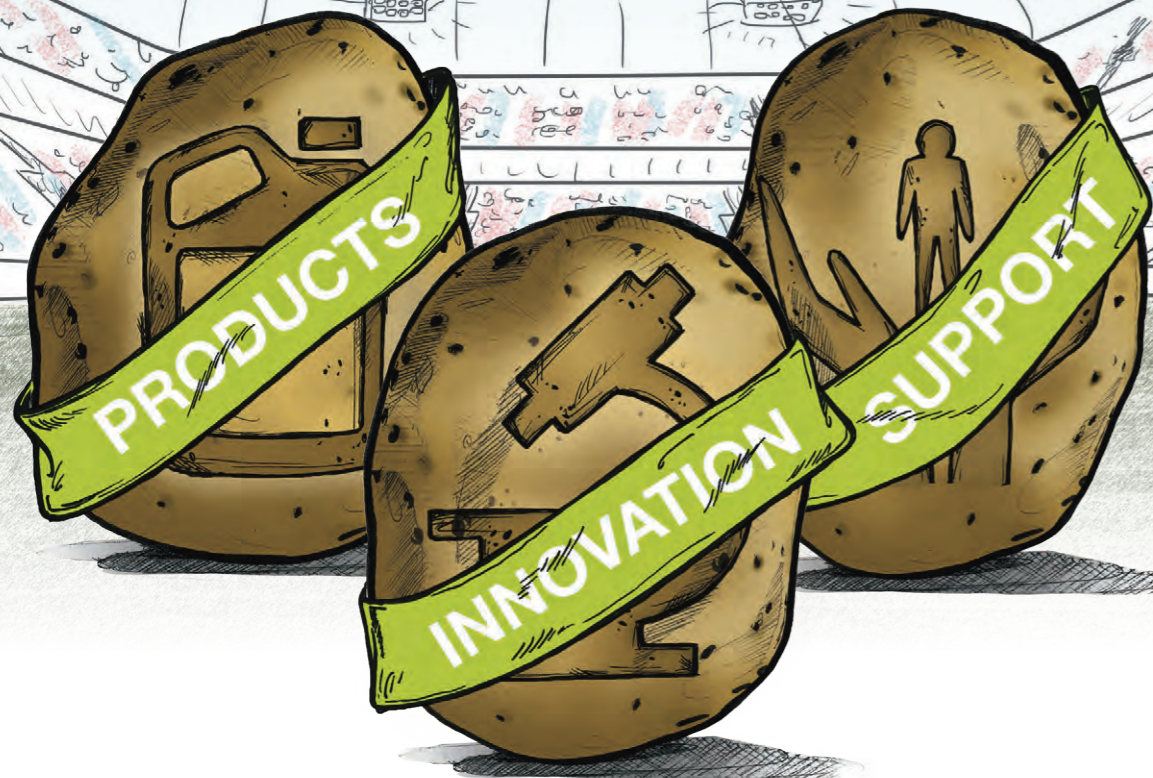


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EDITORIAL

As summer approaches and there's a hint of festivities in the air, it's a good time to reflect on the year that was – the achievements, the areas for improvement and the goals for 2019.

In the final editorial for 2018, we'd like to share our highlights from *Potatoes Australia* over the past 12 months.

The year flew by for our team, and in that time we showcased the stories of 12 leading potato growers and industry members across Australia. We expanded our traditional young 'grower' profiles to include other industry members and highlight the range of professions available in the potato industry, including in agronomy, research and the seed potato sector.

We covered a comprehensive range of R&D stories, including recent projects funded by the fresh potato research and development levy as well as Hort Frontiers. The topics spanned far and wide, from powdery scab suppressive soils, the impact of groundwater on potato crops and soil health management practices to Integrated Pest Management and the five-year Strategic Investment Plan for the potato industry.

We shared regular updates on developments in tomato-potato psyllid surveillance, including the findings from Western Australia's Transition to Management Plan and preparedness activities for the eastern states.

We searched the archives and revisited levy-funded projects conducted some 20 years ago to see how the research findings

are relevant today, and looked further afield to updates from seed certification bodies and PhD student research.

We shared developments in the international potato industry, including an 'electronic nose' developed to sniff out soft rots in potato storage, managing salinity in potato crops and research into potato breeding developments and precision agriculture, just to name a few.

We also provided comprehensive wrap-ups of industry events including Hort Connections 2018, the World Potato Congress in Peru and the ViCSPA (now AuSPICA) Potato Industry Conference.

Much of our content would not be possible without our regular columnists, including National TPP Coordinator Alan Nankivell, the Potato Processing Association of Australia, Scott Mathew from Syngenta, Growcom's Fair Farm Initiative team, Stu Jennings from Young Potato People and Dr Kevin Clayton-Greene and the AUSVEG Extension and Engagement team's biosecurity updates.

Thank you to our readers, contributors, growers, researchers and industry members for your support throughout 2018 – we couldn't put this magazine together without you. We wish you all the best for the year ahead and plan to bring you more new and interesting content in 2019.

As always, if you have any feedback or suggestions please contact the magazine team on 03 9882 0277 or email communications@ausveg.com.au.

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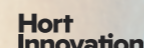
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Since it was detected in Western Australia in February 2017, tomato-potato psyllid (TPP) has had a devastating impact on many potato and vegetable growers across the state.

While we often hear about the regulatory side of an exotic plant pest incursion and the response from industry and government, this edition of *Potatoes Australia* includes a personal story from Western Australian potato grower Darryl Smith (see page 16).

Darryl was the first grower to detect TPP on his farm, and while it is a title that no one wants to receive, he has maintained a positive outlook in the wake of the incursion.

Darryl shared his experience at a recent industry event in Tasmania. While the discovery of TPP was extremely disruptive to his business – causing him to lose 180 tonnes of potatoes through spraying and quarantine measures – it forced Darryl to take on-farm biosecurity seriously. He recognised that only a grower is responsible for implementing biosecurity measures on their farm and, if ignored or neglected, the ramifications of this decision can take a significant financial and emotional toll when things go wrong.

Fortunately for Darryl, he was able to receive some reimbursement through the Emergency Plant Pest Response Deed, which goes to show the practical benefits of such a system. I'm confident that Darryl's story has had a profound impact on many growers and we thank him for having the courage to share what was an extremely challenging and stressful time in his career.

On the topic of sharing stories, this magazine is distributed with the annual Grower Success Stories publication, which features six potato growers who have taken the opportunity to participate in levy-funded research projects under the Hort Innovation Fresh Potato and Potato Processing Funds.

The booklet details how the levy system can assist growers to build their businesses and strengthen their growing practices, with the profiled subjects already putting research findings into practice to experience real-world benefits in their growing operation.

As a result of their participation in a range of potato R&D projects, these growers have increased their knowledge of soil health; implemented sustainable farming techniques for pest and disease management; and developed their leadership capabilities to ultimately improve the overall productivity, profitability and competitiveness of their farms. These benefits will be long-standing, with one grower reflecting on his involvement in a levy-funded project over two decades ago and how the findings from that project are still relevant today.

As we gear up for 2019, I encourage growers to continue getting involved in levy-funded R&D to not only get a better return on their investment, but to ensure the Australian potato industry remains viable for many years to come.

The release of the *Harvest Trail Inquiry* by the Fair Work Ombudsman (FWO) in November revealed concerning findings of the level of non-compliance in investigated workplaces along Australia's Harvest Trail. It is a sobering reminder that this appalling behaviour cannot be tolerated any longer.

AUSVEG strongly condemns the mistreatment of farm workers in any form and we are taking proactive steps on three fronts to remove rogue operators that damage the reputation of those who do the right thing.

Firstly, we are working with our Queensland state member, Growcom, to roll out its Fair Farms Initiative nationally. The program ensures growers have the knowledge and tools to fulfil their workplace obligations and implement proper employment practices on-farm, and offers a third-party audit that can be recognised by the supply chain.

Secondly, we are engaged with the major retailers and market operators to encourage them to put in place processes to ensure they are sourcing product from growers who can demonstrate they are complying with workplace law, including those who are Fair Farms accredited. This 'whole of supply chain' approach is the best way to ensure that farmers who do the right thing are rewarded.

Thirdly, we have ensured that the Federal Government is aware of the chronic labour shortage that the industry faces. We have welcomed the government's recent announcement of changes to visa programs that will allow backpackers to qualify for a third year in Australia by performing additional work in regional industries such as agriculture, as well as raising the age limit for program participation from 30 to 35 years. Easier access to the Seasonal Worker Programme is also a welcome improvement, and will help our growers retain a more stable workforce throughout the year.

Meanwhile, AUSVEG will continue lobbying for a dedicated Agriculture Visa to meet our industry's labour shortage. We encourage growers to register job vacancies with the National Harvest Labour Information Service, both as it is a practical means of filling these vacancies, but also as it is one of the sources of data that the government is using to help it determine the size of the problem.

Finally, *Growing our Food Future* will be the overarching theme for Hort Connections 2019, with delegate registrations now open for the event to be held in Melbourne from 24-26 June.

The first confirmed speaker is celebrity chef and 2010 *MasterChef* winner Adam Liaw, who will share his expert insights into trends in the food service sector. A range of networking opportunities will also be available at Hort Connections, including at the Trade Show, and we will share more updates on the conference as they become available.



Bill Bulmer

Bill Bulmer
Chairman
AUSVEG



James Whiteside

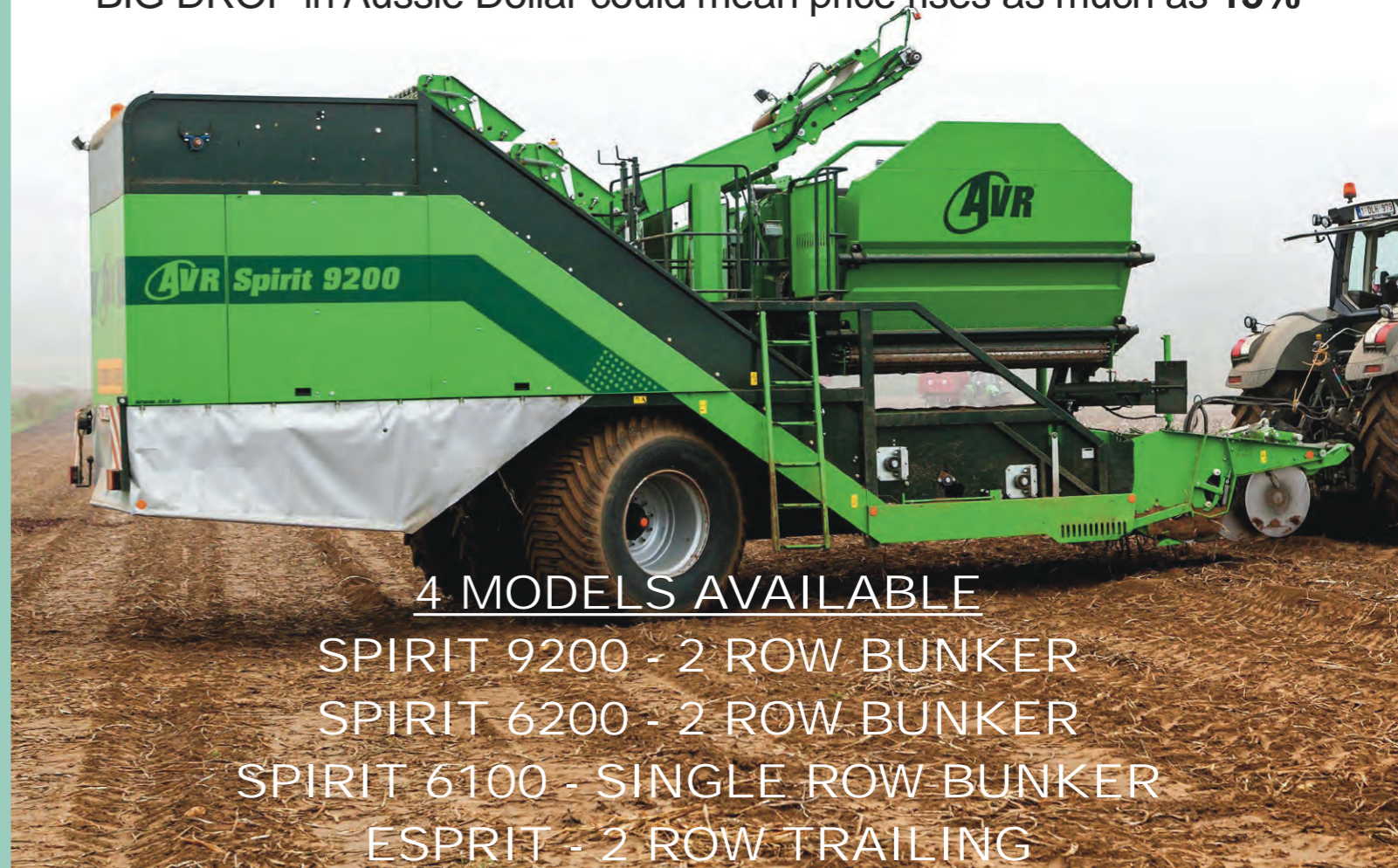
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COORDINATING POTATO PEST AND DISEASE R&D TO BENEFIT GROWERS

Given the collection of levy-funded pest and disease R&D projects currently underway in the Australian potato industry, coordination of these projects is essential to ensure that key findings are implemented on-farm and can ultimately benefit growers. RMCG Senior Consultant Kristen Stirling reports on a new project developed to achieve this feat.

Ensuring that research and development (R&D) conducted for the potato industry is coordinated and communicated to growers is the key focus of a new role funded by Hort Innovation for the Australian potato industry.

