

# potatoes

## australia

June/July 2014

**Nick Dabinett**  
Young grower

**Paul Pensini**  
Kicking goals

**Potato Extension  
Program**  
Attendance records  
tumble



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## AUSVEG Chairman and CEO messages



## Geoff Moar

AUSVEG Chairman

The Potato Industry Extension Program (PIEP) is proving to be a vital tool for Australian growers, as evidenced by the recent record-breaking attendance at a workshop in Devonport, Tasmania. The PIEP's function in communicating potato R&D outcomes and providing potato levy-payers with access to researchers, supply chain members and other leading industry figures, has clearly struck a chord.

It is heartening to see this increased thirst for industry knowledge, demonstrated not only by the large number of attendees at the Devonport event (68 attendees), but also at a workshop in Queensland's Lockyer Valley (44 attendees) later in May. Such strong crowds are excellent news not only for those involved in the PIEP, but for the industry as a whole.

Exposure to new R&D is the key to improving productivity and profitability of our operations, and I applaud the industry for their enthusiasm in continuing to support these workshops. With the PIEP going from strength to strength, I would urge all growers to keep an eye out for the next event to be held in their home state and support these valuable workshops.

On another matter of great importance to our industry, New Zealand potato imports and keeping the destructive Zebra chip disease out of Australia, have featured in a recent Senate report. The report, handed down in April, recommended that a risk assessment on importing New Zealand potatoes be redone by the Australian Government. This echoed the

concerns of many growers, and was welcomed by AUSVEG. The disease has already caused a reported \$200 million worth of damage to the New Zealand potato industry. Keeping Australia Zebra chip-free is of paramount importance and I urge the industry to remain vigilant. More information on the Senate report and its findings are also included in this magazine.

And finally, after many months of preparation, the 2014 AUSVEG National Convention, Trade Show and Awards for Excellence is only days away. Held in beautiful tropical Cairns this year, the Convention will provide the industry with the opportunity to celebrate the achievements that have taken place over the last year, as well as reflect on upcoming challenges. This year's attendance is likely to surpass 2013's, and with a program packed with international speakers, politicians from across the political spectrum, and notable local industry representatives, the 2014 Convention looks set to be the best yet. I look forward to seeing you all in Cairns.

Geoff Moar  
Chairman  
AUSVEG



## Richard Mulcahy

AUSVEG Chief Executive Officer

Strong representation of growers' interests is a hallmark of AUSVEG's work around the country. As we continue to build on the success we have achieved advocating on behalf of our national industry, it is pleasing to confirm the launch of AUSVEG SA.

The establishment of a regional, staffed office and the appointment of a full-time South Australian Manager, mean that potato and vegetable growers in the state now have a strong, united voice. AUSVEG SA will ensure local growers have effective agri-political representation in their dealings with the State Government and councils on key issues, as well as links to national industry programs. Connections with the national Peak Industry Body AUSVEG will also ensure the voices of South Australians, and their fellow growers around the country, will continue to be heard at a Federal level.

The establishment of AUSVEG SA will complement AUSVEG's broader national goals of providing advocacy services, and links in to national R&D processes.

One significant R&D initiative which is set to wrap up in September is the Australian Potato Research Program phase 2 (APRP2). While the program, into which millions in R&D money has been invested since 2009, has resulted in some positive developments, it remains to be seen how many long-term benefits it will bring industry. With that in mind, AUSVEG would like to hear your feedback on both the APRP2, and any other R&D projects you believe would help your business become more

productive.

A key opportunity to do precisely that will occur at the Annual Potato Levy Payers' Meeting, to be held in Cairns on Saturday June 21, at the same time as the 2014 AUSVEG National Convention, Trade Show and Awards for Excellence takes place.

With this year's Convention at the Cairns Convention and Exhibition Centre, from June 19 to 21, now just days away, the event is set to draw more than 1000 national and international delegates to tropical North Queensland.

On top of the enormously popular Speaker Sessions, the world-class Trade Show, and spectacular Awards for Excellence, the event will offer plenty of attractions tailored specifically to the needs of potato growers. One of those will surely be the Potato Industry Extension Program booth within the Trade Show, if recent record-breaking attendances at PIEP workshops are anything to go by.

The Potato Field Day, visiting three leading potato growing operations in the Atherton Tablelands will also provide a valuable opportunity for growers to observe the workings of successful North Queensland operations. Scheduled for Sunday June 22, the Field Day will provide the perfect bookend to an action-packed Convention schedule.

Richard J Mulcahy  
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All research and development projects are facilitated by HAL in partnership with AUSVEG, and in relation to processed potatoes also the PPAA, and are funded by the National Potato Levy and/or voluntary contributions from the industry. The Australian Government provides matching funding for all HAL's R&D activities. For further information visit:


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ISSN 1834-2493

**FRONT COVER:**

Nick Dabinett

Photograph by Jane Wilson



The 2014 AUSVEG National Convention, Trade Show and Awards for Excellence is upon us once again, and there is plenty on offer for potato growers.

The Potato Field Day, to be held the day after the Convention on Sunday June 22, will give interested growers the opportunity to visit a number of potato farms in the nearby Atherton Tablelands. One of the growers hosting visitors on his property is third generation grower Paul Pensini. In this edition of *Potatoes Australia* we speak to Paul about growing in the region and his fascinating former life as an NRL footballer

(page 18).

Over in South Australia, our Young Grower Q&A focuses on Nick Dabinett, who touches on how his family became established potato growers in the Mallee region, and his pride in producing a high quality crop (page 8).

In the R&D sphere we examine new developments both local and overseas. Researchers in the US have been employing novel techniques to better understand Zebra chip disease, producing some interesting results (page 28). Meanwhile, Canadian potato growers in the Alberta province have been battling

Late blight disease in their crops recently. The Potato Growers of Alberta recently hosted a series of speaker sessions focusing on the disease, and on page 20 we examine Dr Ron Howard's presentation which focused on tips for disease management.

