	Queensland
David Addison	Grower	Tasmania
Stuart Greenhill	Grower	Tasmania
Scott Hill	Consultant	Tasmania
Lisa Tana	Grower	Western Australia and Tasmania
Jason McNeil	Grower; Vegetable SIAP member	Tasmania



APPENDIX 4: Reference material

Footnotes

1. Frilay J, Weragoda A, Litchfield F, Thompson T & Ashton D 2019, Australian vegetable-growing farms: an economic survey, 2017–18 and 2018–19, ABARES research report 19.12, Canberra, November. CC BY 4.0.

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APPENDIX 5: List of acronyms

AFPA	Australian Fresh Produce Alliance
AIP	Annual Investment Plan
APVMA	Australian Pesticides and Veterinary Medicines Authority
BMP	best management practice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FY	financial year
GI	glycemic index
IPDM	integrated pest and disease management
IPM	integrated pest management
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
SARDI	South Australian Research and Development Institute
SARP	Strategic Agrichemical Review Process
SIAP	Strategic Investment Advisory Panel
SIP	Strategic Investment Plan
SWOT	Strengths, weaknesses, opportunities and threats

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