The project, *Program approach for pest and disease potato industry investments* (PT17002), is a strategic levy investment under the Hort Innovation Fresh Potato and Potato Processing Funds. It involves the coordination of R&D projects investigating potato pests and diseases and will be managed by Kristen Stirling and Doris Blaesing at RMCG.

Both Kristen and Doris have worked previously for the potato industry and have a passion for making sure that R&D delivers real industry impact.

HOW WILL IT WORK?

The program coordination role commenced in late 2018 and will continue for the next three years. R&D currently occurring within the program includes:

- Extension of the PreDicta Pt diagnostic service (PT15008), managed by Michael Rettke at the South Australian Research and Development Institute.
- Updates to the national potato biosecurity plan and manual (PT16004), managed by Rodney Turner at Plant Health Australia.
- Coordination of the national Tomato Potato Psyllid (TPP) program (MT16018), managed by Alan Nankivell at AUSVEG.
- Exploration of *Spongospora* suppressive soils (PT16002), managed by Richard Falloon at Plant & Food Research New Zealand.
- Extension of Integrated Pest Management (IPM) in the potato industry (MT16009), managed by Dr Paul Horne at IPM Technologies.

Kristen and Doris will work with these R&D providers to ensure that any new information and tools that will help industry manage pests and diseases are communicated. They will also work with the communications team at AUSVEG to provide regular updates on these projects via *Potatoes Australia* magazine and the AUSVEG *Weekly Update* e-newsletter, as well as communicating through state-based associations, sector-specific associations and state agriculture departments.

UPCOMING INDUSTRY FORUM

A key industry event for the project will be an annual R&D forum which will provide growers and industry members with a chance

to hear first-hand about the key outcomes from pest and disease R&D projects. At this forum, R&D providers will give targeted presentations showcasing recent research and provide practical information on how R&D outputs can help the potato industry.

The forum will also include plenty of time for networking and in-depth questioning of R&D providers to find out how this research can be applied on-farm. The pest and disease R&D forum will be open to everyone involved in the potato industry so look out for further details on this event in upcoming editions of *Potatoes Australia* and AUSVEG communications channels.

ONGOING BENEFITS

To avoid duplication of effort, RMCG will also coordinate R&D investigating pest and disease management in the potato industry. This will involve:

- Organising regular catch-ups between the R&D providers to discuss project progress, issues and identify opportunities for collaboration.
- Providing a go-to person for industry members outside of the R&D program.
- Investigating international activity in this space to benchmark Australian R&D and to identify areas for collaboration and leveraging of results.

Finally, RMCG will also provide monitoring and evaluation (M&E) support to ensure the achievements of the pest and disease program are captured and encourage continuous improvement in program delivery.

Program progress will be guided by a steering advisory committee and regular updates will be provided to the Strategic Investment Advisory Panel for the fresh potato and potato processing industries to inform future investment of the R&D levy in researching pest and disease issues.

INFO

For more information, please contact Kristen Stirling on 03 9882 2670 or kristens@rmcg.com.au.

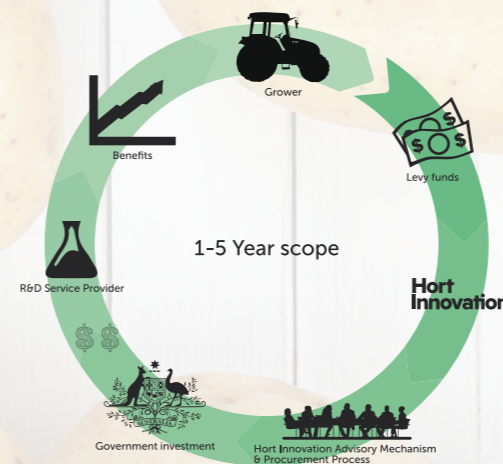
This project has been funded by Hort Innovation using the fresh potato and potato processing research and development levies and contributions from the Australian Government.

Project Number: PT17002



THE FRESH POTATO R&D LEVY AT WORK

STRATEGIC LEVY INVESTMENT



WHO PAYS THE FRESH POTATO R&D LEVY?

The levy is paid by growers who produce and sell either fresh or processing potatoes in Australia.

The total levy charge is set at 60 cents per tonne for fresh potatoes and 50 cents per tonne for processing potatoes and must be paid by the producer of fresh potatoes or the owner of processing potatoes. The Federal Government also provides funding in addition to grower levy payments. Once paid, the research and development levy funds are managed by Hort Innovation.

HOW IS LEVY MONEY INVESTED?

Hort Innovation has two funding models for investment in research and development. The industry's levy is invested with Australian Government contributions through the Hort Innovation Potato – Fresh Fund, which is part of the organisation's strategic levy investment activities.

All investments through the Potato – Fresh Fund are made with advice from the industry's Strategic Investment Advisory Panel (SIAP) – a skills-based panel made of panellists from across the fresh potato industry, the majority of whom are levy-paying growers.

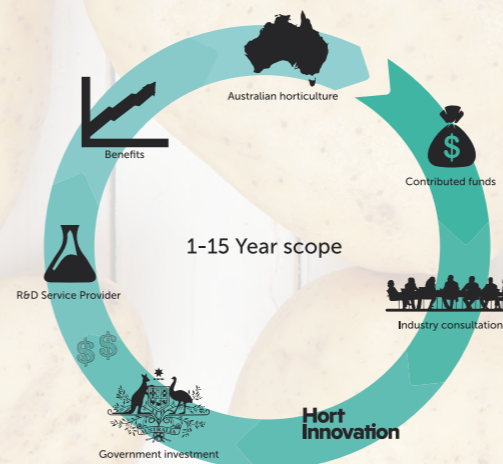
Strategic levy investments have a one- to five-year scope and the R&D is designed to directly benefit growers in the potato industry. Project topics range from pest and disease management to biosecurity matters, with findings communicated through a variety of channels, including *Potatoes Australia*.

You can find information on all current strategic levy investments, and details of the SIAP, on Hort Innovation's Potato – Fresh Fund page at horticulture.com.au/grower-focus/potato.

The second Hort Innovation funding model is the strategic partnership initiative known as Hort Frontiers. Hort Frontiers projects do not involve levy dollars, unless an industry chooses to become a co-investor in them, through advice of the SIAP. Instead, Hort Frontiers facilitates collaborative across-horticulture projects involving funding from a range of co-investors. These projects have a long-term focus and are designed to solve major and often complex challenges to secure the future of Australian horticulture.

You can read more about Hort Frontiers and the seven funds within it at horticulture.com.au/hort-frontiers.

HORT FRONTIERS



HOW CAN GROWERS GET INVOLVED?

All potato growers are encouraged to share their thoughts and ideas for the research they want to see, both within the levy-specific Potato – Fresh Fund, and within the wider Hort Frontiers strategic partnership initiative.

Ideas can be submitted directly to Hort Innovation through the online Concept Proposal Form at horticulture.com.au/concept-proposal-form. Growers are also encouraged to reach out to the SIAP panellists for the industry (available from the Potato – Fresh Fund page).



This project has been funded by Hort Innovation using the fresh potato research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au



L-R: Jon and Ryan Hill.

HILL FAMILY FARM: INTRODUCING THE NEXT GENERATION OF POTATO GROWERS

Established in the early 1900s, Hill Family Farm has a rich history of growing potatoes and is one of only a few potato growing operations remaining in the Southern Highlands of New South Wales. Michelle De'Lisle spoke to third-generation grower Jon Hill and his son Ryan about the history of the farm and their plans for the future.



It's not just in the name – potato growing is truly a family affair for the New South Wales-based Hill family.

Located in the rolling hills of the Southern Highlands, third-generation grower Jon Hill operates Hill Family Farming with his wife Carol, his two brothers Todd and Warwick, and their wives Angela and Nicky. The fourth generation is also coming through on the family-owned farms, with Jon's son Ryan now working alongside his father and uncles while Jon's parents, Jack and Barbara, are also still actively involved in the business.

Jon was raised on his father's potato farm, which was established in 1904 by his great-grandmother. It was originally a dairy operation with potatoes and other vegetables grown on the property.

Jon's raw passion for potatoes is evident – as he says, he enjoys "growing, digging and packing a good crop of spuds".

"And then to be able to sell them is the icing on the cake," he says.

AN EVOLVING BUSINESS

The Australian spud market has changed significantly since Jon began growing potatoes with his father, and the landscape will look different again for Ryan as he progresses through the business.

"When I first started growing potatoes, we were growing washed cocktail potatoes for the Sydney markets five nights a week," Jon recalls.

"This market disappeared once South Australian growers could grow their product first-grade out of the sandy soil. And with refrigerated transport, they could get to Sydney overnight."

Today, the Hill family produces fresh market and brushed potatoes as well as crisping potatoes for Snack Brands Australia. Ryan predominantly grows Dutch Cream potatoes and is in charge of the quality assurance side of the business. He is learning as much as he can about the potato industry so he can follow in Jon's footsteps.

Returning to the farm was always at the front of Ryan's mind.

"My interest in the potato industry goes back to when I was a kid riding around in the tractor with my dad, helping him with the irrigation and going in the truck to the markets. Today I get to do it all myself," Ryan says.

"I pursued other jobs once I left school but was always interested in what everyone was doing at home on the farm; looking at the weather and thinking what job they would be doing at that particular time.

"My mind was certainly not on the job at the time – I always wanted to get back onto the farm."



Ryan made the decision to return to the farm after taking into consideration a number of the challenges he would face.

"After discussing with my father what was involved in working on the farm for long hours as well as relying on the weather and lots of competition, I made a choice," he says.

"If I wasn't able to succeed with the help of my family, I probably would not be able to do it at all."

GROWER CHALLENGES

For the Hill family, many of the challenges they face can be attributed to the extremities of the local climate. For instance, potatoes are grown in paddocks that are more sheltered from the westerly winds in order to protect the crops.

"We have been hit by frosts, and we've had well-below average rainfall with no run-off to fill our dams," Jon says.

There are also the added complexities of growing potatoes in the Southern Highlands, which is experiencing a growth in population. The 2016 Census revealed a population increase of 7.8 per cent in the region.

"We are blessed to be in the Robertson area so close to Sydney – only two hours to the markets and chip factories. Our potatoes like the warm summer days but cool nights of the Southern Highlands," Jon says.

"But because of the close proximity to Sydney, a lot of the farms are purchased by Sydney retirees/businesspeople which makes it impossible for our business to compete on price."

Ryan also identified this as an issue he will face into the future.

"I can see it's only going to get harder in this area to grow potatoes because of the land being so expensive. Because of this reason, we will have to rent from other property owners and there is not a lot of people here who like to rent."

Disease is also an ongoing issue that needs to be managed – Jon credits using healthy, clean seed as well as rotation as important factors in disease resistance as well as sustainability.

"Know your seed grower and use long crop rotations. By growing brassica and rye corn into the paddocks, this biofumigates the soil," he says.

"Our agronomist keeps us up-to-date with the latest pesticides and disease maintenance products. We also sap test our crops to see how healthy our plants are. Also, by speaking to other growers in the industry we learn and pick up lots of new ideas."

There is always an abundance of information for Ryan, who receives his on-farm information and advice from Jon, his uncles, grandfather and other local growers.

FAMILY TIES

Jon's proudest achievement is being able to work with his family and purchasing land of their own. The future is bright; however, he is taking it one year at a time to remain sustainable. It is a view shared by his son, who is looking to implement digging technology as well as improving practices in the packing shed.

"As we keep moving forward day after day, year after year, we seem to get more efficient and learn from our mistakes," Ryan says.

"In 10 years' time, if we are still going strong in the potato industry, I would not only be proud of myself but I would be proud of my family."

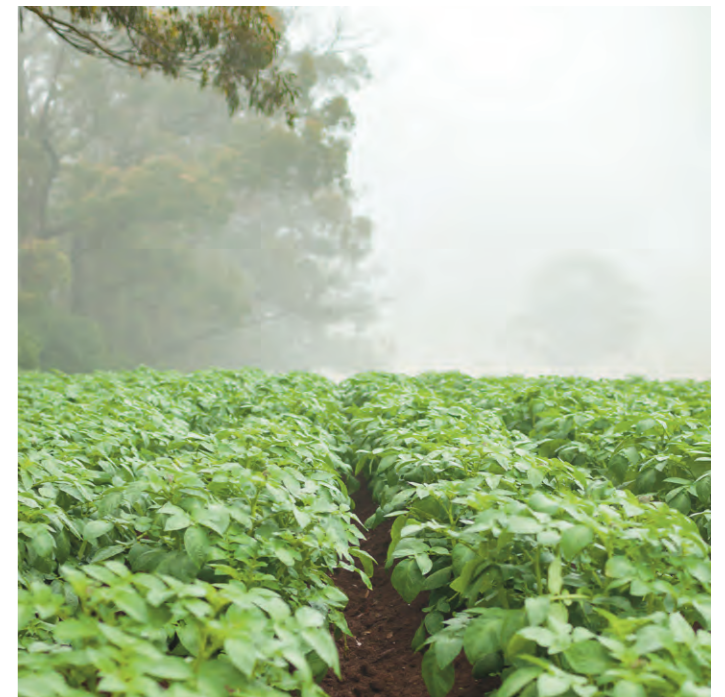
Jon's advice to those wanting to enter or remain in the industry is simple: make sure you are happy with what you are doing.

"Enjoy your job – it makes it so much easier to get up each morning if you enjoy your job," he says.

"It gets hard sometimes, but the rewards are worth it in the end," Ryan adds.



Photography by Kim Shirley.





Potato leaf showing symptoms of infection with potato mop-top virus. Image courtesy of William M. Brown Jr., Bugwood.org.