Back home, the Potato Industry Extension Program has been attracting record numbers of attendees to its regional workshops. Program Coordinator Luke Raggatt gives his update on the workshops, which hosted local researchers, supply chain members and other notable guests in both Devonport in Tasmania (page 12) and the Lockyer Valley in

Queensland (page 16).

The Australian Potato Research Program Phase 2 (APRP2) has facilitated millions of dollars worth of R&D projects since its inception in 2009. As the Program draws to a close later this year, we consider whether it has delivered the kind of return on investment that had been expected (page 17). Meanwhile, we take a closer look at a project which falls under the APRP2 umbrella, which has confirmed the link between nematodes and *Verticillium* spp. in potato early dying in potato crops (page 30).

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# Q&A Young grower profile

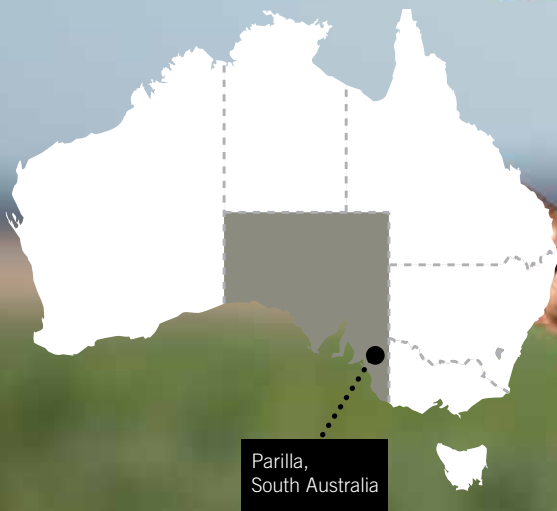
**Name:** Nick Dabinett

**Age:** 29

**Location:** Parilla, South Australia

**Works:** Longtrail Farms Pty Ltd

**Grows:** Maranca, Argos & Desiree varieties, also runs a dry land cropping program and 2300 ewes.



How did you first become involved in the potato industry?

Horticulture was being developed in the Mallee area in the mid-1980s and by the mid-1990s there were more farmers moving into the area wanting to grow potatoes and onions. Seeing some of the development happening on land similar to ours, my father decided to purchase a water licence and have a go at growing potatoes in 1999. In the first year he grew 28 hectares of seed potatoes on a contract arrangement with a seed company.

After I left school, I decided to work at home on the family farm. We gradually increased our potato production year by year to be at the 300 hectares it is today.

What is your role in the business?

Currently I'm involved in all aspects of the business. My father Russell is also still active in the business and three years ago my brother Wade joined us as well. We all have our separate day-to-day roles. At the moment, I oversee the potato growing from crop monitoring and irrigation management to the harvesting/planting and staff management.

What do you most enjoy about working in the potato industry?

I enjoy the challenge of being part of the food industry and trying to produce good quality food for others to consume.



Growing potatoes at first appealed to me because we are growing a crop under irrigation and not having to rely on rainfall to grow a crop as we are farming in a low rainfall area.

While it can be a challenge at times, it is good to be growing an intensive crop that requires a team around you. But the main thing is that if you can grow the right product with good quality, you can be rewarded for it. As with most things, good quality will sell itself.

What are the biggest challenges that you face as a grower?

One of the challenges we face is the need to keep attracting people to the area who want to live and work here. It does seem that less people are wanting to live in small, remote country towns.

Also because the climate we are growing in has hot dry summers, we use a substantial amount of diesel to run our pumps, so, like everyone, we would like to see the current fuel prices come down.

At the moment we grow all our summer harvested potatoes on fresh ground, so ground that hasn't had a potato crop on it previously. Obviously this can't go on forever, so we need to be looking at some more cost-effective alternatives to control disease to allow the use of these sites more frequently, which

would have us growing on our best soil types more often.

What do you see as some of the greatest threats facing the Australian potato industry?

People moving away from eating potatoes is the biggest threat; without consumption we don't have a market.

Also, maintaining exclusive varieties for different supermarkets and having to reintroduce new varieties will continue to add to the cost of production and supply of potatoes. New varieties are great, we need them, but it's another cost. Companies paying for exclusivities on varieties take huge risks as all regions have different climates and growing conditions. Numerous varieties will fail in different areas before the right one is chosen.

Where do you see opportunities for growth in the Australian potato industry?

For growth in the Australian potato industry we need to be continually driving efficiencies to remain sustainable, but we also need to bring down our cost of production to enable us to be competitive enough to export produce.

