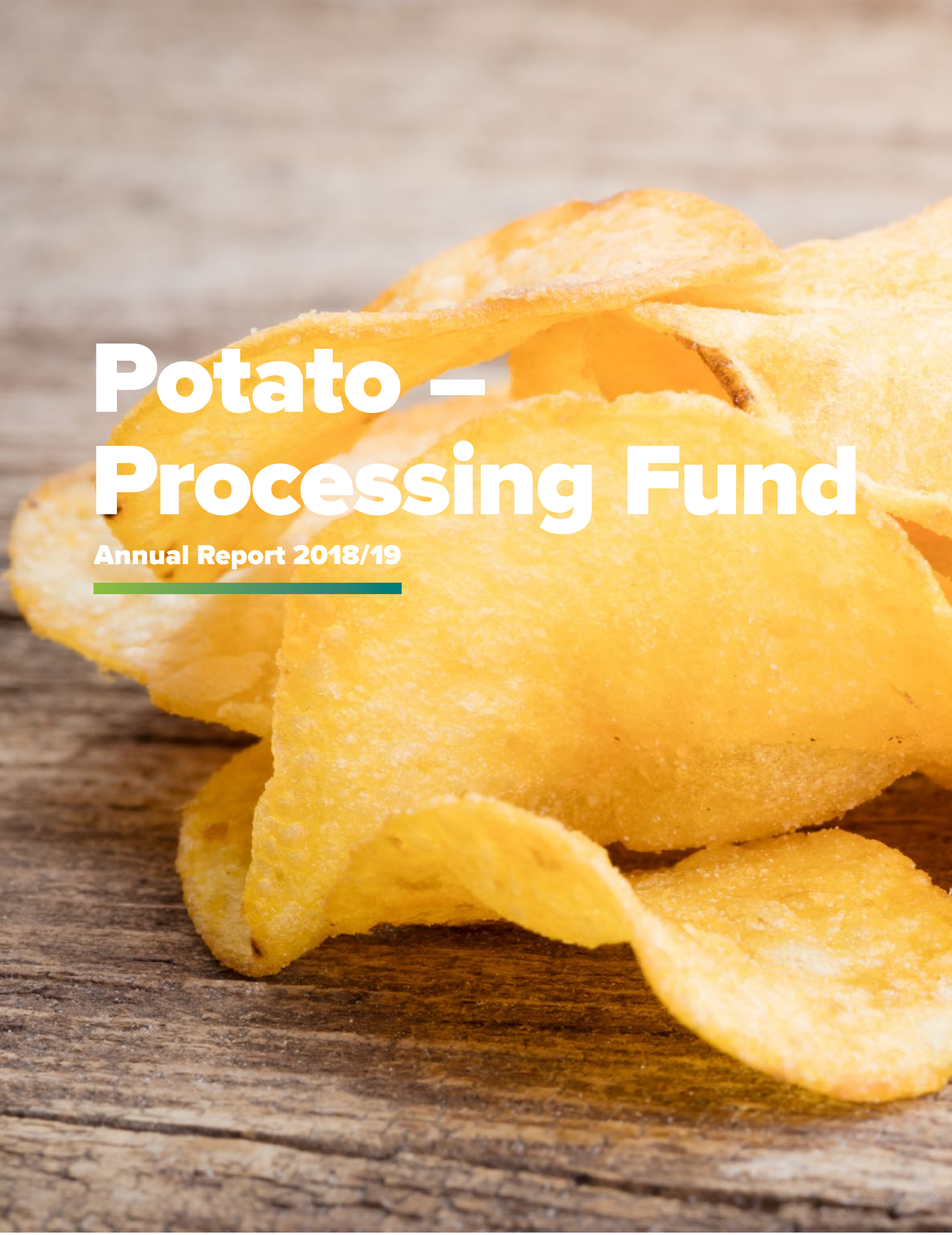

Potato – Processing Fund

Annual Report 2018/19

Hort Innovation
Strategic levy investment

POTATO – PROCESSING FUND

Content

The projects in this report have been funded by Hort Innovation using sources including the processing potato levy, Australian Government contributions and, in some instances, co-contributions from a variety of sources.