POTATO MOP-TOP VIRUS FOUND IN NEW ZEALAND

Potato mop-top virus was detected in Canterbury, New Zealand for the first time in September 2018, and Biosecurity New Zealand and Potatoes New Zealand are working in partnership to manage the response. *Potatoes Australia* provides an update on the virus and its impact on potato production.

Potato mop-top virus (PMTV) is a plant virus which largely affects potatoes. It is carried by *Spongospora subterranea*, the causal agent of powdery scab, a common and widespread disease of potatoes.

In September 2018, PMTV was detected in potato tubers in Canterbury, New Zealand. It has since been determined that eradication is not possible; however, science advice confirms that the virus can be managed effectively in the country without causing major production losses.

This news is concerning for Australian potato growers not only because of New Zealand's close proximity to the mainland, but also because PMTV is currently undetected in Australia.

VIRUS OVERVIEW

PMTV can lead to significant losses in potato yield. The virus causes curved lesions or dead cells (necrosis) in the flesh of tubers, leading to unaesthetic potatoes that may face commercial rejection from processors and packers.

PMTV can remain in the resting spores of powdery scab in soil for at least 18 years, meaning paddocks infected with the

NEXT STEPS

Potatoes New Zealand (PNZ) CEO Chris Claridge said PNZ and Biosecurity New Zealand are currently in the planning stages for moving from response, to industry-led management.

"Testing is still ongoing of suspected infected properties within the original region," he said.

"PNZ is assisting growers by maintaining personal contact with those directly affected, offering specific farm hygiene advice to all growers and offering processor advice, including by-product actions, to all processing plants and stakeholder updates as new information comes to hand."

In keeping Australian potato growing regions free from PMTV, it is clear that carrying out on-farm biosecurity best practice must be of key importance to growers and stakeholders. Specific on-farm management measures include cleaning and/or disinfecting equipment, machinery and vehicles to avoid spreading soil between paddocks and properties; and using signage to ensure workers and visitors are aware of biosecurity hygiene practices.

More information can be found on the Farm Biosecurity website at farmbiosecurity.com.au.

In keeping Australian potato growing regions free from PMTV, it is clear that carrying out on-farm biosecurity best practice must be of key importance to growers and stakeholders.

virus are likely to remain infectious for a long period of time. PMTV can also spread on seed tubers, in soil on boots, in machinery, and in waste or by-products from potatoes.

Unfortunately, visual inspection of plants or tubers may be inconclusive for PMTV because the virus symptoms may not be present, or they may look similar to other viruses or physiological conditions. Reliable methods for accurately detecting PMTV include isolation of the virus using soil and bait plant methods, and detection through the use of indicator plants.

If Australian growers suspect PMTV or any other unusual plant pest on their property, this should be reported immediately to the relevant state/territory agriculture agency through the Exotic Plant Pest Hotline (1800 084 881). Early reporting increases the chance of cost-effective control and eradication.

INFO

For more information, please visit potatoesnz.co.nz/news/latest-news/pmtv-update or biosecurity.govt.nz/protection-and-response/responding/alerts/potato-mop-top-virus.

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FORGING A RELATIONSHIP TO DELIVER OUTCOMES FOR POTATO GROWERS

Hort Innovation, using the fresh potato and potato processing research and development levies and contributions from the Australian Government, invests in a range of R&D projects that aim to ensure the long-term productivity and profitability of the potato industry. *Potatoes Australia* spoke to new Hort Innovation Relationship Manager Jane Wightman about her role in grower and industry engagement.



Hort Innovation Relationship Manager Jane Wightman.

Following a three-year break from the horticulture industry, Jane Wightman returned to Hort Innovation in April 2018 to manage the fresh potato, potato processing, sweetpotato and vegetable (Farm Productivity, Resource Use and Management; and Drive Train) portfolios.

Part of Jane's role is to work closely with the Strategic Investment Advisory Panels (SIAPs) to achieve the industry's Strategic Investment Plan outcomes, including delivering the investments for the benefit of growers.

Another key component is developing strategic relationships with key external stakeholders, particularly growers in the potato, sweetpotato and vegetable industries. As a Relationship Manager, Jane leads the industry account planning cycle, which involves developing and implementing a planning discipline that prioritises the investment needs of the industries within their respective portfolios.

INDUSTRY INSIGHT

Jane worked for Horticulture Australia Limited (HAL, now known as Hort Innovation) from 2010 for five-and-a-half years as an Industry Services Manager with the tropical fruit industries. She said a major motivating factor for re-joining Hort Innovation in 2018 was the job satisfaction she received while working with industry advisory committees.

"Now working with the SIAPs allows me to have a great insight into industry needs and to play a part in helping levy investments meet growers' R&D needs," Jane said.

"I am enjoying getting to know the industries I work with and the projects their levy is invested in. This also includes the extension that is required to assist growers in adopting new techniques and management practices from the outcome of R&D projects that can lift their productivity."

As growers are often time-poor due to the demands of operating a business, Jane said Hort Innovation appreciates the input from growers who are on the SIAPs to advise on strategic levy investments in their industry.

"It is important to ensure we appropriately update the SIAP members and growers in general on the potato R&D portfolio and project outcomes so new technologies, techniques and management practices can be adapted and adopted by growers," she said.

"As all growers are busy and have differing needs, ensuring we do this well can be challenging. We always welcome feedback from growers on how we communicate in relation to the levy investment."

GETTING IN TOUCH

Jane is the "first port of call" for growers who want to find out about how the potato levy is being invested and she encourages growers to submit ideas for R&D projects going forward.

"We have a section on the home page of the Hort Innovation website to submit project ideas. If growers would rather explain their needs by talking to someone, I am only a phone call away; or come and have a chat when you see me at some of your industry events," she said.

Jane also advises potato growers to support their SIAP members that represent them in relation to the potato levy investment. They include seed and commercial growers and their contact details are on the Hort Innovation website. Additionally, growers can become a member of Hort Innovation and receive updates on the potato levy investment and R&D project outcomes.

STRATEGIC INVESTMENT ADVISORY PANELS

Fresh Potato Fund

Daryl Lohrey – Lohrey Pastoral, TAS
 John Doyle – Doyle's Farm Produce, NSW
 Ben Dowling – Dowling AgriTech, SA
 Pennie Patane – Patane Produce, WA
 Andrew Lamont – Thomas Foods International, NSW
 Frank Rovers – F. & K.L. Rovers, VIC
 Geoff Moar – Geoff Moar Family Trust, NSW
 David Nix – D.G. Nix, QLD
 Tim Heysen – Heysen Partners, SA
 Terry Buckley – Buckley Farms, SA
 Ken Morley – Solan, SA
 Sam Humphries – KR & JM Humphries, SA
 Kathy Ophel Keller – SARDI, SA
 Independent Chair: Cath Botta

Potato Processing Fund

Allan Smith – Snack Brands Australia, NSW
 Anne Ramsay – PPAA, VIC
 Brett Pemberton – Pepsi-Co, NSW
 Josh Opas – McCain Foods (Aust), VIC
 Paul McBeth – Marvel Packers, VIC
 Calum Wilson – University of Tasmania, TAS
 Independent Chair: Cath Botta

INFO

For more information relating to levy-funded research and development projects being delivered through Hort Innovation, please visit horticulture.com.au or contact Hort Innovation Relationship Manager Jane Wightman on 0427 142 046 or jane.wightman@horticulture.com.au.

Details of the SIAPs can be found on Hort Innovation's website at horticulture.com.au/grower-focus/potato; and horticulture.com.au/grower-focus/potato-processing.



ANNUAL REPORT NOW AVAILABLE FOR THE FRESH POTATO INDUSTRY

During 2017/18, Hort Innovation invested more than \$1.17 million into R&D for the potato growing industry.

The 2017/18 annual report for the Potato – Fresh Fund is now available and includes an overview of six new projects funded by the fresh potato research and development levy, ongoing projects and the investments that wrapped up in the financial year.

There is also a section on the fresh potato industry's Strategic Investment Plan 2017-2021, the roadmap that will help guide Hort Innovation's management of investment programs for the industry over five years.

The Potato – Fresh Fund annual report, as well as other industry-specific reports, is available to download from the Hort Innovation Fund Annual Report Portal at horticulture.com.au/fund-annual-report-portal.

If you prefer to read a hard copy of the annual report, simply use the form available through the portal to have your report mailed to you.

INFO

For more information, please contact Hort Innovation Relationship Manager Jane Wightman on 0427 142 046 or jane.wightman@horticulture.com.au.

To sign-up to Hort Innovation's free membership program to find out more about what your levy is achieving throughout the year, visit horticulture.com.au/membership.



Western Australian potato grower Darryl Smith.

REFLECTING ON THE TOMATO-POTATO PSYLLID INCURSION IN WA

Darryl Smith was the first potato grower to discover tomato-potato psyllid on his property in Western Australia in February 2017. At the Tasmanian Institute of Agriculture's Forthside Open Day, Darryl spoke openly about his experiences in the aftermath of the discovery. *Potatoes Australia* reports.

In February 2017, one of the Australian potato industry's worst fears was confirmed: tomato-potato psyllid (TPP), the destructive pest that had devastated New Zealand, was discovered in a Perth backyard.

Soon after it was found in the metropolitan region, testing began on farms in potato growing regions across Western Australia, including the Busselton region which is located 250 kilometres south of Perth. It was Blue Moon Potatoes Director Darryl Smith who received the dubious honour of being the first potato grower to detect TPP on his Jindong property.

PSYLLID DISCOVERY

Darryl opened his presentation at the Tasmanian Institute of Agriculture's Forthside Open Day in October 2018 with an explanation of how the psyllid was found on his farm. The Western Australian Department of Primary Industries and Regional Development (DPIRD) had placed yellow sticky traps on a range of farms (concentrating on seed potato crops, including Darryl's) from Busselton and further south to Albany and Manjimup.

"If you're going to let something on your farm, make sure you know where it has come from and you know that it's safe."

Three weeks later, TPP was detected on his property and DPIRD notified Darryl of the news.

"I knew I was in a bit of trouble because the Department staff parked the car out the front; they didn't even come onto the farm. It was pretty stressful – we'd delivered potatoes to the market the day before, and we had potatoes ready to deliver the next week. As soon as they rolled into our place on that Friday afternoon, they said 'no you can't deliver them'.

"They also said anything that's on this farm, you can't take off. On top of that, over the next three days I had an intense spraying program that involved spraying the boundary and spraying the crop. Ten days after that, after further technical investigation they decided I needed to do more spraying, because at that stage, they were still hoping to eradicate the pest from Western Australia."

POSITIVE OUTCOME

Darryl's farm was placed under quarantine, which meant he was unable to deliver potatoes for a month. He also couldn't transport

seed that was stored on the quarantined farm to plant on other properties that were not affected by TPP. Although he lost around 180 tonnes of produce, upon reflection, Darryl is upbeat about the impact of the situation.

"It was a pretty rough couple of weeks. But because Western Australia had signed up to the Emergency Plant Pest Response Deed, we got reimbursed for the total cost of that spraying which was about \$6,000, and they reimbursed me for the potatoes I couldn't sell," Darryl said.

TPP can vector *Candidatus Liberibacter solanacearum* (CLso), a bacterium that causes zebra chip in potatoes. Darryl continued to conduct testing for TPP while DPIRD conducted the testing for CLso throughout the spring of 2017 through to the end of autumn 2018 and, at the time of writing, the bacterium has not been detected in Western Australia. The results of sticky trapping also produced an encouraging result.

"Because of the extensive spraying program that was forced upon us, we probably have reduced the burden in the area so it may have been well and truly worthwhile, as it turns out," Darryl explained.

Following the TPP incursion, Darryl has a strong biosecurity message for all growers. He told the audience that, after a couple of scares where his sheep contracted virulent foot rot, he has changed his on-farm biosecurity practices.

"On your own farm, the person who is responsible for looking after your own biosecurity is yourself," he said.

"If you're going to let something on your farm, make sure you know where it has come from and you know that it's safe. I've been farming for 30 years and 18 months ago, I got big biosecurity signs made up on the farm. They're on the gates and say 'if you want to come on this place, give me a ring. But don't go through the gate until you do'.

"It was a hard, expensive lesson to learn – I think you've got an enhanced awareness of the cost when things go wrong."

INFO

For more information, please contact Darryl Smith at darryl@bluemoonpotatoes.com.



GROWER LESSONS LEARNT FROM AN EXOTIC PLANT PEST INCURSION



Recently, industry members heard from a Western Australian potato grower about his experiences following the detection of tomato-potato psyllid on his property. AUSVEG Biosecurity Adviser Dr Kevin Clayton-Greene was in the audience and in this edition, he uses this example to reinforce the necessity of early reporting of suspect pests and robust on-farm biosecurity practices.

While it is always a bit uplifting in temperate Australia as we enter into spring and summer, it is also the time when biosecurity assumes a greater importance. Warmer temperatures and emerging crops awaken pests and diseases and provide opportunities for any unwelcome arrivals.

In a recent 'Biosecurity brief' in *Potatoes Australia*, I mentioned the importance of on-farm biosecurity and the role it can play in helping to minimise new pests establishing in Australia. On the previous page, we hear first-hand from Western Australian potato grower Darryl Smith about the impact upon him and his business following the discovery of tomato-potato psyllid (TPP) on his farm.

Darryl's personal tale is a salutary reminder of the importance of on-farm biosecurity and how we should all be ever-vigilant. I would urge everyone to read the summary of his presentation to industry at a recent event in Tasmania organised by RM Consulting Group and the Tasmanian Institute of Agriculture.

Darryl makes several key points and, despite the inconvenience and disruption to his business, his message was positive.