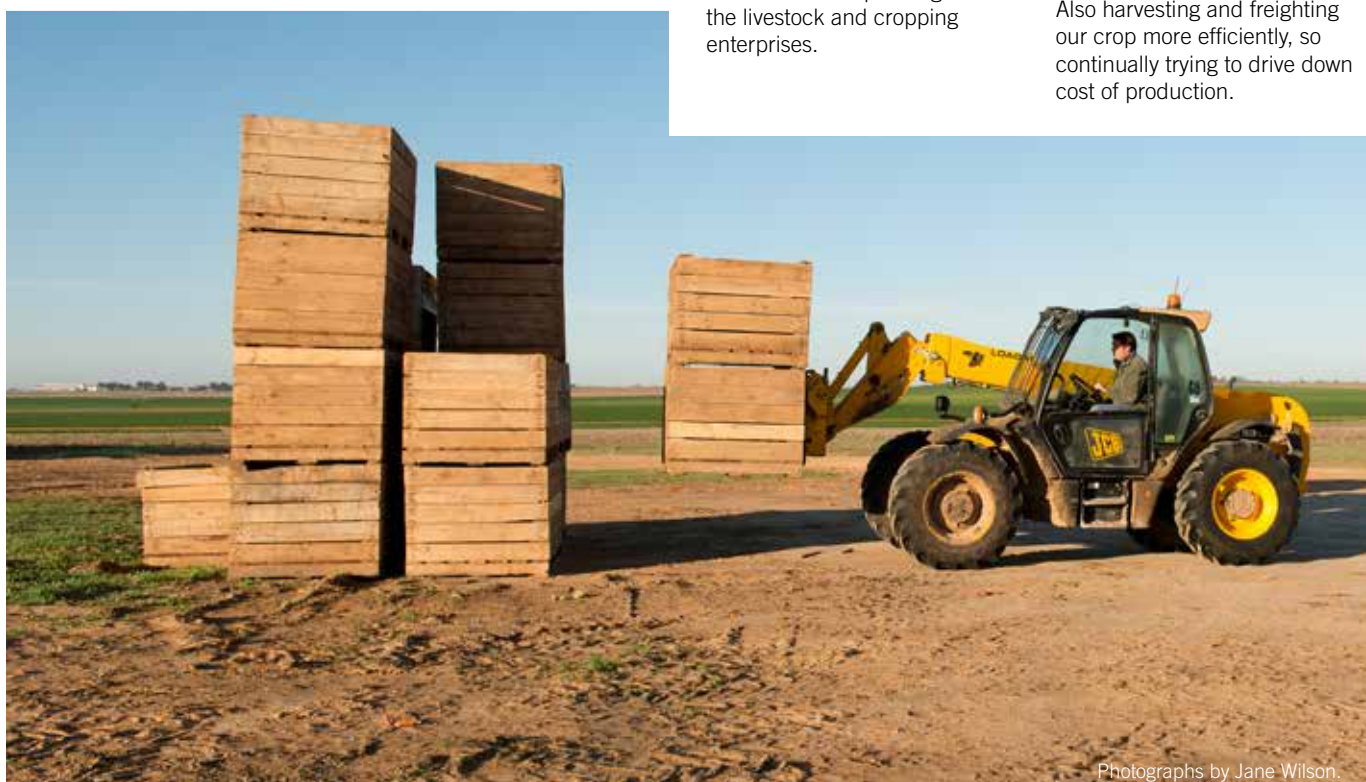


If you weren't working in the potato industry, what would you be doing?

If I wasn't growing potatoes I'd still be dry-land farming and would be expanding the livestock and cropping enterprises.

Where do you see yourself in five years?

In five years' time I hope we can still be growing potatoes on a similar sized area, but producing more tons and using less water. Also harvesting and freighting our crop more efficiently, so continually trying to drive down cost of production.



## Senate report stresses need to better understand Zebra chip risk

The Australian potato industry has won a small victory in the fight against Zebra chip disease after the Senate committee investigating the prospect of importing potatoes from New Zealand for processing, handed down its report in April. In a move welcomed by growers, the report shared the Australian potato industry's disappointment and lack of confidence in the work conducted by the Department of Agriculture's Biosecurity Department, relating to the risk of the devastating Zebra chip disease, and its vector the Tomato-potato psyllid (TPP), entering Australia.

AUSVEG wholeheartedly welcomed the findings, particularly the recommendation

that an Import Risk Assessment be redone. At the time, Public Affairs Manager, William Churchill noted the report echoed many concerns raised by industry.

"[The] report vindicates growers' concerns from the beginning that the Department needs to act in the interest of Australia's vegetable growers and not submit to threats of World Trade Organisation (WTO) action by our global neighbours," said Mr Churchill.

Zebra chip disease has been ravaging New Zealand potato producers for several years, with reports of damage costing the industry \$200 million. As it feeds from the potato plant, an infected TPP can transfer a bacterium



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known as Liberibacter into crops. This can affect the growth of plants and lead to Zebra chip disease in potato tubers. The affliction causes parts of the potato to darken when fried and subsequently affects appearance and taste, and overall worth of potato industries in countries where the disease has a foothold. To date, Australia has remained free of Zebra chip.

### Redoing the IRA

The Senate committee recommended that a new Import Risk Analysis (IRA) be conducted by the Department, paying particular attention to disease pathways into Australia, a lack of reliable diagnostic testing for the Zebra chip bacteria, and giving greater consideration to other pests and diseases in New Zealand.

“AUSVEG welcomes any opportunity to work more closely with the Department to ensure a more thorough IRA is conducted, that all available science is considered, and that no stone is left unturned when it comes to

understanding this pest,” said Mr Churchill.

“It must be comprehensive scientific understanding and rigorous biosecurity protocols that that will keep the psyllid out of Australia.”

### A dangerous game

Just days after the Senate committee handed down its report, Potatoes New Zealand CEO, Champak Mehta, claimed that New Zealand potatoes do not pose a “substantive risk” to the Australian industry.

The comment was slammed as “irresponsible and reckless”



by AUSVEG.

“There seems to be a great deal of confusion in New Zealand about the amount of damage the psyllid has caused the NZ industry and that confusion seems to extend to their understanding of the risks involved with importing potatoes,” said Mr Churchill.

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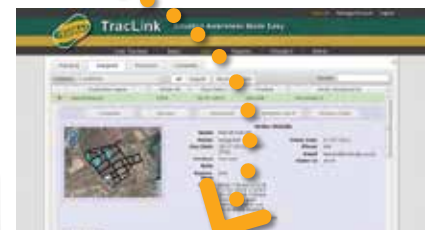
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## Potato Extension Program



AUSVEG Biosecurity and Special Projects Coordinator Dean Schrieke addresses attendees of the Devonport workshop.

# Tasmanian potato R&D workshop smashes PIEP records

ATTENDANCE RECORDS TUMBLED RECENTLY AT A **POTATO INDUSTRY EXTENSION PROGRAM** WORKSHOP HELD IN DEVONPORT, TASMANIA, WITH ALMOST 70 MEMBERS OF THE TASMANIAN POTATO INDUSTRY TAKING PART IN THE VALUABLE R&D EVENT.