Just some of the things your fund delivered in 2018/19:

- ✓ **New testing protocols** for the bacterium responsible for 'zebra chip' disease, plus ongoing activities concerning the related tomato potato psyllid (from p7)
- ✓ New work looking at resistance to **powdery scab root infection** (p7)
- ✓ **The *Potato Growers' Biosecurity Manual***, available from www.bit.ly/potato-biosecurity
- ✓ The industry's ongoing **integrated pest management program**, supporting potato growers in accessing and applying practical knowledge on-farm (p9)
- ✓ A fresh program to **coordinate pest and disease management activities** for the industry (p8)
- ✓ New **final research reports and grower resources**, with 20+ now available from www.horticulture.com.au/potato-processing

2018/19 SNAPSHOT

$510 THOUSAND
INVESTED IN R&D

20
ACTIVE R&D INVESTMENTS

Welcome

Hort Innovation is the grower-owned, not-for-profit research and development corporation (RDC) for Australia's horticulture sector. It's our job to work with industry to invest the processing potato R&D levy, together with Australian Government contributions, into key initiatives.

The 2018/19 financial year was another great year of growing better, together – with strong investments, closer connections and critical collaborations being forged.

There was close to $510,000 invested into R&D through the Hort Innovation Potato – Processing Fund across the year, to support the industry in being as productive and profitable as possible. This included the establishment of eight new investments, including work allowing the potato industry to join forces with other horticulture industries for maximum efficiency and impact across shared issues and opportunities.

Read on to learn more about all of the projects undertaken. And remember to take advantage of the Hort Innovation website at **www.horticulture.com.au/potato-processing**, where you can search and find information relating to investments, past and present, at any time. The new site and its section for the processing potato industry was launched in 2018/19.

During the year there were also many opportunities for Hort Innovation to connect with you. A big thank you in particular to everyone who came to our early-2019 regional roadshows to feed into the development of the new Hort Innovation Strategy 2019-2023 (read more at **www.horticulture.com.au/strategy-2019-2023**).

You can reach out to us at any time to learn more about our work, to submit ideas for investments, or to simply have a chat about your industry. You'll find details of specific staff at **www.horticulture.com.au/get-in-touch**, or can otherwise email **communications@horticulture.com.au** or call our general line on 02 8295 2300.

Hort Innovation

Additional value in the year

During 2018/19, Hort Innovation was proud to deliver extra value to the potato industry, outside of levy-funded initiatives within the Potato – Processing Fund. Here's a quick look at just some examples.

The new Hort Innovation website, with dedicated Potato – Processing Fund section

You can now visit **www.horticulture.com.au/potato-processing** to quickly search and find investment information and updates, project resources, and growing tips and advice from Hort Innovation's R&D work. You can also download full final research reports direct from the site, access key contact information, share your ideas and feedback, and so much more.

The Australian Horticulture Statistics Handbook

Each year Hort Innovation delivers an *Australian Horticulture Statistics Handbook* packed with horticulture statistical information and analysis for use by specific industries and the wider sector. The handbook combines all available data on production, international trade, processing volumes and fresh market distribution for some 75 categories. The 2017/18 edition, released in early 2019, is available from **www.horticulture.com.au/horticulture-statistics-handbook**.

Hort Frontiers projects

With seven investment areas, Hort Innovation's Hort Frontiers strategic partnership initiative is about collaborative, cross-industry work to address longer-term, complex issues and opportunities identified as critical for the future of Australian horticulture. While industry levies can be invested into Hort Frontiers projects upon the advice of the relevant Strategic Investment Advisory Panels, the bulk of funding comes from broad-reaching funding relationships that are secured by Hort Innovation, plus support from the Australian Government. Learn about all of the projects and what they're delivering for you at **www.horticulture.com.au/hort-frontiers**.

Grant funding

In 2018/19, Hort Innovation delivered $6.7 million worth of investments involving grant funding across the horticulture sector. To do so, we applied for and secured a range of competitive grants on behalf of industry, including through the Australian Government's Rural R&D for Profit program, Improved Access to AgVet Chemicals initiative, and Agricultural Competitiveness White Paper. With projects across everything from biosecurity to agri-technology, there's plenty in there to directly and indirectly benefit the potato industry.