He was reimbursed for his lost crop and the control measures they now have in place have meant that the population levels of TPP on his farm, and those of others affected, are now a lot lower than when TPP was first discovered. The biggest change since the outbreak is how Darryl now manages his property and the restrictions around personnel access and also entry of material to his farm.

EARLY REPORTING CRUCIAL

No-one wants to be at the centre of an outbreak and get caught up in an incursion, and it is often said by some that even if they found something they wouldn't report it. The lesson from TPP is that this will result in greater pain in the long-term; unless all one's produce is consumed on-farm, someone will eventually find it.

Many of our incursions have been first discovered in home gardens or outside the farm. Once this occurs, emergency measures will be instituted anyway – whether we like it or not.

Crucially, if the pest is already present in large numbers and beyond eradication, then there will be no response plan. Without an eradication attempt, Owner Reimbursement Costs cannot be paid nor can a Transition to Management Plan be cost-shared. The result in this scenario is that growers will be significantly worse off than had the original finder 'fessed up' as soon as the pest was discovered.

It is acknowledged that the current Emergency Plant Pest Response Deed system is not perfect; however, it is a lot better than no system. As noted in previous 'Biosecurity briefs', we can look back upon numerous successful eradications which have saved industry from millions of dollars of potential extra costs or loss of market access.

THE BOTTOM LINE

TPP has provided many valuable lessons for future incursions and also has shown that surveillance is vital. No-one predicted that TPP would first appear in Australia in Western Australia and no-one was looking for it. A more recent example is the discovery of potato mop-top virus in New Zealand. Early reporting may prevent this 'nasty' from spreading throughout the country (it is carried on soil and seed), however if it had gone unreported it would have spread throughout the country on seed from the South Island and been impossible to control.

The take-home message is that on-farm biosecurity is important and while an incursion creates a lot of disruption, it is not the end of the world and can be managed.

The Farm Biosecurity website is easy to find and navigate with many of the tools needed to implement an on-farm biosecurity plan, including templates, checklists and manuals. As we have said many times before, we cannot expect to take biosecurity seriously if we, as producers, do not. Visit farmbiosecurity.com.au for further details.

INFO

For more information, contact AUSVEG on 03 9882 0277 or email info@ausveg.com.au.



THE JOURNEY TO POTATO SEED CERTIFICATION

Tucked away in Toolangi, just north of Healesville in Victoria's Yarra Ranges, is seed certification authority AuSPICA as well as Toolangi Elite, known to many as the birthplace of potato tissue culture in Australia. In this edition, *Potatoes Australia* takes you through a tour of the facility to showcase the many and varied steps that lead to potato seed certification.

First established in 1938, AuSPICA (formerly known as ViCSPA) is an independent provider of seed potato certification and other services to the Australian potato industry. It is responsible for the field inspection of 2,000 hectares of seed potatoes across three states.

The rebranding of the authority in August 2018 is reflective of its wider reach, as it is now responsible for the seed potato certification schemes in Victoria, South Australia and northern New South Wales (Guyra).

Since 2010, AuSPICA has been running Toolangi Elite in Victoria, one of Australia's eight accredited mini-tuber producers. It is where approximately 50 per cent of the country's certified potatoes start their life.

A LIBRARY OF VARIETIES

AuSPICA maintains a tissue culture collection on its Toolangi site, consisting of around 430 public and private potato varieties.

AuSPICA General Manager Dr Nigel Crump described the public collection as a "genetic resource for the industry", as around 50 per cent of the public varieties are not commercially used and

includes older varieties such as Toolangi Delight. The value of the collection was highlighted when the Snowden variety was nearly removed from the collection – the industry then changed direction and it is now used in the crisping industry.

TISSUE CULTURE MULTIPLICATION

The first step to the process starts in the laboratory, where tissue culture technology enables the rapid build-up of plant material. A team of specialist culture technicians cut a potato tissue culture plantlet into four and each is placed into agar (a jelly-like substance obtained from algae) to develop a rooting and shooting system and ultimately produce a cultured potato plantlet.

This cutting process is repeated six times and the plantlets are stored for a period of three weeks between each cut.

Strict quality assurance protocols are implemented at this stage to ensure that each technician only operates with one variety at any one time. Each plantlet is labelled clearly with its variety and the name of the technician to avoid confusion, and the laboratories are sterilised to the equivalent of a hospital environment.

AuSPICA produces over a billion plantlets over a six-month period, with up to four technicians cutting plantlets at any one time.

FROM POLYHOUSES TO MINI-TUBERS

The plantlets are then grown in polyhouses at Toolangi, which are rigorously monitored and tested for weeds and viruses throughout the year. The structures are inspected for any damage which could pose a biosecurity risk, while yellow sticky traps and aphid and thrip mesh are used to detect and prevent the entry of insects.

Each crop takes about three months to grow, with two crops planted in each polyhouse. When the plants are mature, they are transported to another location where they produce mini-tubers, which are then harvested, tested for certification and sent to the seed grower for planting.

An external independent auditor inspects the crops at Toolangi Elite and performs virus testing as well as visual testing in accordance with the accreditation program.

All mini-tuber facilities in Australia that are AuSPICA-accredited are audited regularly to ensure they meet the conditions of certification, and are eligible to be multiplied in the National Seed Potato Certification system.

CERTIFICATION AND COMPLIANCE

AuSPICA has developed the CERTMASTER database, which tracks and stores information on all seed plots, generations and varieties – this spans across 14,000 varieties. Having complete traceability of seed potatoes assists when there are outbreaks of disease, as well as providing information to producers who are looking to export.

The database also manages the seed certification labels, which provide unique reference numbering and Quick Response (QR) codes. All seed stocks that carry AuSPICA seed potato certification have been tested for potato virus Y and come from fields that have been soil sampled and tested negative for potato cyst nematode. AuSPICA field inspectors also visit certified seed crops in Australia at least twice per season to ensure compliance.

In addition, AuSPICA operates an approved quality assurance (QA) program for qualified seed potato businesses to internally conduct quality assurance assessments against the Standards of the AuSPICA Certification Scheme.

INFO

For more information, please visit auspica.org.au.

Image information: 1. AuSPICA General Manager Dr Nigel Crump, 2. AuSPICA uniform, 3. Smol plant, 4. Smol plants in containers, 5. Toolangi Elite lab technician Lea Craig, 6. Toolangi Elite lab technician Kristine Flack, 7. Toolangi, 8. Toolangi Elite lab technician Jess Exton, 9. Toolangi Elite lab technician Mark Wardzynski, 10. AuSPICA office administrator Kerrie Hollis. Photography by Luka Kauzlaric.



PROJECT REFLECTION: TWO DECADES OF INTEGRATED PEST MANAGEMENT

In 1996, Integrated Pest Management (IPM) in Australia was still in its infancy in many crops and was met with some scepticism in the potato industry. This attitude has slowly changed, beginning with a project that extended IPM research to potato growers around Australia by demonstrating it in action on their farms. *Potatoes Australia* spoke to the founder of IPM Technologies Dr Paul Horne about the project and its outcomes.

For over 20 years, Dr Paul Horne has consulted with growers and agronomists on how to control pests using a combination of biological, cultural and chemical controls, an approach better known as Integrated Pest Management (IPM).

Following a nine-year stint at the Victorian Department of Agriculture (now known as the Department of Economic Development, Jobs, Transport and Resources), Dr Horne established IPM Technologies in 1996. The business' first project was *National IPM Program for Potato Pests* (PT00656), a strategic levy investment under the Hort Innovation Fresh Potato and Potato Processing Funds. Following the development of an IPM strategy for the potato industry, this project focused on the extension of the research by talking to growers on-farm.

"I had spent a lot of time working on the elements of IPM – what biological controls there were and what cultural controls there were, but then it really became necessary to have an extension project and the best way to do that was to set up our own company and do it privately," he said.

"This was the first time all of the separate research projects on the elements of IPM came together and were tested in commercial crops. That was a real breakthrough. It meant that we had to put our theories to the test."

EXTENDING RESEARCH

At the time, Dr Horne said the use of IPM in potatoes was essentially "unheard of" in the industry and it was common practice for growers in some areas to use up to 10 insecticides on each paddock.

"The use of insecticides on potato crops was well-established and seen as the way to control pests. We changed some of those growers to either not using any insecticides at all or perhaps one on the crop every couple of years. And that continued for the next decade."

Dr Horne admitted his team encountered challenges, particularly in the early days of the company when there was extreme scepticism of IPM among growers and advisers.

"When I started working on potatoes, organochlorines were still available so DDT and dieldrin were still used in potato crops," he said.

"Sometimes people are sold the idea of IPM as just being a different spray program or having to buy commercially-produced insects and mites, and it's neither of those things. It's actually just trying to use all the available options in a compatible way.

"Now the major processors – McCain, Simplot and Snack Brands – strongly support IPM. The seed growers and AuSPICA strongly support IPM, as do the growers that we worked with 20 years ago."

THE NEXT CHALLENGE

While potatoes were the first target for IPM Technologies, Dr Horne and his team have since worked with a range of horticultural and broadacre crops. Currently, they are facilitating *An IPM extension program for the potato and onion industries* (MT16009), a strategic levy investment under the Hort Innovation Fresh Potato, Potato Processing and Onion Funds, which involves targeting independent advisers and chemical resellers as well as growers to spread the IPM message.

"There's been a massive shift in attitude to IPM by the entire industry," he said.

"There's now a generational change and growers often get their advice from chemical resellers. The challenge today is to make sure that with the new products coming onto the market, growers get independent advice about what impact they have on beneficial species, and not necessarily just take the media literature at face value.

"The project 20 years ago was to show IPM as a viable alternative and it really had an impact on modern growers. What we're trying to do now is make IPM an actual mainstay and a standard within the industry so it becomes entrenched."

INFO

For more information, please contact Dr Paul Horne on 0419 891 575 or at paul@ipmtechnologies.com.au, or visit ipmtechnologies.com.au.

This project has been funded by Hort Innovation using the fresh potato and potato processing research and development levies and contributions from the Australian Government.

Project Number: PT00656



Adult TPP. Image courtesy of Plant & Food Research New Zealand.

TPP BUSINESS CONTINUITY ARRANGEMENTS IN NSW, QLD, SA AND VIC

AUSVEG has received advice from Plant Health Committee Chair Dr Satendra Kumar regarding the future plans for the Eastern Bloc movement conditions in the event that tomato-potato psyllid (TPP) from Western Australia is detected in New South Wales, Queensland, South Australia or Victoria. He also strongly recommends industry stakeholders to discuss further with their respective Chief Plant Health Manager (CPHM) any possible scenarios that could arise. He points out that all CPHMs welcome ongoing contact from industry stakeholders as we all work together to ensure that we learn from the lessons of the Western Australian detection of TPP and mitigate its spread.

Since the 2017 detection of tomato-potato psyllid (TPP) in Western Australia, industry stakeholders in the eastern jurisdictions (New South Wales, Queensland, South Australia and Victoria) have been concerned about the impact of regulatory movement conditions on produce that may spread the pest if it is detected across the respective jurisdictions.

In October 2017, a request was made by industry stakeholders for the Plant Health Committee to take into account the economic impact of imposing regulatory conditions on the movement of potato tubers between jurisdictions if TPP was detected in the eastern jurisdictions.

The Plant Health Committee acknowledged that TPP detections in the eastern jurisdictions will be dealt through the Emergency Plant Pest Response Deed process to determine the source and whether zebra chip disease is an issue.

The Plant Health Committee had a number of hypothetical scenario workshops on key pathways of TPP spread that also involved representatives of key affected industries. To provide certainty to the industry, the scenario discussions centred on spread of TPP from Western Australia. It is critical that business continuity is maintained while measures are put in to slow the spread of TPP.

For the scenarios discussed, a draft protocol for all pathways of TPP including potato tubers was prepared in early 2018 and circulated by the Plant Health Committee to key industry stakeholders for comment and feedback. The protocol was revised and considered at a Plant Health Committee meeting in early October 2018. This draft will serve to inform necessary movement conditions if TPP is detected in the eastern jurisdictions from Western Australia.

Based on the scenarios discussed, specifically for potato tubers, the Plant Health Committee took into consideration the following:

1. Potato tubers are not traded with green leafy material.
2. Potato tubers are not a direct vector for TPP.

3. Western Australia had demonstrated *Candidatus Liberibacter solanacearum* (CLso) freedom through nationally-endorsed surveillance and testing protocols.

4. All jurisdictions will collaborate in an ongoing TPP monitoring program.

5. A CLso preparedness plan is to be developed taking into consideration the unique situation Australia finds itself of having TPP but no evidence of CLso.

The Plant Health Committee confirmed at the meeting held on 4 October 2018 that it is:

1. Committed to a harmonised approach to ensuring the movement of potato tubers between Queensland, New South Wales, Victoria and South Australia if TPP from Western Australia arrives in any of the respective jurisdictions.
2. Committed to ensuring business continuity is maintained while minimising the spread of TPP.
3. Supports the development of an ongoing TPP monitoring program in collaboration with all jurisdictions, Plant Health Australia, the Federal Department of Agriculture and Water Resources and industry stakeholders.

For further information please contact your Chief Plant Health Manager in your respective state jurisdiction.

INFO

If further information is required, please contact National TPP Coordinator Alan Nankivell at alan.nankivell@ausveg.com.au.

Tomato potato psyllid (TPP) National Program Coordinator has been funded by the fresh potato, potato processing and vegetable research and development levies and contributions from the Australian Government.

Project Number: MT16018





TRAIL OF TAGGED SLUGS IDENTIFIES CONSISTENT HOTSPOTS IN POTATO CROPS

Uncontrolled slugs have the potential to be a major problem for potato producers in the United Kingdom, costing the industry £53 million (approximately AUD\$95 million) per year across all potato sectors (ware, processing and seed). A recently-completed project investigated how to control these unwanted pests using electromagnetic technology, as Heather Briggs reports.