The Potato Industry Extension Program workshop held in Devonport in May attracted among the highest number of attendees ever recorded at a regional grower workshop, with participants coming from far and wide to take part. Attendees comprised potato growers from north-west to north-east Tasmania, as well as a number of industry members who travelled from interstate, including a prominent Victorian seed potato grower. Processing representatives, agronomists, researchers and other supply chain personnel also joined the evening event, which was chaired by Moriarty potato grower and AUSVEG Deputy Chair, Mr David Addison.

Speaking to *Potatoes Australia* about the record interest the workshop received, AUSVEG Special Projects Coordinator, Luke Raggatt, said that the Potato Industry Extension

Program had “struck a chord” with industry members, establishing itself as a critical platform for Australian potato producers to learn about beneficial R&D findings and new farming practices.

“It’s extremely encouraging to see these kinds of potato R&D initiatives generating such a significant level of interest from industry members across the country. This really reflects the kind of commitment that exists within the industry to learn about ways of enhancing efficiency and productivity in potato production, and overcoming the challenges that our industry faces,” said Mr Raggatt.

Held at the Quality Gateway Hotel in Devonport, the workshop featured presentations by some of Australia’s leading agriculture experts, who spoke to attendees about a range of important issues relevant to the

local seed, ware and processing potato sectors.

### Cost of production

Principal Consultant at Macquarie Franklin, Mr Lance Davey, was amongst the line-up of experts who joined the workshop, discussing cost of production issues, and highlighting key input costs that growers should be aware of in their operations.

These included: land rental and preparation, seed and planting, fertilisers, spraying, irrigation, harvest and cartage, and the interest on crop outlay. Mr Davey illustrated the effect that increasing yields can have on the overall cost of production, and compared the input costs of the Tasmanian and New Zealand potato industries.

A key focus of this valuable presentation was the costs

associated with harvesting. These were broken down into operational costs (such as fuel, repairs and labour) and overhead costs (such as interest and depreciation). Mr Davey highlighted the savings that could potentially be made by increasing the efficiency of harvesting, such as through better utilisation of harvesting equipment.

### Bio-fumigation

Also speaking at the workshop was fresh potato grower, Mr Darren Long, of MG Farm Produce, who outlined the success he has had using bio-fumigant crops in his Sheffield-based operation. He described bio-fumigation as, “the practice of growing selected green manure crops, which contain biologically active compounds for use in [the] management of soil-borne pests and diseases in

agricultural crops."

Mr Long is a strong advocate for the positive effects that bio-fumigation crops can have on the health and structure of soils that have grown potatoes. This is due to the high biomass of organic material that bio-fumigant crops contain, and their strong root mass for breaking up soil clods and compaction.

In his presentation, Mr Long stated that bio-fumigant crops

also have high frost tolerance and may aid in the suppression of major potato diseases, such as Powdery scab. He stressed, however, that the practice should be incorporated into an integrated crop management strategy.

## Biosecurity

Biosecurity is a critical issue for the Australian potato industry, and in a state that has important

quarantine measures in place, the issue was a pertinent topic for discussion at the workshop in Devonport.

AUSVEG Biosecurity and Special Projects Coordinator, Dean Schrieke, spoke to attendees about a new joint initiative between Plant Health Australia (PHA) and AUSVEG, which aims to improve the prevention, preparedness, response and management of biosecurity issues within the Australian vegetable and potato industries.

Mr Schrieke discussed the importance of rapidly identifying and responding to pest or disease incursions, and the vital role that growers play in mitigating the risk of biosecurity threats. He said that early identification and reporting can significantly reduce the cost of an incursion to industry, and urged attendees to familiarise themselves with the process for reporting an incident, which includes the Exotic Plant Pest Hotline (1800 084 881).

The owner reimbursement process in place was also discussed, which provides an incentive for growers to report biosecurity issues. It serves as a mechanism to support those who report biosecurity concerns, by reimbursing owners for the cost of eradication, loss of income or the value of destroyed crops.

Finally, the Industry Biosecurity Plan for the Australian Potato Industry, published in November 2013, was also outlined, along with a range of practical on-farm biosecurity measures that growers can implement, including installing farm-gate biosecurity signage.

## Approaches to disease management (Powdery scab)

The Devonport workshop culminated in a forum on current approaches to disease management and risk. This had a focus on Powdery scab disease, which was identified by almost all attendees as being the most significant potato disease issue in Tasmania.

The forum was led by

Agriculture Consultant Mr Peter O'Brien, from AgAims, who has an acute understanding of potato R&D and production related issues, and extensive experience working with the potato processing sector. Mr O'Brien stressed that growers' uptake of the practical outcomes of research programs, such as APRP2, was imperative for the industry.

The key objective of the forum was to provide a platform for discussion on current knowledge of, and approaches to, identifying and managing Powdery scab disease in potato crops. Split into several groups, attendees were asked to consider a number of key questions regarding disease management, and then to share both the consensus and alternative views of the groups in response.

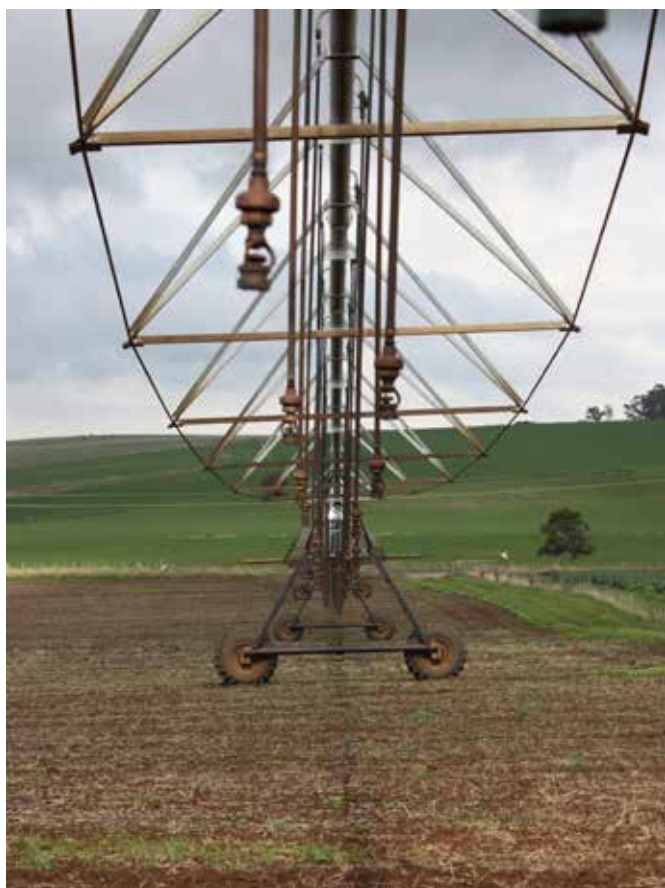
Questions put to the groups for discussion included:

- What are your current approaches to dealing with Powdery scab disease?
- What resources are available to help you assess the risk?
- What are the roadblocks to solving this problem?
- What forms the basis of your decision making when you look at managing disease risk?

The forum concluded with discussion on a 'Powdery Scab Decision Tree', developed by researchers at the Victorian Department of Environment and Primary Industries (DEPI), as part of project PT09026 within APRP2. Attendees shared their views on the value of such a resource, and how the disease management options included within the 'tree' might be utilised practically.

The exercise proved highly beneficial, providing attendees with an opportunity to talk about and consider the knowledge, management practices and resources that currently exist for dealing with costly potato diseases such as Powdery scab.

"Ultimately, it was the attendees who were driving the discussions during the forum. By managing on-farm disease issues on a daily basis, in many respects, growers themselves are



Potato grower Darren Long explains bio-fumigation on his property in Sheffield.

the real disease experts,” said Mr Raggatt.

“Sharing knowledge is what it is all about. The forum evoked a valuable discussion where growers could speak openly about some of the farming practices and resources they’re currently utilising to mitigate the impact of Powdery scab disease.”

### Current potato R&D activities

AUSVEG Special Projects Coordinator, Luke Raggatt, also took the opportunity at the workshop to provide an overview of the Potato Industry Extension Program, and highlight some of its achievements to date. Key information was also provided regarding the process by which Horticulture Australia Limited (HAL) invests the National Potato Levy into R&D projects deemed beneficial to the industry.

In his presentation, Mr Raggatt detailed some of the R&D activities that are currently being undertaken (or

contributed to) by researchers at the Tasmanian Institute of Agriculture, as well as several other notable R&D projects/ programs. These included:

- ‘Predicta Pt’ - Diagnostic tests for soil-borne pathogens (PT09023 - part of APRP2).
- Evaluation of DNA based testing for seed health and comparison with visual based assessments to detect for soil-borne pathogens and diseases (PT09019 – part of APRP2).
- Integrated strategies for controlling Root knot nematode as an alternative to chemicals (MT09067).
- Controlled traffic farming techniques to reduce soil compaction (MT09040).
- Monitoring for psyllids and psyllid predators in Australian potato crops (PT14001).
- 2014 Potato Industry Study Tour to the United States and Canada (PT13704).



## Bio-fumigation Farm Walk held in Sheffield, Tasmania

Off the back of the highly successful Potato Extension Program workshop held in Devonport in May, AUSVEG arranged a subsequent Farm Walk event hosted by fresh potato grower Darren Long, at his property in Sheffield. The event aimed to provide attendees with an opportunity to inspect first-hand Mr Long’s bio-fumigant crops that are currently being grown.

The Farm Walk commenced at the packing shed of MG Farm Produce, where Darren Long outlined the potato varieties grown by the operation, as well as the products and market that MG Farm Produce supplies. Attendees were also able to inspect the seeds of one of MG Farm Produce’s bio-fumigant crop varieties.

The group then embarked on a tour of Darren Long’s paddocks, where several bio-fumigant crops were at early growth stage. Mr Long dug up

several areas of the paddock to showcase the health of the soils, and to explain how the root systems of bio-fumigant crops have helped to improve the structure of the soils – including by removing clods and compaction. The group also had the opportunity to inspect a potato crop that was ready for harvest.

The Farm Walk event was attended by a number of growers, agronomists and researchers, some of whom travelled from interstate to take part. The valuable initiative complemented the information on bio-fumigation that was presented at the R&D workshop held on the previous evening.

The novel farming practices utilised by Darren Long’s operation received special attention, with ABC News covering the Farm Walk event and conducting interviews with several attendees. The positive news story produced



ABC News interviewing potato grower Dean Bone.

was broadcast across the ABC television and radio network in mid-May, including in several state ABC evening news bulletins, and nationally on ABC News 24.



For more information about the Potato Industry Extension Program contact AUSVEG.  
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Dr Calum Wilson speaks to attendees about new research on Common scab disease.



## Lockyer growers seek R&D knowledge

Tackling key production issues affecting Queensland potato producers was the focus of a special potato R&D workshop held in the Lockyer Valley recently. Forty four industry members attended the event, in yet another strong show of support for the valuable initiatives arranged by AUSVEG for the Potato Industry Extension Program.

Chaired by Manager and Director of Wickham Farms Killarney, Mr Bruce Wickham, the workshop featured presentations from interstate researchers Dr Calum Wilson, from the Tasmanian Institute of Agriculture (TIA), and Mr Michael Rettke, from the South Australian Research & Development Institute (SARDI), while local agronomist, Mr Gregory Teske, from Elders - Lockyer Valley, also took part, to provide some local knowledge in the various presentations given.

described by Dr Wilson as "one of the greatest economic constraints currently facing the Australian potato industry". It is particularly prevalent for those growing fresh washed potatoes due to the external damage the disease causes to infected tubers.

Dr Wilson outlined some of the symptoms associated with Common scab, including "star shaped cracks" and "raised lesions", and spoke about its development cycle. He stressed that infection of Common scab disease appears highly dependent on certain soil conditions - such as low soil moisture, high soil temperatures, and neutral or slightly alkaline soil pH levels. He outlined some practical management strategies that growers should consider adopting to mitigate the risk and impact of Common scab disease.