Making investments in 2018/19

Hort Innovation is dedicated to making the right investments at the right time and in the right areas, in line with identified priorities for the industry.

Where the funding comes from

The processing potato's industry-raised statutory R&D levy is collected by the Australian Government and entrusted to Hort Innovation as the RDC for Australian horticulture. It's then our responsibility to work with the industry to invest the levy, together with Australian Government contributions, into strategic initiatives for the benefit of growers and processors.

Additional funding streams can also come into play, such as co-investment dollars from sources including project partners, and grant funding that Hort Innovation secures on behalf of industry.

How decisions are made

Investment decisions in the Hort Innovation Potato – Processing Fund are guided by the industry's Strategic Investment Plan (SIP). This document was developed through close consultation with industry stakeholders, and outlines specific investment priorities, strategies and themes. An at-a-glance version can be found at www.bit.ly/potato-processing-plan, or find the full version at **www.horticulture.com.au/potato-processing**.

The SIP is currently used like a 'roadmap' by the potato Strategic Investment Advisory Panel (SIAP) – a panel made up of processors, growers and other industry representatives that's tasked with providing advice to Hort Innovation on potential levy investments.

Turning ideas into investments

Great investments start with great ideas, and Hort Innovation encourages all industry participants to share their thoughts and suggestions for the work they want to see. Ideas can be submitted any time via Hort Innovation's investment idea form at **www.bit.ly/concept-form**.

Ideas that are selected for investment are worked into project proposals by Hort Innovation. These are then made public for potential delivery partners to submit responses. Current opportunities are always listed at **www.horticulture.com.au/delivery-partners**.

Responses are assessed, often with the assistance of industry, and the best delivery partner for the work is chosen. A contract is then issued and the work begins.

Keeping track of investments

All investments in the Hort Innovation Potato – Processing Fund are detailed on the 'Your investments' page at **www.horticulture.com.au/potato-processing**. We also send news and alerts to Hort Innovation members and contacts – if you haven't already, you can sign up for free at **www.horticulture.com.au/sign-up**.

New investment analysis

You can now clearly see how investments in the Hort Innovation Potato – Processing Fund align to the industry's SIP, with new and interactive investment analysis information available from www.bit.ly/processing-potato-investment. The analysis currently shows the allocation of funding against each of the industry's SIP outcomes from the start of the SIP (2016/17) to the end of 2018/19, and gives an indication of the projects that are aligned to each outcome.

R&D project list 2018/19

NEW INVESTMENTS IN 2018/19	
PT17002	Program approach for pest and disease potato industry investments
PT17003	Mechanisms and manipulation of resistance to powdery scab in potato roots
PT18000	Review of bacterial blackleg diseases and R&D gaps with a focus on the potato industry*
PT18001	Nuffield scholarship for a horticulturalist from the potato industry
PT18003	Potato stakeholder needs analysis and extension strategy development*
MT18005	Improving plant industry access to new genetics through faster and more accurate diagnostics using next generation sequencing
MT18011	Ex-post impact assessment^
VG16078	Soil wealth and integrated crop protection – phase 2

* These flagged projects both began and ended in 2018/19

^ This multi-industry project was a key monitoring and evaluation investment during 2018/19 – we encourage you to find the full details at www.horticulture.com.au/mt18011

But wait, there's more. To see what Hort Innovation delivered across the entire horticulture sector in 2018/19, download the full Hort Innovation Annual Report 2018/19 from www.horticulture.com.au/annual-report-portal.