Harper Adams University Professor Keith Walters led a three-year project into slug hotspots in commercial potato crops in the United Kingdom. Images courtesy of Heather Briggs.

Insights into the underground movement of slugs are being revealed thanks to a system of tagging them with radio frequency identification (RFID) just under the skin. This study was part of the three-year project, *Utilising the patchy distribution of slugs to optimise targeting of control: improved sustainability through precision application*, which was completed in September 2018. Funded by AHDB Potatoes, it was led by Keith Walters, Professor of Invertebrate Biology and Pest Management at Harper Adams University in the United Kingdom.

During the project, Professor Walters and his team identified slug hotspots in most commercial potato crops and traced distances travelled, their movements from place to place and whether they tended to remain close to a hotspot location.

Slugs can spoil maincrop potatoes by making holes in the tubers. Damage tends to be more serious after mild, wet summers, especially in heavy soils. This can often result in rejection from the customer as the product no longer meets customer quality specifications, causing the grower economic loss. In the United Kingdom, AHDB Potatoes estimates that slugs cost growers around £8 million (approximately AUD\$14 million) in damage, rejections and control per annum.

The aim was to facilitate effective, targeted slug control by helping growers identify where high-density patches were likely to occur in the crop and how stable they were, enabling direct treatment of these areas.

"Growers suspected that slugs appeared in hotspots across the field," Professor Walters said.

"However, before the project started we had no real evidence for this because during dry weather the slugs go underground and therefore were difficult to detect. We did not know whether the hotspots reappeared in the same (or different) places."

TRACKING ACTIVITY

Initial work ensured the tags worked and slug behaviour was not affected by them, which would have compromised the study.

Once this was done, tagged slugs were released back to the field. Scans of soil nearest to the point where they were last detected were taken initially every 20 minutes throughout the night, but then at much longer intervals using a detector which automatically recorded the slug's individual tracker number and

GPS location, thereby mapping where each slug went and what they were doing.

"Initially it was difficult to establish a method to use the data to characterise the discontinuous distribution of slug patches," Professor Walters said.

"To help us understand what was happening we worked closely with mathematicians Professor Sergei Petrovskii at the University of Leicester and Dr Natalia Petrovskaya at the University of Birmingham, to develop mathematical models predicting the distribution of slugs across fields which we could test in commercial crops.

"We have confirmed that the slug hotspots appear to stay in the same place throughout the crop growing season and why this is."

Although individuals can move much further between soil scans, they do return to their original locations. On average, those followed for up to seven weeks have ended up less than a metre from their release point.

"Although weather conditions will affect the distance moved, evidence is mounting that 80-90 per cent stay within this range for long periods; however, there is some intermixing between hotspots as a few individuals moved further," Professor Walters said.

Overall, some slugs from each patch will travel further, potentially exchanging genes between patches.

"We know that slugs interact with each other and this is a second factor that reinforces patch formation; when they find a slime trail left by another slug they follow it and even seem to know which direction the previous slug was moving in. This also keeps slugs close to each other, resulting in increased cohesion of high-density patches."

FURTHER RESEARCH

The study has also looked at where these hotspots are likely to form and why, using detailed soil analyses on multiple fields.

"We started off looking at factors including soil texture, moisture, pH, organic matter, bulk density and infiltration

rates. We're looking at the influence of single factors as well as combinations. This makes analysis quite complicated," Professor Walters explained.

Results so far show that pH does not help. This may be because slugs have adapted to the range of pH levels where crops tend to be grown.

Moisture was expected to be a good measure, but it proved to be disappointing. In the field, soil moisture varies with time due to periodic rainfall, making its potential commercial use as an indicator of patch location problematic.

Organic matter is complex, and it appears that its attraction for slugs depends on which type it is.

"Soil texture is important because slugs are unable to burrow, so they depend on gaps and cracks in the soil. If this varies across the field, then populations may concentrate in some areas," Professor Walters said.

The team has also assessed water retention capacity. Their results suggest that soil texture, bulk density and infiltration rates all affect the appearance of hotspots, but there are other factors at play.

"We now need to narrow down impact of environmental/physical elements that determine where patches occur, looking more closely at soil characteristics to optimise and refine the identification of hotspot location in the field."

Professor Walters pointed out that the ridges used for potato growing are likely to provide an ideal environment for slugs, too, and ongoing research will provide more practical information for potato growers looking to follow effective risk management strategies rather than adopting a pelleting programme as a matter of course.

INFO R&D

For more details, please visit potatoes.ahdb.org.uk.



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L-R: Greg Murphy, Daniel Grayling and Callum Murphy at AP Murphy and Sons, Dunnstown, Victoria.

THE IMPORTANCE OF COMMUNICATION TO IMPROVE YIELD AND QUALITY IN POTATO CROPS

While potato production is constantly evolving thanks to new research and technological advancements, it is important not to underestimate the effectiveness of traditional forms of communication. McCain Foods Field Agronomist and Seed Specialist Daniel Grayling discusses the importance of face-to-face communication and how it can benefit the entire Australian potato industry.

Within the Australian potato industry, we understand that significant yield and quality improvements are going to come from new varieties and advancements in technology. New varieties take a long time to become commercially adopted, and the uptake of precision agricultural practices (such as satellite mapping to improve the efficiency of water, pesticides and fertiliser applications) are still in the infancy stages with the majority of growers.

Take a step back for a moment from our busy lives and realise that yield and quality improvements are attainable now by communicating in person, face-to-face. Communicating with the neighbouring grower over the fence, with growers and industry representatives at district crop walks, or local district meetings over a barbecue, all create discussion. This allows knowledge to be transferred while building relationships for future follow-up discussions.

PRODUCTION INSIGHT

In preparation for the growing season, it would be great for seed growers to take the opportunity to visit mini-tuber production facilities to discuss the requirements of the mini-tubers they intend to plant. It is also a great idea for seed and commercial growers to plan a trip to visit a mini-tuber facility to see all the efforts that go into establishing the seed pipeline for the Australian potato industry.

Likewise, commercial growers who take the time to visit their seed growers and inspect the seed crops presents an opportunity to build long-lasting relationships. Discussions can be had surrounding all aspects of seed requirements from the commercial grower and creates an opportunity for the commercial grower to leave their own farm and experience farming operations elsewhere, possibly even in another district. In addition, if there is ever an issue with a line of a seed, by having formed a relationship there is a greater likelihood that any problems can be worked through together.

If you are a commercial grower planting multiple lines of seed that you have received, it is a good idea to follow up with the

seed growers to find out the history of the seed in reference to planting, desiccation, harvesting and coolstore entry dates. This is because timing of all of these factors can have an impact on the physiological age of the seed and with this knowledge, you can then determine which lines of seed to be planted first. Also, remember the growing region of the seed can affect the physiological age of the seed. All of this is vital information and by simply communicating, you can make informed planting decisions to allow your crops to maintain green leaf retention for as long as possible to maximise yield.

CONTINUAL DISCUSSION

There are many other processes where communication is just as important, such as being in constant contact with coolstore operators, making sure the seed is being cut correctly to size from the outset, and constantly evaluating the planter efficiency. These are all essential discussions to be had as no one like surprises, especially when it is too late to make adjustments.

The most knowledgeable people in the Australian potato industry are potato growers. Therefore, the best way to transfer knowledge is by growers discussing farming in one another's paddock. And remember, any discussions carried out allows knowledge to be shared and gained which can only place individual farming businesses in a better situation to make informed decisions to improve yield and quality.

Finally, remember to communicate feedback to one another in the industry. We are all working together to improve the Australian potato industry so go out of your way to communicate feedback as this will only strengthen relationships within the industry well into the future.

INFO

To contact Daniel Grayling, please email daniel.grayling@mccain.com.au. To provide your feedback, contact Anne Ramsay on 0400 368 448 or at ppaa.eo@gmail.com.



GET SMART WITH POTATO CROP DESICCATION



In this edition, Syngenta Solutions Development – Technical Lead Scott Mathew discusses potato foliage desiccation in the lead-up to harvest and explains how a simple test can help growers to assess soil moisture conditions prior to herbicide application.

Over the coming months, many potato crops will be approaching harvest so it's timely to consider the pros and cons of foliage desiccation.

The benefits of quick, decisive vine desiccation can be substantial. Desiccation can promote an easier harvest, enable growers to control tuber size and improve tuber skin set, maintain crop quality during storage, reduce the late season transmission of diseases and control weed seed set.

With all of these benefits there is, of course, the inevitable downside if you get it wrong. Rapid defoliation when the crop is stressed by low soil moisture conditions, regardless of whether it is from slashing or chemical methods, can increase the risk of vascular browning in the tuber.

Vascular browning refers to the darkening of the ring of tissue that runs around the tuber just below the skin. The ring contains the vascular system (phloem and xylem) of the tuber and appears dark in the raw tuber and even darker upon frying. Sometimes the discoloured tissue is all around the tuber and sometimes it's just a partial ring, usually around the stem end where the tuber was attached to the plant.

Rapid defoliation when the crop is stressed is not the only cause of vascular browning. Other causes can be wilt diseases, or rapid vine death caused by other reasons, and even physiological stress during the season when the tubers are bulking or growing.

Syngenta has done a lot of Australian research into vine desiccation and as a result developed the SMART (Soil Moisture Assessment for REGLONE® Treatment) test.

This is a very simple, practical field test to assess soil moisture conditions and potential crop stress. It should be used to assess the conditions before this product is applied.

TO DO A SMART TEST:

1. Dig down and take a soil sample from the centre of the ridge (five centimetres below the deepest tuber).
2. Gently squeeze the soil sample into a ball with your hands. If it is sufficiently moist to remain as a ball, it passes the SMART test. If it collapses, then it has failed the test.

3. Repeat the test at several points across the paddock and pay particular attention to sampling soil in the drier areas.
4. If the soil test is fail/borderline, delay the product application until the soil is moistened enough by rainfall or irrigation.
5. If the paddock passes the SMART test, you should choose the rate of REGLONE dependent on the haulm condition.
6. The recommended application for this product is 3-4L/ha plus Agral Spray Adjuvant at the rate of 200mL/100L.

FURTHER ADVICE

Growers should remember that REGLONE is a contact/non-translocated herbicide and healthy potato plants produce masses of extra-dense foliage. As such, for best results with crop desiccation, it is important to choose appropriate water volumes, spray pressure and nozzles that maximise coverage and penetration of the spray into the crop canopy.

In dry areas, dust stirred up by high winds or equipment can coat the plant surface and reduce the product's desiccant activity. Avoid applying the product in extremely dusty conditions. A good rain or irrigation can reduce soil moisture stress and also wash any dust off the leaves.

Applications made in dull weather or at the end of the day will help to maximise the performance of the product, resulting in the green parts of most plant crops and weeds being completely desiccated within a few days of spraying.

INFO

For more information or to ask a question, please contact your local Syngenta Territory Manager, the Syngenta Advice Line on 1800 067 108, visit syngenta.com.au or email Potatoes.Australia:info@ausveg.com.au. Please note that your questions may be published.

The R&D content for this article has been provided to *Potatoes Australia* to educate Australian potato growers about the most relevant and practical information on crop protection technologies and their on-farm applications.



AN OPPORTUNITY TO SUC-SEED



NAME: Nellie Malseed
AGE: 23
LOCATION: Toolangi, Victoria
WORKS: AuSPICA
POSITION: Compliance Officer

HOW DID YOU FIRST BECOME INVOLVED IN THE POTATO INDUSTRY?

In July 2017, I participated in an internship between Monash University and AuSPICA, and that's when I started to learn about the complexities of the potato industry. It was a good opportunity as a student to be exposed to the potato industry and apply my knowledge. From my short time in the potato industry, I have discovered the importance of seed certification in managing pests and diseases for the benefit of the environment and sustainable food production.

WHAT DOES YOUR ROLE AS A COMPLIANCE OFFICER INVOLVE, AND WHAT ARE YOUR RESPONSIBILITIES?

Behind a load of certified seed potatoes, there is a lot of paperwork! This paperwork captures the traceability and data management, which ensures the compliance to the conditions of the AuSPICA Seed Certification Scheme.

My role in the organisation is a new role and primarily I work as part of a team in ensuring that we have robust processes and procedures. A specific responsibility is to maintain the internal quality management systems.

My role fosters the important relationship between regulators and industry, and develops professional networks to support

both international and interstate trade. I apply analytical skills to research to help discover solutions to industry issues.

WHAT DO YOU ENJOY MOST ABOUT WORKING IN THE POTATO INDUSTRY AND HOW DO YOU MAINTAIN YOUR ENTHUSIASM?

I enjoy working as part of a team and currently my day-to-day activity is very varied, from working in the office, attending meetings and going to see operations on farms. Being relatively new to the industry, there is a lot to be learnt; my enthusiasm comes from wanting to make a difference. It is great meeting new people who show me their passion and experience, and their enthusiasm is what I find contagious.

WHAT ARE THE BIGGEST CHALLENGES YOU FACE WORKING IN THE INDUSTRY, AND HOW DO YOU OVERCOME THEM?

It was a steep learning curve for me. I overcome challenges by stepping back and thinking about the importance of the industry, while eating potato gems! When there's an area that I am not experienced in, I seek opinions and knowledge from our team which includes gaining a hands-on, practical understanding of all aspects of seed potato certification.

WHERE DO YOU RECEIVE YOUR ADVICE AND INFORMATION FROM?