### Common scab

Dr Wilson discussed the extensive research he has led at TIA in recent years on Common scab disease. Common scab is a significant issue for potato producers worldwide, and was

### Disease testing

Keeping to the theme of potato disease management, SARDI Senior Research Scientist, Mr Michael Rettke, spoke to attendees about the now commercially available DNA soil

testing service, 'Predicta Pt', which was developed by SARDI and other research collaborators in APRP2. Mr Rettke explained how the cutting-edge diagnostic testing service measures the total level of DNA of a specific disease-causing pathogen in a soil sample, and provides a risk rating for the associated potato disease developing. Predicta Pt currently tests for the soil pathogens causing Powdery scab disease, Black dot and Root knot nematodes, and as Mr Rettke explained, may soon be expanded to also include tests for Rhizoctonia, Early dying and Common scab disease.

### Local trials

Finally, Elders agronomist Mr Gregory Teske, outlined the preliminary results of some local field trials he has conducted on controlled-release fertilisers,

while AUSVEG Biosecurity and Special Projects Coordinator, Mr Dean Schrieke, and AUSVEG Potato Extension Program Coordinator, Luke Raggath, provided attendees with an overview of industry biosecurity issues, and current R&D activities that are underway.

In conjunction with the workshop, AUSVEG representatives also spent a number of days visiting potato operations in both Gatton and Killarney, where they discussed with growers one-on-one some of the key production, agronomic and supply issues affecting the region.



For more information about the Potato Industry Extension Program contact AUSVEG.  
Phone: (03) 9882 0277  
Email: [info@ausveg.com.au](mailto:info@ausveg.com.au)  
Project Number: PT11004





## Seeking your views on APRP2 and potato R&D

Five years and millions of dollars worth of industry research and development (R&D) projects will draw to a close in September, with the conclusion of the Australian Potato Research Program Phase 2 (APRP2). The significant investment by industry into this program - which was funded by HAL using the National (Processing) Potato Levy, voluntary contributions from industry and matched funds from the Australian Government – had the strategic goal of boosting productivity within the Australian processing potato industry. Yet as APRP2 enters its final months, many believe the jury will be out for some time, considering whether or not the overall program has delivered the desired return on investment.

### Results

Clearly, APRP2 was an ambitious venture from the beginning. The program involved the coordination of numerous researchers, teams and institutes, which saw both interstate and international collaboration on a range of sub-projects focussed on soil health issues and managing key soil-borne potato diseases.

Certainly the level of collaboration in the program is a positive outcome. Some of the research activities

undertaken also, undeniably, yielded some good results. The development of the 'Predicta Pt' DNA soil testing tool by the South Australian Research and Development Institute (SARDI), for instance, will assist growers to better understand the risk of disease in their paddocks. There have also been some useful findings produced by the team at the Tasmanian Institute of Agriculture (TIA), and some potentially-promising results stemming from other research conducted, including from Canada.

### Questions

The question that must be asked by the industry's many stakeholders, however, is has the overall program really delivered the tangible benefits to the industry that will lead to long-term gains? Queries have also arisen over whether the numerous sub-projects completed really benefited from being part of the broader umbrella program (APRP2), which undoubtedly led to some significant administrative burdens. There is also evidence to suggest the structure of the program made it difficult for industry to effectively grasp the levels of progress being made by each of the individual sub-projects and their respective teams, over the five year period.

### Compiling knowledge

A new project has been commissioned to compile the most helpful parts of APRP1 (2004 to 2009) and APRP2, collating the technical findings in to a practical package that can be effectively communicated to industry. The ultimate aim is to ensure that potato levy payers can put some of the most practical outputs of the program to use in their operations, to help improve productivity and profitability. What remains to be seen is just how much of the work that has been carried out under APRP2 can be adopted by growers and processors.

### Seeking your input

Ensuring the increased productivity and profitability of Australian potato producers, by improving yields, and resource

and disease management, must be one of the key aims of industry and levy-funded R&D projects. With that in mind, AUSVEG is seeking your feedback on what you see as the benefits or otherwise of APRP2, and whether you feel that it was a worthwhile investment for industry.

We would also like to hear about the types of R&D projects that you believe would help to achieve these key goals within your operation, and also benefit the broader industry.



For more information, to provide feedback on the APRP2 project or to suggest R&D projects please contact AUSVEG. Phone: (03) 9887 0277 Email: [info@ausveg.com.au](mailto:info@ausveg.com.au) Project suggestions can also be made via the AUSVEG website: [www.ausveg.com.au](http://www.ausveg.com.au)

# From football field to potato paddock, Paul keeps kicking goals



THIRD GENERATION GROWER PAUL PENSINI GROWS FRESH MARKET POTATOES IN THE RICH SOILS OF THE ATHERTON TABLELANDS. AHEAD OF PLAYING HOST TO THE UPCOMING AUSVEG POTATO FIELD DAY AT THE PROPERTY HE OPERATES WITH HIS FATHER AND BROTHER, HE SPOKE TO FELICITY POWELL ABOUT LIFE AS A POTATO GROWER, AND HIS EXPERIENCES AWAY FROM THE FARM, INCLUDING A STINT IN THE NATIONAL RUGBY LEAGUE.

The Pensini family story is one typical of many growers in the area. In the late 1920s, Paul's grandparents migrated to northern Queensland from Italy. At 17, Paul's grandfather travelled to Australia to cut sugar cane, doing the back-breaking work by hand using a cane knife. Eventually he bought a property up on the Tablelands and began his life living off the land. The next generation of Pensinis - Paul's father Peter Senior and his uncle Jim (since passed away) also grew up and worked in the area.

"Dad and my uncle took the reins, and they basically just kept expanding the property on the Tablelands. They went into cattle, running cattle stations west of here. They had about 12,000 head out on the properties. Eventually that

had to come to an end back in 2002. My uncle kept the cattle stations and that side of it, and dad kept the properties here on the Tablelands," says Paul.