ONGOING INVESTMENTS IN 2018/19	
PT15008	Extension of the Predicta Pt potato diagnostic service
PT16001	Impact of groundwater quality on management of centre pivot grown potato crops
PT16002	Exploring Spongospora suppressive soils in potato production
PT16004	Review of the national biosecurity plan for the potato industry and development of a biosecurity manual for potato producers
PT16005	Potato industry minor use program
ST16008	AgVet collaborative forum
ST17000	Generation of data for pesticide applications in horticulture crops 2018
MT16009	An IPM extension program for the onion and potato industries
MT16018	National tomato potato psyllid (TPP) program coordinator

INVESTMENTS COMPLETED IN 2018/19	
PT16000	Extension activities for the Australian potato industry – literature review and survey
PT17000	Developing and implementing high throughput diagnostic test for *Candidatus Liberibacter solanacearum* (CLso)
PT17000	Diagnostic capability to detect *Candidatus Liberibacter solanacearum* (CLso)

During the 2018/19 financial year, all levy paying horticulture industries also contributed to a small selection of across-industry projects addressing issues that affect horticulture as a whole. Details of all investments that Hort Innovation manages can be found at www.horticulture.com.au.

R&D report

Take a closer look at some of the key investments in the Hort Innovation Potato – Processing Fund during 2018/19. Any resources from these and other levy-funded projects – such as fact sheets, guides and more – are published on your grower page at **www.horticulture.com.au/potato-processing** as they become available.

Mechanisms and manipulation of resistance to powdery scab in potato roots (PT17003)

NEW IN 2018/19

Key research provider: University of Tasmania

While the potato tuber blemishes that are caused by powdery scab are a concern for the potato industry, the pathogen's effect on plant roots can't be underestimated either. Root infection with powdery scab disrupts root function – meaning more irrigation, fertiliser and fungicides are needed to compensate for poor root development – and leads to diminishing yields.

In this project, researchers are investigating root resistance to powdery scab infection. This involves looking at how the pathogen infects roots and causes disease, what allows for resistance in some potato varieties, and whether resistance mechanisms may be boosted or transferred.

While caused by the same pathogen, the powdery scab root and tuber infection processes are separate, and different plant resistance processes operate against each. This means that varieties that show resistance to tuber disease don't necessarily show resistance to root infection. However, when root infection is decreased, disease across the whole plant is slowed, meaning tuber disease is reduced as well.

Review of bacterial blackleg diseases and R&D gaps with a focus on the potato industry (PT18000)

NEW IN 2018/19 & NOW COMPLETE

Key research provider: Crop Doc Consulting

This short, late-2018 project conducted a review of existing information on the bacteria responsible for blackleg/soft rot diseases in potatoes, as well as similar bacteria that cause diseases in other crops where learnings may be relevant for the potato industry. Although crop losses from potato blackleg disease are low in Australia, soft rot bacterial species are listed in the top 10 important bacterial plant pathogens based on their global economic impact.

This review found several documented cases overseas of biosecurity breaches that suggest there could be significant threats for Australian horticulture amongst this group of bacteria. As a result, the project's final report (available from www.bit.ly/pt18000) presented several recommendations for the potato industry to consider, to ensure that the biosecurity risks are accurately estimated, and appropriate preparedness and management strategies are implemented. These recommendations remain available for industry to review, and Hort Innovation has also taken the findings to the potato industry Strategic Investment Advisory Panels for their consideration when it comes to the future investment of the processing and fresh potato levies.

Soil wealth and integrated crop protection – phase 2 (VG16078)

NEW IN 2018/19

Key research provider: Applied Horticulture Research

This investment was initially established in late 2017 to provide vegetable producers with the latest information in soil and pest related areas via the **www.soilwealth.com.au** website, workshops, webinars and other resources. During 2018/19, the processing and fresh potato industries also began contributing to this initiative, providing potato growers and industry participants access to soil wealth and integrated crop protection events, resources and advice.

Diagnostic capability to detect Candidatus Liberibacter solanacearum (CLso) (PT17000)

NOW COMPLETE

Key research provider: The Victorian Department of Jobs, Precincts and Regions

Candidatus Liberibacter solanacearum (CLso) represents a serious threat to the potato industry. The bacterium can be carried by the tomato potato psyllid, first detected in Australia in early 2017, and is associated with 'zebra chip' disease, which is able to cause large economic losses in potato crops.

Continued >>

This investment was about bolstering efforts to monitor for and contain CLso. It involved research at a New Zealand site to look at the natural distribution of the bacterium throughout an infected field and specific plants, to develop improved sampling guidelines. This produced one of the first detailed accounts of the bacterium in field grown potato plants.