The AuSPICA team are brilliant mentors and teachers for me, and I readily ask for guidance and direction. I get information from growers and packers and I'm proud that some of these people are now friends. I seek nitty gritty scientific details and knowledge from published scientific papers. In addition, AuSPICA has an extensive network of experts available that I can contact.

THE AUSPICA CONFERENCE WAS HELD IN AUGUST 2018. WHAT DID YOU LEARN FROM THE TWO-DAY CONFERENCE, AND WHAT WAS THE HIGHLIGHT FOR BOTH YOURSELF AND THE BUSINESS?

The first day of the AuSPICA Conference was my first day of work! The highlight for me was the broad range of speakers and this gave me an incredible base of knowledge. It was great to meet people from across the industry.

For AuSPICA, the conference was a great success with overwhelming positive feedback. I'm looking forward to the next AuSPICA Conference to be held in 2020.

WHAT AREAS OF RESEARCH ARE IMPORTANT TO THE POTATO INDUSTRY AND SEED CERTIFICATION?

There are many areas of research that are important to seed certification – good science continues to underpin seed certification. I personally find Integrated Pest Management very interesting and important. I recently saw first-hand the impact of powdery scab on seed potato production causing significant losses and yet surprisingly there is limited research happening on this disease in Australia.

IN YOUR OPINION, WHAT IS THE IMPORTANCE OF SEED CERTIFICATION IN THE POTATO INDUSTRY?

Conservation and sustainability are topics that I am passionate about and using certified seed potatoes means less pests and diseases which, in turn, results in less reliance on pesticides and chemicals. More productive potato crops using high-quality certified seed potatoes means better commercial yields with more efficient use of water and other inputs to produce potatoes.

WHAT NEW DEVELOPMENTS, INNOVATIONS OR RESEARCH HAS AUSPICA IMPLEMENTED RECENTLY?

Innovation that AuSPICA has implemented recently includes:

- The agritech development of geospatial software to map and document fields that are used to produce certified seed potatoes. Developed with funding from Agriculture

Victoria, this app will be used to trace all seed plots and associated information.

- Together with the processing tomato industry, AuSPICA has secured a small grant from Hort Innovation to adopt passive suction traps and modern technology that uses the DNA barcoding of insects to conduct surveillance for inspect pests.

WHERE DO YOU SEE OPPORTUNITIES FOR GROWTH IN THE AUSTRALIAN POTATO INDUSTRY?

It is exciting to be involved in the future of the seed Scheme. Getting more use of certified seed potatoes within the industry is always an opportunity for growth. An example of this occurred recently with AuSPICA obtaining market access into Indonesia and Papua New Guinea.

WHERE DO YOU SEE YOURSELF IN FIVE YEARS?

I will be involved in the potato industry, and over five years I will have developed some valuable experience. There are plenty of opportunities for professional growth within AuSPICA and the broader industry. One thing is for sure: I will still be eating potato gems!

WHAT IS YOUR VISION OF THE AUSTRALIAN POTATO INDUSTRY IN THE FUTURE?

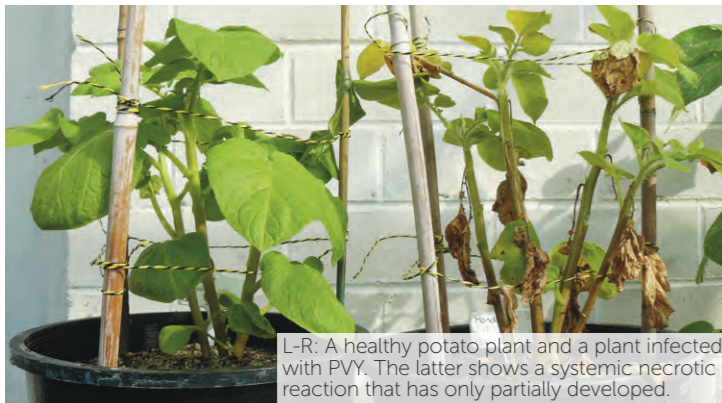
My vision, albeit from a newcomer to the industry, is to see people within the industry succeed and prosper by embracing new technology to sustainably grow profitable crops to feed the world.

HOW DO YOU THINK MORE YOUNG PEOPLE COULD BE ENCOURAGED TO STUDY AND TAKE UP JOBS IN THE POTATO INDUSTRY?

Potatoes are a massive industry and the basis of our food source, and people will always need to be fed. Young students who want more job security than other science areas should look towards the ever-growing potato industry. There is more to 'spuds' than just dirt and potatoes – there are amazing applications of science that could be used to develop solutions.



Photography by Luka Kauzlaric.



L-R: A healthy potato plant and a plant infected with PVY. The latter shows a systemic necrotic reaction that has only partially developed.



Potato tuber necrotic ring spot disease on Nadine.



A potato leaf rubbed with infected PVY sap, where the infection causes a typical reaction of necrotic spots on the leaf. Images courtesy of Roger Jones.

INVESTIGATING PVY CONTROL MEASURES IN AUSTRALIAN-GROWN POTATO VARIETIES

One of the world's oldest and most prevalent causal agents of potato diseases, potato virus Y (PVY), constitutes a significant problem for Australian potato growers, especially in the five states where highly infectious new PVY strains are now present. However, studies into PVY resistance have shown there are PVY resistance genes widely distributed in 39 Australian-grown potato varieties that are effective against some strains of the virus. *Potatoes Australia* reports.

Potato virus Y (PVY) poses a major threat to potato growing regions around the world, including most states in Australia.

Originating in the Andean region of South America where potato originally comes from, PVY is transmitted by aphids, which can pick up the virus within 1-2 seconds of feeding on a PVY-infected plant and then transmit it to a healthy plant within 1-2 seconds of feeding. The virus is also passed on through planting infected potato tubers, and, to a lesser extent, can spread by leaf contact.

PVY causes leaf mosaic symptoms and often stunts the potato plant. Some of its new strains disfigure potato tubers. It also decreases tuber yield, with its most severe strains reducing yield by up to 80 per cent in sensitive varieties. PVY can also occur in combination with other viruses such as potato virus X, leading to more severe crop loss. In addition, the virus affects related crops, such as tomatoes, capsicum and tobacco.

The widespread prevalence of PVY in Australia has led to research into the disease, including the ways to control its spread through potato breeding. Adjunct Professor Roger Jones and Stuart Vincent from the Department of Primary Industries and Regional Development in Western Australia conducted a study into the extent of PVY resistance in 39 potato varieties currently grown in Australia. The potato varieties used were originally bred in Australia, Europe or North America, and were released over a 117-year period, from 1893 onwards.

The results from this research were published in the international research journal *Plant Disease*.

GENETIC FOCUS

Several strains of PVY are present in Australia. The NTN strain that causes tuber necrosis is now found in the eastern mainland states of Victoria, South Australia, New South Wales and Queensland. The ordinary strain of PVY, which does not cause plant death, is also present in these states as well as Western Australia and Tasmania.

With over 30 years of experience investigating PVY, Professor Jones refocused on this destructive virus after its ordinary strain was detected in Western Australia in 2003, after not being found for many years.

"I was looking particularly at potato varietal reactions to the local PVY isolates that we have in Western Australia, and the reactions of different varieties to infection to see which ones had the resistance genes, but we also included a Queensland isolate," he said.

"There are different resistance genes – one is called extreme resistance (Ry) which prevents infection on potatoes from PVY completely, no matter the strain. Other resistance genes, such as Ny, Nc, Nz and putative Nd are PVY strain specific."

Using two local Western Australian isolates as well as a PVY isolate from Kipfler potatoes in Queensland, trials were conducted in virus research glasshouses through sap inoculation. This process involved grinding up the infected leaves and rubbing the sap onto the leaves of healthy potato plants to mimic natural aphid transmission of the virus.

"Those plants then became infected, and the virus moved from the leaves which were inoculated to the rest of the plant – unless there was a resistance gene that prevented it from moving out of the sap inoculated leaves or prevented infection altogether," Professor Jones explained.

In plants that remained without infection after sap transmission, graft transmission – where a short piece of shoot (a scion) is grafted from an infected plant onto the healthy plant – was used to confirm if the extreme resistance gene (Ry) existed.

PROJECT RESULTS

Professor Jones said that potato varieties with gene Ry showed comprehensive resistance to PVY. After being challenged with sap and graft inoculation, only two out of the 39 varieties tested carried the Ry gene: the European-bred potato varieties Lady Christl and Royal Blue.

In contrast, Banana, Kipfler and the Australian variety Mac Russet showed no resistance, becoming infected systemically with all PVY three isolates tested.

Twenty-three varieties were found to carry the resistance gene Ny as they gave a necrotic response with ordinary PVY strains. The putative Nd gene was very widespread as 34 varieties gave a necrotic response with the PVY-D strain originally from Queensland.

"The Ny gene was present in varieties from North America, Europe and Australia, but it was absent from 14 other varieties originally from these continents, so they became infected and developed ordinary mosaic symptoms without necrosis," Professor Jones said.

"These results tell us that we've got quite a few varieties that have resistance to the ordinary PVY strain – 23 out of the 39 – and that's important to know.

"It's a case where the presence of severe necrotic symptoms in a potato plant may actually be beneficial because the necrosis greatly reduces further spread of the virus by aphids. Aphids pick up much more of the virus from a normally-growing infected plant compared to one that is severely necrotic."

INDUSTRY ADVICE

Professor Jones said that better adoption of PVY control measures, especially in seed production, is necessary to reduce the spread of PVY in the Australian potato industry.

The findings from this research have important implications for breeding new PVY-resistant potato varieties using gene Ry, especially for countries lacking healthy seed potato stocks. An alternative to using gene Ry is incorporating as many strain-specific PVY resistance genes as possible.

As volunteer potatoes can also be infected by the virus and act as a source for its spread to healthy seed or ware potato crops, on-farm hygiene and cleanliness in terms of maintenance of weeds and volunteer plants is also crucial.

Ultimately, Professor Jones reiterated that the main answer to controlling PVY is using clean, healthy seed.

"It's very important that testing for viruses is done within seed production and you don't just rely on visual inspection of the crop, as some of these strains are often very mild in foliage but severe in the tubers," he said.

"It's important to have proper or thorough sampling of the different stages of seed production, from mini-tubers to first-, second-, third- and fourth-year generations.

"You should also monitor and test tuber samples. The more testing that's done and the more thorough the growing operation is, the more chance of getting really healthy seed and keeping on top of the problem."

INFO

For more information, please contact Professor Roger Jones on 08 9368 3269 or roger.jones@dpir.wa.gov.au.

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Thomas Hertel was recently appointed as the national Program Manager for Growcom's Fair Farms Training and Certification Program.

FAIR FARMS TRAINING AND CERTIFICATION PROGRAM TO BE LAUNCHED IN 2019

It has been a busy few weeks for Growcom's Fair Farms Initiative team, following the release of the Fair Work Ombudsman's *Harvest Trail Inquiry*, additional funding from the Australian Government and the appointment of a national program manager for the impending rollout of training and certification. *Potatoes Australia* reports.

Exploitation of workers has again hit the headlines following the release of the Fair Work Ombudsman's *Harvest Trail Inquiry* in November 2018. The report highlights the need for proper education of employers around their legal requirements.

Growcom is leading a proactive response to these issues in the horticulture industry. With in-principle support from the Fair Work Ombudsman (FWO) and major retailers in the domestic market, Growcom is working to establish the Fair Farms Training and Certification Program. The program will support Australian fresh produce production and packing enterprises to implement fair and responsible employment practices.

In November, the Federal Government acknowledged the significance of such a program, announcing it will commit \$1.5 million towards the initiative from the next financial year.

Growcom welcomes this funding which will support the roll-out of a practical, industry-led certification scheme that enables farm businesses to demonstrate to their customers and the public that their employment practices comply with Australian law and industry standards.

MISUSE OF PIECE RATES HIGHLIGHTED IN REPORT

Key findings from the *Harvest Trail Inquiry* raised concerns regarding:

- The extent of non-compliance with workplace relations law by horticulture employers.
- The poor practices and outcomes for workers that often arise when labour hire arrangements are used.
- The high level of vulnerability of overseas workers, particularly those with limited English language skills and poor understanding of their entitlement in Australian workplaces.
- The widespread misuse of piece work arrangements.

The use of piece rates is allowed for within the Horticulture Award. The key issue for growers is to ensure the piece rate is set to ensure that the "average competent employee" can earn 15 per cent above the minimum hourly rate.

Some general tips for setting the rate are:

- Make sure all employees engaged on piece rates have a proper, written piece rate agreement.
- Check that at least 50-60 per cent of your competent workers are achieving the piece rate target on any given day.
- Provide workers with adequate training so that they have a reasonable chance of achieving the piece rate target.

- Take into account weather conditions and volume of available produce to pick. If conditions are poor, the piece rate must be set higher to reflect that the rate of harvest will be slower. If you need assistance, seek advice from your industry association's workplace relations advisory team.

NEW RECRUIT FOR PROGRAM

Growcom recently appointed Thomas Hertel as the national Program Manager for the Fair Farms Training and Certification Program.

A key feature of the program is a strong training element, which will help employers to understand their obligations under Fair Work laws and how to maintain good workplace practices. Over time, the program aims to drive a significant improvement in employment standards across the fresh produce production and packing sector. The training offered through the program will give growers clear guidance on the procedures and records they must have in place prior to proceeding to audit.

As a grower organisation, Growcom is committed to providing support to growers in how to meet emerging requirements in the supply chain and demonstrate good employment practices. Growcom will maintain ownership of the program so there is a responsible entity to manage any concerns, complaints and opportunities to improve.

The pilot phase is now underway and the team is working towards having the program operational for horticulture businesses across Australia by April 2019.