Peter Senior dipped in and out of growing potatoes over the years, but in 1996, the family committed to growing the tuber crop commercially.

## New experiences

After a short stint working as cabinetmaker, at the age of 19, Paul was drafted by the National Rugby League's (NRL) North Queensland Cowboys. He enjoyed a successful four-year football career, including playing for Italy's national team in 1999, an experience that he is very thankful for.

"I really benefited from working in a trade and my time

in the NRL because I got to move away from home for four years and travel. All those little things have really helped me and moulded me to the person I am. It's broadened my mind and my perspective on life. It was a big thing for me to move away from home and go to a situation where you go from being the best footy player in your area to just another competing with 40 other players that are just as good as each other. You get out of your comfort zone a fair bit," he says. Paul eventually joined his father, Peter Senior, and brother, Peter Junior, back in Atherton. The business grows fresh market potatoes for the local pack houses, which in turn supply Coles supermarkets. Grass seed, peanuts and corn/maize is also grown on the property.

"Once the spuds have been harvested, there's very little down-time, with our focus turning to tropical grass seed – from that we make a lot of hay. Peanuts we try and grow about 1,000 tonne of peanuts per year, and the corn goes to the local mill here which in turn supplies the local dairy farmers," he says.

"We also run a couple of cattle properties with about 3,500 to 4,000 head and I've also got a couple of trucks that I run."

"It never stops really."

## Growing to demand

The Pensinis plant their potato crop between the June/July window, to harvest in October/November. Paul has found the demand for brushed potatoes has dipped considerably over his time as a grower, and he has

experienced many fluctuations in the price he receives for his crop.

“People these days aren’t like how my mum was – they’ll buy a bag full of washed spuds over a bag full of dirty spuds. They’ve got less time - by the time they’ve come home from picking up the kids, they want convenience. You know we’ve got frozen chips or potato scallops all packaged up. Five minutes in the microwave and they’re ready. They’re paying for convenience, and the old spud is probably competing with that,” he says.

“We could go down the path of processing our potatoes for frozen chips and scallops, but that stuff, somehow like everything else imported, is cheaper than what we can grow it for. The other day I pulled up at a small little town about a couple of hundred kilometres west of here to get a fish burger, the attendant served up some chips and she said: ‘I was thinking of you when I was serving up these chips’. I looked on the packet and they’re a product from Belgium!”

## The wild north

The unfortunate occurrence of two major tropical cyclones in Far North Queensland has also added to the family’s challenges.

“We’ve dealt with two of the worst cyclones of a generation really – Cyclone Larry in 2006 and Yasi in 2011. With Larry, we had quite a bit of maize that year that was completely flattened. We managed to pick it up though and get some sort of a crop off it. The weather elements are always pushing us here. We’re always battling with the weather to get fine days to harvest or plant,” he says.

## Personal motivation

On a more personal note, Paul’s wife Renee, his partner of 18 years, passed away some years ago. The mother to his two young children, Renee is the motivation Paul credits with giving him the extra push he needed to pursue his dream playing NRL football.

“She was a really important part of my life, from the time we met when we were 15. She encouraged me to take up my career in the NRL and I have to credit her with giving me so much support,” he says.

But despite the challenges, Paul believes he’s resilient enough to keep working hard, taking it year by year with his father and brother by his side.

“We’ve done quite well to become as efficient and competitive as we have. I’m speaking for me but I’m sure



Photographs by Michael Petersen.



Paul (right) with his brother Peter Junior (left).

there’s plenty of guys that have basically thrown their hands up and said it’s too hard,” he says.

“I feel confident in the fact that I know what we’re doing; that we’re decent farmers and our results show that. We’re still here, and there’s other positives. We’ve built good relationships with suppliers, and they’ve come to us to grow for them, not the other way around. We’re growing some different varieties now that have helped with yield and less waste. If we grow something with a better yield that’s certainly a light at the end of the tunnel,” he says.

“I’d like to be in the industry for a lot longer.”

## International R&amp;D Update

## Managing the risk of Late blight in Canada

LATE BLIGHT HAS BEEN CAUSING HEADACHES FOR CANADIAN POTATO GROWERS IN THE ALBERTA PROVINCE. IN A BID TO MINIMISE DAMAGE, GROWERS ARE TURNING TO RESEARCHERS FOR ADVICE AND ASSISTANCE ON WHAT TO CONSIDER WHEN ATTEMPTING TO MANAGE THE DISEASE.



Over the past few growing seasons in Canada, potato growers in the province of Alberta have been challenged by one of the world's most serious potato diseases – Late blight. Unusual climactic conditions and increased humidity in the region have

brought uncharacteristic weather patterns to Alberta, including high rainfall in the spring months. As a result, the area has seen a significant increase in the prevalence of Late blight, forcing growers to reconsider some of their disease management practices.

### The Alberta experience

The unexpected rise of Late blight in Alberta has proved costly for growers, with some local experts estimating that managing the disease has saddled the local industry with

about \$12.5 million in added costs, including crop-protection inputs. According to some measurements, Fungicide applications in the area more than doubled in 2013, as local potato growers sought to control the disease and minimise its spread.

Researchers and growers alike have been highly active in seeking out ways to overcome this relatively-new problem for the local industry, while enhancing their preparedness. For example The Potato Growers of Alberta (PGA), an organisation which engages in a range of education, extension and research activities on behalf of the industry, has implemented a range of awareness programs and has supported ongoing research to help combat the problem of Late blight.

Earlier this year, the PGA held a special series of speaker sessions focusing on the disease. These sessions featured some insightful presentations by leading researchers with an expertise in Late blight-related areas, including Late blight's strains and disease resistance, and risk management.





One of these sessions included a presentation by Dr Ron Howard, who explained that Late blight management programs should be planned ahead of the growing season, but should also be flexible enough to be able to respond to a range of changing environmental conditions. He said that there are a lot of unpredictable factors for growers to consider, such as when the pathogen would actually appear.