The project team also assessed an in-field diagnostic tool for detecting CLso, validating the approach as a rapid and easy-to-use option for plant health field officers to consider. They also worked with laboratories across Australia and New Zealand to determine technical proficiency in using the current CLso laboratory testing protocol – both providing a training exercise and evidence that diagnostic capability exists in multiple labs across the country.

Developing and implementing high throughput diagnostic test for Candidatus Liberibacter solanacearum (CLso) (PT17000)

NOW COMPLETE

Key research provider: The South Australian Research Institute (SARDI)

As with the project described above, this investment was about strengthening the ability to monitor for, detect and contain CLso should it arrive on Australian shores. Underpinned by thorough research, the project team developed a fast and reliable testing protocol for the bacterium. Allowing for large-scale, automated and rapid screening, the protocol will be able to facilitate efficient area wide surveillance for CLso, and help support potato seed certification.

National tomato potato psyllid (TPP) program coordinator (MT16018)

Key research provider: AUSVEG

This multi-industry project is responsible for coordinating the development and implementation of a national tomato potato psyllid (TPP) management strategy – essentially helping ensure research and development, engagement and other response efforts related to the pest across the various industries and areas it affects are coordinated, prioritised and strategic.

To this end, the project-supported national TPP program coordinator serves as a point of contact between the various TPP-affected industries, government and service providers, to help implement TPP management in Western Australia and to prepare eastern-state growers.

Program approach for pest and disease potato industry investments (PT17002)

NEW IN 2018/19

Key research provider: RMCG

New for the financial period, this investment is providing support in coordinating the potato industry's R&D investments in pest and disease management, developing an integrated program approach. It's about enabling current and future projects in this space to better share information and coordinate their efforts, while also providing support in taking research findings to potato growers and processors.

Improving plant industry access to new genetics through faster and more accurate diagnostics using next generation sequencing (MT18005)

NEW IN 2018/19

Key research provider: Queensland University of Technology

This investment is tasked with supporting the adoption of 'next generation sequencing' in the screening of imported horticultural plant material in post-entry quarantine facilities. The technology has the potential to allow plants to move through the quarantine process much more quickly – allowing industry speedier access to new genetic stocks.

Currently, new plant material entering Australia can spend up to three years in post-entry quarantine facilities undergoing pathogen testing. Next generation sequencing offers a fast, reliable and cost-effective method to identify all known plant pathogens in a single test.

Previous research has demonstrated the approach's success and efficiency in testing for viruses and viroids in imported plants, with next generation sequencing subsequently being adopted in the testing of imported ornamental grasses. This investment will provide the evidence and protocols needed for the technology to be adopted for further plant commodities, including horticulture crops.

Nuffield scholarship for a horticulturalist from the potato industry (PT18001)

NEW IN 2018/19

Key research provider: Nuffield Australia

Nuffield Scholarships are a chance for Australians in agriculture to grow their practical knowledge and a broad variety of skills, while heading overseas to study a topic related to their industry. This investment provides funding to support a Nuffield Scholar in the potato industry, with a Hort Innovation scholarship awarded to Kerri-Ann Lamb in September 2019. Kerri-Ann will be investigating emerging trends, risks and opportunities in the fresh cut potato market and related markets, to determine what the industry should be doing now to prepare itself for the future.

Potato stakeholder needs analysis and extension strategy development (PT18003)

NEW IN 2018/19 & NOW COMPLETE

Key research provider: RMCG

This investment, which took place in 2019, examined the Australian potato industry's needs, wants and opportunities around extension and communication activities, and developed a proposed integrated approach to deliver them. This strategy was made available to both the processing and fresh potato industries for their consideration, and has been used to guide upcoming levy investment in this space.

Extension activities for the Australian potato industry – literature review and survey (PT16000)

NOW COMPLETE

Key research provider: AgAims

Ending just inside 2018/19, this investment was tasked with identifying and documenting potential opportunities for improving Australian potato seed quality and handling practices, to ultimately support the industry in adopting improved, sustainable best practice for the delivery of high-quality seed.