Growers who would like to be kept informed about the progress of the pilot, and contacted once the program starts in early 2019, can register their details online at growcom.com.au/fairfarmsinitiative.

INFO

Further information regarding your obligations as an employer is available at fairwork.org.au and growcom.com.au.

The Fair Farms Initiative is delivered by Growcom, in collaboration with industry and supply chain stakeholders. It is supported with seed funds from the Fair Work Ombudsman community engagement grants program.



L-R: Syngenta Senior Technical Services Lead Scott Mathew and Syngenta Territory Sales Manager Wayne Richardson discuss seed placement and in-furrow fungicide options with Tasmanian grower Richard Hardstaff.

GROWERS PARTNERING WITH POTATO PROGRAM REAP REWARDS

Potato Partners is a national program that allows potato growers to access a range of products and information relating to growing practices and challenges. Now in its 13th year, the program continues to provide support to its members.

Overcoming production challenges in the potato industry can be a complex task. There are many aspects of potato growing to consider, and it can be difficult to decipher which information is right for your operation to produce sustainable, premium potatoes.

It is important to keep updated about the latest products, technologies and innovations, particularly in terms of local and global R&D. This includes crop establishment, from the growing stage to desiccation and harvest.

To assist growers in meeting on-farm challenges and identifying solutions, Syngenta developed its Potato Partners program. Launched in 2006, the program helps growers to receive advice and information from the organisation's local and global potato teams.

KNOWLEDGE TRANSFER

One grower to benefit from Potato Partners is Richard Hardstaff from Tasmania. Richard operates Greenfield, a 62-hectare mixed cropping enterprise located at Kindred in the state's north-west. He also leases approximately 150 hectares at other locations along the coast. Potatoes are the business' main income from both a growing and a contracting perspective.

"I joined the program to be able to receive first-hand information on how to get the maximum output from a crop," Richard says.

"It is also a great way to be able to manage cash flow within the business. You are able to use the best product available and can apply this product at the most suitable time, when cash flow can be limited."

Richard said Amistar 250EC is an important product in his business as it works extremely well in the local conditions.

"It is very important to use this product at planting time. Rhizoctonia is a huge problem in the ground we farm and I have seen first-hand what it can do to a crop with tuber set and also yield losses," Richard said.

In 2018, Richard received a visit from the program team which enabled direct contact with his local representative as well as the opportunity to gain on-farm tips.

"When the team did an on-farm visit, we were in the middle of our potato planting season. They have had input on the best place on our planter to place the nozzles to get the maximum out of our products," he said.

Potato Partner members are also invited to regular 'dye nights' that showcase different spray nozzles and demonstrate the impact of water volumes and pressure on coverage. These events show participants how to set up their boom correctly to ensure that they are delivering the product to the target as efficiently and effectively as possible.

There are also invite-only workshops and training sessions, while individual technical support is available.

Stewardship is also a vital part of Richard's business. As the owner/operator, Richard organises all of the contracting as well as ground preparation, planting, harvesting, irrigation and spraying of his own crops.

"I have always had great experience with Syngenta and their Potato Partners Program," Richard said.

"It has also allowed us to access qualified experience industry representatives that have helped us to set up our potato planter so that we can get the maximum result achievable from a crop. This is extremely important to our business."

INFO

For more information, please visit syngenta.com.au/potatopartners.



STATE BIOSECURITY UPDATE: NSW DEPARTMENT OF PRIMARY INDUSTRIES

Plant biosecurity protects our economy, environment and community from plant pests, diseases and weeds. State and territory governments are responsible for the management of biosecurity within their jurisdiction. This edition of *The Front Line* profiles the NSW Department of Primary Industries, where Madeleine Quirk speaks to Plant Pest and Disease Surveillance Manager Dr Kathy Gott and her colleagues about their roles and responsibilities in biosecurity.

ABOUT THE BIOSECURITY ACT 2015

The *Biosecurity Act 2015* has been created to assist the management of biosecurity risks from animal pests and plant pests, diseases, weeds and contaminants. The Act gives insight into preventing the entry of pests to NSW; detecting, delimiting and eradicating pests that pass the border; and reducing the impact of pests that cannot be eradicated.

"The Act brought together all or part of 14 different Acts to streamline and simplify the way biosecurity risks are managed and outcomes are achieved in NSW," Dr Gott explained.

"The underlying principle of the Act is that the government, industry and people of NSW will work together to protect the economy, environment and community from the impact of pests, disease, weeds and contaminants."

GENERAL BIOSECURITY DUTY

In order to manage biosecurity risks, the *Biosecurity Act 2015* includes a General Biosecurity Duty. This duty means that people who deal with biosecurity matter or who have knowledge of biosecurity risks, are required to manage those risks to the best of their ability.

Potato growers can help meet this duty by identifying biosecurity risks on their property, introducing an on-farm biosecurity plan detailing risks and how they will be managed, and train staff and visitors so that the biosecurity plan is followed.

During harvesting, workers commonly move from property to property. This increases the risk of introducing unwanted pests and diseases from one property to another. Growers should consider this when they develop a biosecurity plan and require workers to practice good farm hygiene such as disinfecting boots and equipment before entering and leaving the property.

The NSW DPI partnered with NSW Farmers to develop a brochure for seasonal workers, translated into a variety of languages, to raise awareness of biosecurity risk and their management. The brochure can be found here: dpi.nsw.gov.au/biosecurity/biosecurity-a-shared-responsibility.

The NSW Department of Primary Industries (DPI) plays an important role in ensuring that legislative and policy settings are sufficient to support best practice management of biosecurity risks.

"We work with other jurisdictions to prevent, prepare for, respond to and recover from biosecurity incursions and incidents. We also work alongside our local delivery partner, Local Land Services (LLS), to educate the community, land managers and other stakeholders about how to achieve good biosecurity outcomes and manage and mitigate pests, diseases and weeds," NSW DPI Plant Pest and Disease Surveillance Manager Dr Kathy Gott said.

The DPI also facilitates initiatives to improve biosecurity outcomes. This year, the DPI is focusing on developing the NSW Plant Biosecurity Surveillance Plan, maintaining the NSW scientific collections database, updating its website to improve information transfer, implementing a risk-based biosecurity and food safety compliance strategy, and putting in place measures to improve emergency response capabilities. Another major role of the DPI is to create strategies and tools to support compliance and enforcement activities for biosecurity.

The NSW DPI employs 2,500 people across the state, all of whom are involved in biosecurity risk in some capacity.

A TEAM EFFORT

As Manager of Plant Pest and Disease Surveillance, Dr Gott is responsible for managing a team of scientists in the following areas:

- Surveillance.
- Plant pathology.
- Entomology (insects).
- Acarology (mites).

"Together we investigate and identify suspect exotic plant pests and coordinate surveillance to detect new pests early, determine the extent of pest incursions and provide evidence of pest status to support area freedom and eradication success for market access," Dr Gott explained.

The Plant Pest and Disease Surveillance team is also responsible for curating a collection of insects and plant disease specimens.

As mentioned, NSW DPI works in partnership with Local Land Services (LLS), which provides field services for biosecurity activities across the state.

"A benefit of this is that the LLS team is familiar with their local districts; they know the people and the landscape," Dr Gott said.

"The LLS officers run district-based activities such as education, training, surveillance, liaison and incident response. They also work with land managers at a local and regional level to tackle risks presented by pests and diseases in NSW."

BIOSECURITY: A SHARED RESPONSIBILITY

Shared responsibility is a vision where government, industry and the people of NSW work together to protect the economy, environment and community from the negative impacts of animal and plant pests, diseases and weeds for the benefit of all people in the state.

"The concept of shared responsibility is enshrined in legislation. Under the Biosecurity Act 2015, anyone who deals with biosecurity matter is required to prevent, eliminate and minimise biosecurity risks," said Dr Gott.

Trade, population growth and climate variability are factors that are increasing biosecurity risks. As a result, it will become increasingly important, in the face of globalisation, to remain vigilant and monitor for pests, diseases and weeds to maintain market access and prevent new pests and diseases from impacting productivity in NSW.

Since the detection of tomato-potato psyllid (TPP) in Western Australia in February 2017, NSW DPI has coordinated surveillance across NSW to provide evidence of absence for this priority pest. TPP, as the name suggests, feeds primarily on tomato and potato plants and other solanaceous crops and weeds. It also vectors the zebra chip bacterium which can significantly reduce potato quality, but has not been detected in Australia.

With the support of industry, LLS and NSW DPI staff across the state, surveillance has involved the placement of sticky traps in production areas as well as retail and wholesale nurseries, and community and residential vegetable gardens. DPI diagnosticians have assessed all traps for the presence of TPP and other exotic psyllids that feed on the same host plants. No TPP or other exotic psyllids have been found in NSW. The surveillance information is currently being analysed as part of a national area freedom project.

In addition, the Plant Health Committee has identified the top 40 high priority plant pests, of which zebra chip is one. Other top 40 pests that affect potatoes include giant African snail, leafminers, potato late blight and potato cyst nematode.

Everyone has a role to play in biosecurity, even those living in the city.

"Those living in urban areas can help by considering the risk when buying plants and seeds online, ensuring we dispose of aquarium waste appropriately, and checking equipment to ensure they are not transporting weeds, seeds or bugs," Dr Gott said.

"Increasing knowledge and engaging the community in the management of biosecurity risk is a key opportunity for our sector into the future."

INFO

For more information on the NSW DPI, visit dpi.nsw.gov.au.

Any unusual plant pest should be reported immediately to the relevant state or territory agriculture agency through the Exotic Plant Pest Hotline (1800 084 881).

For further information, contact AUSVEG Biosecurity Officer Madeleine Quirk on 03 9882 0277 or madeleine.quirk@ausveg.com.au. The Farm Biosecurity Program is funded by the Plant Health Levy.

DEMONSTRATING TPP AREA FREEDOM FOR MARKET ACCESS AND TRADE

As Australia's biosecurity risks increase with additional cargo and passenger movement, pressure is mounting on Australia to demonstrate its freedom from certain pests and diseases.

The Federal Government is investing \$200 million over four years through the *Agricultural Competitiveness White Paper (2015-2019)* to improve our biosecurity surveillance and analysis. To address trade/market access issues for the commodities affected by the presence of tomato-potato psyllid (TPP), the Plant Health Committee endorsed the *Framework for Certifying Pest Area Freedom*, which can be used to describe data required to support area freedom claims.

AUSVEG recently completed a project that tested the implementation of the framework to demonstrate area freedom for TPP. The project, managed by Plant Health Australia, also provided recommendations on how to achieve ongoing area freedom for TPP and the resources required to maintain area freedom status.

During the project, surveillance data and other evidence was collected from state government departments and relevant industry representatives. Specific, targeted surveillance for TPP was conducted by each of the jurisdictions, in addition to industry-based surveillance coordinated by the Tasmanian Institute of Agriculture as part of a Hort Innovation-funded project.

This TPP surveillance data has been consolidated into AUSPestCheck, a visual coordination platform that outlined the TPP surveillance data on a map of Australia and its associated presence/absence information. In terms of the requirements for demonstrating area freedom, the data in AUSPestCheck is based on minimum data standards, which increases confidence in the evidence for area freedom status of the pest.

Following analysis of the TPP surveillance data, gaps and issues associated with verification of area freedom for TPP were identified in collaboration with various stakeholders, and were discussed at a workshop in November 2018. The workshop aimed to seek agreement on the area freedom status of TPP, how it was determined and recommendations on filling the gaps.

The workshop highlighted that area freedom has never really been discussed between industry and government, and although it is a simple concept in abstract, once applied to a pest of biosecurity concern, the operational elements of demonstrating area freedom can become complicated.

A major outcome of the workshop was the importance of industry consultation during the area freedom determination process, understanding why we want area freedom and the incentives for industry to contribute to the evidence for area freedom claims.

INFO

For more information, please contact AUSVEG on 03 9882 0277 or info@ausveg.com.au.

This initiative is funded by Plant Health Australia as part of the Australian Government's *Agricultural Competitiveness White Paper (2015-2019)*.



BUSINESS GROWTH CONTRIBUTES TO TASSIE POTATO INDUSTRY

One year on from opening a new coolstore in Tasmania, seed potato operator Agronico has many more plans in store for the business and the state's potato industry. *Potatoes Australia* reports.

As is the case with any plant, the quality of the seed itself plays a crucial role in the resulting yield and condition of the crop.

Tasmanian seed potato operator Agronico knows this only too well, growing over 9,000 tonnes of certified seed potatoes each year. The business operates a hydroponic mini-tuber production facility, which produces about 250,000 mini-tubers annually for clients across Australia as well as its own seed production program.

Over the past five years, the business has executed a strategic growth plan that began with investment in infrastructure, culminating in the launch of a new coolstore in Tasmania last year. This coolstore allows potatoes to be stored in an environment where temperature, carbon dioxide levels and humidity are continually monitored and controlled.

Since then, the improvement of processes, efficiency and the end product continues to remain front of mind. Following a contribution from the Australian Government's Regional Jobs and Investment Package, plans are now set to expand Agronico's coolstore operations with the construction of a second facility in 2019.

The new coolstore will feature an additional eight rooms (almost doubling the current space) to provide added storage to the business as well as Tasmanian agribusinesses and farmers. The rooms have different temperature controls, allowing for commodities such as berries, broccoli and carrots to be stored in addition to potatoes.

"The coolstore maximises the opportunity for high-quality seed, which is vital for high yield and therefore valuable for our farmers," Agronico CEO Robert Graham said.

THE SCIENCE BEHIND THE POTATOES

As a technology-led company, Agronico realises the importance of ongoing research and development to solve the problems that farmers encounter, with a dedicated team of researchers running trials throughout the year.