The work involved a review of international research and best practice on seed handling, including post-harvest handling, storage and seed piece treatments, as well as the effect on final crop outcomes of physiological age of seed, seed piece size, and whole versus cut seed. This was followed by grower surveys to look at and quantify industry practices – for example, cut seed has a significant potential impact on seed quality, so how important is cut seed use in the industry, what percentage of the national seed supply is cut, and what is the primary reason to cut seed? Other questions were aimed at understanding how quality is managed and regulated. Growing location, seasons when crop is grown and storage questions were also asked, aimed at understanding potential stress loading on seed.

Together the review and survey information on current and best practice were developed into a report for industry, which can be viewed at **www.bit.ly/pt16000-report**.

An IPM extension program for the onion and potato industries (MT16009)

Key research provider: IPM Technologies

This project for and funded by the onion and potato processing and growing industries has a focus on integrated pest management (IPM). Its core activities are to support growers in adopting IPM on farm – improving pest management with minimal pesticide use and a reduction in associated costs. This includes the delivery of workshops, the use of demonstration sites with commercial crops, and the production of materials such as articles, guides and case studies distributed in industry channels. Look for opportunities to attend information sessions and demonstrations, with details circulated in industry channels as they become available.

If you're interested in trialling IPM, through this investment telephone and email support is offered to growers wanting to use the approach, which can include advice on pest management decisions week-by-week.

The project is also responsible for training advisors from Australia's major onion and potato growing regions in IPM, and with the threat of tomato potato psyllid, additional funding from the potato processing and growing industries is used specifically for activities related to the pest.

Learn more and find project resources via **www.bit.ly/mt16009**.

Extension of the Predicta Pt potato diagnostic service (PT15008)

Key research provider: South Australian Research and Development Institute (SARDI)

Beginning in mid-2017, this project is responsible for expanding the PreDicta PT testing system to help minimise the impact of soilborne and seedborne diseases on Australian potato businesses.

Running since 2013, PreDicta Pt is the commercial DNA-based testing service that allows specific pathogens to be identified prior to the planting of potatoes. Available through accredited providers in the south-eastern states, the test results help identify and manage risks related to powdery scab, black dot and root knot nematode.

This project is expanding the service into other major production areas of Australia, adding new soil tests, and giving potato growers access to testing on seed tubers.

Exploring Spongospora suppressive soils in potato production (PT16002)

Key research provider: The New Zealand Institute for Plant & Food Research

This project is investigating soils with characteristics that suppress Spongospora diseases of potato, including tuber powdery scab and root galling. The project team is hoping to identify the mechanisms for such suppression, and will determine if the suppressive properties are transferrable to non-suppressive soils, for the benefit of the Australian potato industry.

Review of the national biosecurity plan for the potato industry and development of a biosecurity manual for potato producers (PT16004)

Key research provider: Plant Health Australia

This ongoing investment is responsible for updating the industry's biosecurity plan – identifying high-priority endemic and exotic pests and diseases along with the risk mitigation activities required to reduce their biosecurity threat.

It has also developed a manual for growers to help grow awareness of key pests and diseases, and the steps that can be taken to minimise their risk. The current *Potato Growers' Biosecurity Manual* can be accessed from Hort Innovation at **www.bit.ly/potato-biosecurity**, and also highlights legislative changes to ensure growers are up to date regarding their official biosecurity obligations.

Impact of groundwater quality on management of centre pivot grown potato crops (PT16001)

Key research provider: Serve-Ag (E.E. Muir & Sons)

This project for and funded by both the processing and fresh potato industries is looking at groundwater quality in areas of potato production in South Australia (where groundwater quality is most variable) and investigating how regional and seasonal water-quality variability impacts on potato production and quality. It will ultimately deliver effective management strategies and tools for sustainable and profitable potato production under varying soil and water conditions.

Potato industry minor use program (PT16005)

Key research provider: Hort Innovation

Through this project, levy funds and Australian Government contributions are used to submit renewals and applications for minor use permits for the fresh potato industry as required. These submissions are prepared and submitted to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

For more on minor use permits, including a list of permits, see p12.

All current minor use permits for the industry are searchable at **portal.apvma.gov.au/permits**. Permit updates are also circulated in Hort Innovation's *Growing Innovation* e-newsletter, which you can sign up for at **www.horticulture.com.au/sign-up**.

Generation of data for pesticide applications in horticulture crops 2018 (ST17000)

Key research provider: Eurofins

The generation of pesticide residue, efficacy and crop safety data is required to support label registration and minor use permit applications made to the APVMA which, when approved, provide access to safe and effective chemicals for the management of pests, weeds and diseases.

In 2018, Hort Innovation secured more than $1 million in assistance grants under the Australian Government's Access to Industry Uses of Agricultural and Veterinary (AgVet) Chemicals program. This funding is being used, along with levy contributions, to generate the data required for a range of registration and minor use applications across a variety of horticulture crops.

For the potato industry, the grant investment will ultimately support a Bayer DC-163 label registration application for the control of whitefringed weevil and African black beetle. Separate to the grant funding, the project will also support a Syngenta label registration application for Tervigo (abamectin + iron chelate) for the control of root knot nematodes.

To keep up to date with the latest information on new, ongoing and recently completed R&D investments throughout the year – and to search and find resources and reports from these investments – visit www.horticulture.com.au/potato-processing.

Minor use permits

Both the Hort Innovation Potato – Processing and Potato – Fresh Funds support the submission of applications for new and renewed minor use permits for the potato industry, as well as data generation activities to support chemical permits and registrations, and strategic agrichemical reviews.

Together these efforts provide industry access to safe, relevant and effective chemicals for the management of pests, weeds and diseases.

For full details on these activities and links to relevant information, www.bit.ly/minor-use-potato.

Permits in 2018/19

During the 2018/19 financial year, a successful renewed permit PER14765 was issued, with the application prepared by Hort Innovation and submitted to the APVMA in the previous financial year. This was facilitated through the *Potato industry minor use program* (PT16005).

Details for this and all other permits can be found in the following table.

Current permits

Below is a list of minor use permits for the potato industry, current as of 20 September 2019.

PERMIT ID	DESCRIPTION	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER
PER80344	Chlorpyrifos / Potato / Black beetle, wingless grasshopper, red legged earth mite	02-Jan-15	30-Sep-20	Growcom
PER12612 Version 3	Alpha-cypermethrin / Potato / Garden weevil (TAS and WA only)	29-Jun-11	30-Apr-21	Hort Innovation
PER14722 Version 2	Abamectin / Capsicum, cucumber, eggplant, zucchini, tomato, sweet corn, chilli, paprika, potato, snow pea and sugar snap pea crops / Tomato red spider mite	17-Feb-15	30-Sep-20	Hort Innovation
PER14765 Version 4	Hexythiazox / Cucurbits, fruiting vegetables, snow peas, sugar snap peas and potatoes / Tomato red spider mite *(Tetranychus evansi)*	21-Feb-15	30-Sep-23	Hort Innovation

All efforts have been made to provide the most current, complete and accurate information on these permits, however you should always confirm all details on the APVMA website at portal.apvma.gov.au/permits. Details of the conditions of use associated with these permits can also be found on the APVMA site.

Minor use permit updates are circulated in Hort Innovation's e-newsletter, *Growing Innovation*. Don't yet receive it? Sign up for free at www.horticulture.com.au/sign-up.

Financial statement

Financial operating statement 2018/19

	R&D ($)	TOTAL ($)
	2018/19 July – June	2018/19 July – June
OPENING BALANCE	**708,859**	**708,859**
Levies from growers (net of collection costs)	415,157	415,157
Australian Government money	324,697	324,697
Other income*	16,913	16,913
TOTAL INCOME	**756,767**	**756,767**
Project funding	509,507	509,507
Consultation with and advice from growers	19,493	19,493
Service delivery – base	22,729	22,729
Service delivery – shared	37,665	37,665
Service delivery – fund specific	60,000	60,000
TOTAL EXPENDITURE	**649,393**	**649,393**
Levy contribution to across-industry activity	14,976	14,976
CLOSING BALANCE	**801,257**	**801,257**
Levy collection costs	17,682	17,682

* Interest, royalties

Connect with your levy!

Visit www.horticulture.com.au/sign-up to sign up for free Hort Innovation communications, including industry-specific alerts, opportunities and general horticulture news

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