In this vein, the business has been researching the process of mini-tuber production for over 20 years, and has continued to develop the science of seed potato propagation through investment in tissue culture and hydroponics.

"By growing potato mini-tubers hydroponically, we get a more uniform tuber size, the system is predictable and we can fulfil ordered volumes more consistently," Mr Graham said.

As part of their service to clients, Agronico obtains and stores around 150 varieties of potatoes in 'in-vitro' tissue culture form. These cultures are sourced worldwide from a variety of providers and are subject to rigorous disease testing to ensure the material is of the highest quality.

When not being multiplied for commercial production, the varieties are stored on long-term suspension media under sterile laboratory conditions.

"During mini-tuber production, an emphasis is placed on timing the break of dormancy and optimising physiological age. The aim of this is to ensure a dependable, uniform crop with good vigour that produces high numbers of tubers. This takes priority over yield," Agronico Minituber Production Manager Stewart McKay said.

"Interestingly, because we can observe the entire plant structure during the hydroponic mini-tuber production phase, we get a unique insight into specific variety characteristics that can importantly assist with field production."

EXPANDING BUSINESS, EXPANDING MARKETS

Mr Graham said Agronico's seed production has grown significantly in the last five years and growth is expected to continue for customers both interstate and overseas.

"There are many opportunities for agricultural businesses and this will only expand with the opening up of export markets," he said.

"We have been approached to supply premium grade seed potatoes to several Asian countries, so we know there are market opportunities and Tasmanian farmers are interested in exporting their crops.

"We are committed to improving our product and providing opportunities for growers and contractors in Tasmania. We're very optimistic about the future potential of Tasmanian agriculture."

INFO

For more information, please visit agronico.com.au.



ADDRESSING CONSUMERS' HEALTH AND DIETARY CONCERNS WITH POTATOES

A new potato variety was sourced across the Tasman to provide consumers with a lower carbohydrate potato option. Lotatoes™ potatoes have proven to be a success in the supermarket as well as the wider industry, after the campaign by T&G Global in New Zealand won the company the Marketer of the Year award at Hort Connections 2018.

The humble spud has had its fair share of bad publicity in recent years due to the 'low-carbohydrate' movement which has seen some consumers choose to shift away from potatoes and reach for lower-carb options such as sweetpotato and salads, to prevent perceived weight gain.

However, New Zealand-based fresh produce company T&G Global is attempting to change consumer attitudes towards potatoes through its new Lotatoes™ potatoes variety. This is a lower carb and lower calorie variety that is naturally bred and grown by Balle Bros and Master & Sons in two potato growing regions in New Zealand: Ohakune and Pukekohe.

T&G Global Marketing Manager Michelle Singh highlighted the demand for this innovative variety of potato in New Zealand.

"We can't keep up with demand. We've sold over two million Lotatoes™ potatoes in the market and this continues to grow as more consumers taste these delicious, locally-grown lower carb potatoes," she said.

Due to the success of this variety, T&G has also introduced an extension to the range – Baby Lotatoes™, for consumers who prefer smaller, gourmet-sized potatoes.

This innovation and commitment to bringing lost consumers back to the potato category helped T&G Global take home the Marketer of the Year award at Hort Connections 2018 in June.

health benefits of our new potato for these shoppers in a very competitive environment."

With consumer needs at its core, a lower carb and lower calorie potato variety was specifically sought from T&G's breeding partners. The variety was then bred naturally via cross pollination techniques.

"Extensive testing against two of New Zealand's most common varieties (Rua and Agria) proved a unique 40 per cent lower carbohydrate product that could be boiled, mashed and baked and was flavoursome – meeting the functional and health needs of this group of consumers," Mrs Singh said.

The potatoes contain vitamin B6, potassium and dietary fibre, and are a convenient option for increasingly time-poor consumers as they can be ready to eat in under 10 minutes.

AN AWARD-WINNING PRODUCT

T&G was quick to spread the word of its Marketer of the Year award to media, industry partners and other stakeholders.

"Our growing partners and retail partner (Woolworths New Zealand) were equally excited by the win," Mrs Singh said.

"The variety ranked within the top 10 selling potato products in Countdown supermarkets nationally and continues to hold

The goal for us was to deliver innovation around nutrition, convenience and flavour while still highlighting the functional health benefits of our new potato.

TARGETING CONSUMER NEEDS

The process of developing this product from seed to retail pack took over five years and included grower and customer input.

T&G consumer research initially identified that consumers are looking for healthy options for foods that fit their lifestyle and diet, noting that health and wellness are one of the biggest trends driving New Zealand supermarkets.

"Our aim was to address these concerns for our target audience by understanding their insights and needs – both functional and emotional – to attract them back to the category," Mrs Singh said.

"The goal for us was to deliver innovation around nutrition, convenience and flavour while still highlighting the functional

this position a year after launch, highlighting a strong offer and repeat purchases for our consumers."

The company – which grows produce locally and works with more than 1,500 growers internationally, and is New Zealand's largest exporter of fresh produce – was proud to be recognised for its contribution to the horticulture industry.

"As a business, the awards our Lotatoes™ brand has won puts T&G at the forefront of new and existing customers; introduces us to new consumers; and cements our status as a leader of global fresh produce, committed to innovation but also safe, healthy fruit and vegetables."

INFO

For more information, please visit tandg.global/our-produce/lotatoes.

REGIONAL UPDATES



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With summer on our doorstep, growers are busy ploughing ground and planting seed, with some crops already needing to be irrigated.

Seed Potatoes Victoria has had a busy couple of months, with work being done to get our tomato-potato psyllid (TPP)-focused New Zealand tour up and running in February in the interest of learning more about the effects and management of a TPP incursion. Liz Wharton from Sebright Adventures, along with a team of others from both the Australian and New Zealand potato industry, have put together an interesting, informative and diverse itinerary for the trip.

February is not the best time to take off four days for a trip to New Zealand, however it does coincide with the New Zealand potato growing season and as such we will have the opportunity to see growing crops and field trials. Plant & Food Research New Zealand has spray trials and (potentially) hyperspectral use of drone trials, plus there will be visits to a couple of seed and



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The conditions in the Crookwell area have improved somewhat with an average spring. We have had scattered showers and thunderstorms in the last couple of weeks. You have to be blessed by a fairy to be under a storm, but they are about and there have been reports of up to 50 millimetres of rain in some areas.

Water availability is still an issue at the time of writing this report and the irrigating of seed potato crops will be under pressure with storage dams still low in capacity. In saying that, a lot of paddocks already prepared for sowing have got a good moisture profile and this will help to get the crops started.

Planting has begun at Crookwell and this is somewhat earlier than usual. Growers are keen



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AUSVEG SA was recently pleased to have negotiated the first B-quadrant road access on the Northern Adelaide Plains. This new development poses opportunities for local potato and vegetable producers to save hundreds of thousands of dollars on freight in many instances. AUSVEG SA worked with local company Symons-Clark to secure this important result and the first access will soon commence along Taylors Road. Growers interested in securing B-quadrant access are

commercial farms and an industry dinner – the list goes on. We have 30 seats available with first preference going to SPV members and then the balance of the seats will be made available to certified seed growers from other states and finally, if any seats remain available, industry people will be invited to fill those seats.

We have spent a considerable amount of time and money responding to the requests from growers for a way to better understand the ramifications of the seed supply contracts commonly issued by customers. A commercial lawyer was engaged to scrutinise some samples of the contracts in finer detail. This work has uncovered some potential problems, and financial members of SPV are encouraged to contact the SPV admin team if they are in some doubt about their own arrangements. Tony Pitt from Ag-Challenge Consulting presented an in-depth analysis of the outcomes of the contract analysis at our recent Annual General Meeting.

Good luck with the upcoming season.

to take advantage of soil moisture and get crops established before the predicted hot and dry summer.

Area plantings are on par with recent years and hopefully yields will be adequate to fill seed orders.

Hopefully the drought conditions will soon ease. Everyone is praying for good general rain to soak the parched countryside in the eastern states and help drought-stricken farmers to get back on their feet.

Although Crookwell is not looking too bad, everyone is aware that most farmers are doing it tough. All we can do is be positive because one thing is for sure – the rains will come.

encouraged to contact the AUSVEG SA office to discuss opportunities further.

AUSVEG SA is also happy to announce that Ryan Densley of Virginia Farm Produce has taken up a Directorship on the AUSVEG SA Board. Ryan brings a strong commercial background in horticulture and currently works for one of the largest potato producers in the state. AUSVEG SA looks forward to Ryan's contribution to our Board.



**Potato Growers Association
of Western Australia Inc**

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Spring has arrived, bringing with it some good news for our industry. The tightening of supply through the winter months has seen improved returns to growers after two years of depressed prices. Warmer growing conditions are also much appreciated after the significant frosts that hit our winter production areas.

Market access to the east coast is rapidly improving, and at the time of writing New South Wales and Victoria have opened their borders to Western Australian potatoes. We expect South Australia and Queensland to follow suit in the very near future. This will enable our seed industry to recover lost ground and potentially provide a relief valve for the fresh market growers.

In tomato-potato psyllid (TPP) related news, we have a proposed study tour to New Zealand in February 2019 for interested seed growers. This tour has been proposed by Seed Potatoes Victoria and is very well supported by the New Zealand Government and industry bodies, while AUSVEG is helping coordinate the tour. More information will be available as details are finalised. Places will be limited, and participants will need to pay their way.

I recently attended a biosecurity workshop in Melbourne with participants from Plant Health Australia, the Department of Agriculture and Water Resources, AUSVEG and state plant health representatives along with industry bodies. This was an educational experience that certainly improved my understanding of how the different agencies need to work together to achieve acceptable outcomes.

The purpose of the workshop was to provide feedback on the development of the framework to achieve area freedom. I feel it was important



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The AUSVEG VIC Annual General Meeting was held on Friday 12 October at Fresh Select in Werribee South, with 27 people in attendance. The meeting ran smoothly, with President Paul Gazzola and State Manager Tom Cohen outlining the organisation's achievements for the past year.

AUSVEG Chairman Bill Bulmer gave an update on the national body's activities, and the challenges that it has faced. He also explained the future direction of AUSVEG.

The election for Executive Committee members was successful. Mr Gazzola was re-elected as AUSVEG VIC President, while committee members remained the same.

The AUSVEG VIC Executive Committee

to have industry involved as we provide a practical perspective on the balance between biosecurity protocols and trade.

Thank you to those growers who lodged submissions with the Western Australian Department of Water and Environmental Regulation regarding the proposed water license fee changes. This is a critical issue for our members which will be contested through the entire process. The Pastoralists and Graziers Association of Western Australia (PGA) have been working collaboratively with other agricultural organisations to this point and intend to continue to do so as this is a wider issue that is just the thin end of the wedge.

The PGA and Murdoch University are seeking funding for a project to identify the natural predators of TPP in Western Australia to increase our knowledge of how this significant pest will behave in our environment. This will ultimately help develop effective management strategies for growers.

Belgium hosted Interpom Primeurs in late November 2018 and I was there to attend the launch of the *Imagine a World Without Potatoes* campaign. This is a global awareness campaign run by the International Potato Centre to draw attention to the importance of potatoes in societies around the world. Potatoes seem to be taken for granted in many economies and we need to address this issue if we are to stop the slide in consumption in the western world.

Thank you to Morena, Georgia, Vaughan and the COM for their ongoing commitment to our industry. Merry Christmas and a pleasant and profitable New Year to all industry members around the country.

that represents its members are: Paul Gazzola (President), Rick Butler, Vince Doria, Deborah Corrigan, Bill Bulmer, David Wallace, Frank Lamattina, Peter Cochrane and Sam Taranto.

Registrations for Hort Connections 2019 are now open, and next year's convention will be hosted in Melbourne from 24-26 June.

Having Hort Connections 2019 hosted in Melbourne gives local growers an advantage to attend and learn about cutting-edge technology that is shaping the vegetable and potato growing sector. The event is not to be missed – save the date now or contact AUSVEG VIC for more information.

YOUNG POTATO PEOPLE

G'day again,

Hopefully, wherever this finds you, the weather is treating you well.

I recently managed to sneak away with my family for a little holiday. In our travels we managed to cover around 3,000 kilometres with a caravan in tow. I know that this sort of thing makes some people's skin crawl. The idea of spending a few long days in a car (with three young kids) is enough to make you run for the hills. I can hear those people saying, "Give me a hotel with a pool; as long as the pool has a bar, I'll be right for two or three weeks." That is not our style – if we stay in one place for more than four days, we start getting eye twitches.

But this type of holiday connects you with the land and the communities of the areas you travel through. For example, on this trip we travelled the silo art trail in Victoria. This is a great initiative that is turning disused grain silos into massive art pieces. We also travelled the road from Pooncarie through to Menindee in New South Wales, where we met a shearing contractor who had six months of work ahead of him and his team. They were taking a crutching trailer to the sheep for shearing, as the sheep would struggle to make it to the shed due to the drought.

The amount of diversity we travelled through was eye-opening. From the dry desert landscape of Broken Hill right through to the Barossa Valley, and onto the coastline of Robe through to Bendigo on the way home. It is truly amazing what Australia has to offer. We felt like we had seen every landscape possible on our relatively short trip.

I especially enjoy seeing the vast farm lands and the way the farming practices have evolved slightly differently in each area. This is due to the ever-changing landscape and climates unique to each area. I find it very interesting and refreshing to see different ideas and styles of farming as we travel around.

If you have the chance to get out and have a drive around this vast land, I suggest you give it a crack. Even if it's a one-time thing, you will be amazed at the history and experiences you can find without having to look very far. You might even find something to take back to your own enterprise that will help you out. Who knows – you might not even miss that resort with the pool bar.

- Stu



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