Dr Howard discussed what he sees as the "Top 10" factors for growers to consider in managing the risk of Late blight. He outlined some of the critical control points in potato production where growers need to be aware of the risk of Late blight, and to then take appropriate steps to mitigate the problem. He said that managing Late blight is ultimately about trying to break or disrupt the disease cycle at as many points as possible. Preventing the pathogen from being allowed to grow and reproduce uncontrolled is critical, he said, in order to avoid "disastrous consequences".

### Factors to consider

According to Dr Howard, the Top 10 factors to consider in managing the risk of Late blight are as follows:

- Eradicating or minimising cull piles.
- Using healthy seed.
- Implementing a planting plan to avoid problems later in the season.
- Managing volunteers, which can act as a primary source of Late blight spores early in the season.
- Effective use of fungicides, which play a key role in the control of Late blight.
- Using potato varieties with tolerance or resistance to Late blight if available. Resistant or partially resistant varieties may require fewer fungicide applications.
- Adopting effective irrigation management practices, such as avoiding over-irrigating crops and potentially re-applying fungicides after irrigating.
- Using in-season scouting/forecasting, which involves looking for Late blight symptoms in crops throughout the season and assessing the effectiveness of Late blight management plans.
- Adopting a range of harvest management practices, including minimising bruising during digging and handling, and avoiding the harvesting of diseased areas in fields.
- Adopting storage management strategies, including grading out rotted tubers prior to storage, applying post-harvest fungicides to tubers, and minimising condensation on tubers and storage surfaces.

Late blight photos courtesy of Howard F. Schwartz, Colorado State University, Bugwood.org



For more information: To watch Dr Howard's full presentation go to: [www.youtube.com/watch?v=cZg9ZEmf1MA](http://www.youtube.com/watch?v=cZg9ZEmf1MA) More information on the Potato Growers of Alberta is available at: [www.albertapotatoes.ca](http://www.albertapotatoes.ca).

## Ask the industry



with Scott Mathew

## Pre-crop planning for potatoes

TECHNICAL SERVICES LEAD AT SYNGENTA, SCOTT MATHEW, DISCUSSES WHAT GROWERS SHOULD CONSIDER WHEN PLANNING A SEED POTATO CROP.

When planning your potato crop there are many things which should be considered, with arguably the most important component being the seed potato.

The contracting and purchasing of good quality certified seed that is both cosmetically sound and of the correct physiological age is one of the most important decisions that a grower will make. It is very valuable for commercial growers and seed growers to have open discussions throughout the season, ensuring that each party understands what they want the seed to do in the commercial phase.

It is important to consider the physiological, as well as the physical, age when choosing potato seed. There are many factors that can affect the physiological age of your seed tubers, including growing season stress, storage temperature and time. Temperature is very important because warmer storage temperatures will speed the aging process of the tubers.

One of the things to look for when you receive seed potatoes are sprouted products; these may lead to performance problems and any broken sprouts could produce excessive and weaker stems. You should also look for mechanical damage to the seed, as bruising or damage is

an indication of rough handling during harvest and transport, which can cause physiological ageing and increased levels of disease.

You should also inspect seed for disease symptoms. Some disease symptoms can be easily treated using fungicides applied to the seed piece (e.g. MAXIM) or fungicides applied in-furrow (e.g. AMISTAR), but the presence of others should be grounds to reject the seed.

### Whole or cut

You then need to decide whether you are going to plant whole seed or cut seed. Properly cut seed pieces feed correctly in the planter and provide uniform plant stands. Mechanical cutters can handle large volumes of seed and cut tubers into two or four pieces. Alternatively, hand cutting minimises the number of blind pieces, but is slower and more labour intensive. Remember that the size of a potato seed piece can have an impact on early plant vigour and larger seed pieces usually emerge faster than smaller ones.

Disinfect all equipment before each seed cutting session and between seed lots and keep the seed cutter blades sharp and straight to prevent ripping the potato surface. Any damage from the cutting process provides an ideal area for disease.

When you are ready to plant, you then need to consider what fungicide treatment to use to minimise disease. Whether seed treatments are directly applied to the seed piece or as an 'in-furrow' application, it will be one of the most important decisions to be made by growers for the early management of their commercial potato crop.

Because disease pressure differs from one growing region to another, both seed and commercial growers should carefully select the seed and/or in-furrow treatment that best meets their needs.

A variety of fungicides are available to growers that provide effective control of multiple diseases. Fungicides can be applied either to seed pieces prior to planting, at planting, or as in-furrow treatments, and you should speak to your agronomist about the best options for your operation.

# Q

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

# Leading potato experts to join the Potato Extension Booth at the 2014 AUSVEG National Convention Trade Show!

The Potato Industry Extension Program will be showcased in a dedicated booth at the 2014 AUSVEG National Convention Trade Show (20 & 21 June). The booth will serve as a central hub for potato growers, processors, agronomists, and other industry members attending the Convention to discuss, and be informed about, a range of R&D activities and outcomes.

Two of the industry's leading experts, Dr Doris Blaesing (RMCG) and Ms Brenda Coutts (DAFWA), will appear at the booth to outline some of the important R&D projects they are currently engaged in.

Dr Blaesing will join the booth on Day 1 of the Trade Show

(Friday 20 June) to discuss key issues relating to seed potato health - including seed certification and maintaining quality seed potatoes through the supply chain.

Ms Coutts will appear at the booth on Day 2 (Saturday 21 June), to speak directly with Trade Show delegates about her important research on Potato virus Y, including a new scoping study commissioned by HAL (PT13006).

Fact sheets and other literature relating to potato R&D will be available at the booth, including current

and past editions of *Potatoes Australia* magazine.

This year, the Potato Extension Booth will also feature the 'Spudcasts Chill Out Zone', where visitors will be able to

take time out from all the Trade Show action to sit down, relax, and listen to several episodes of the potato R&D 'Spudcasts' series.



Ms Brenda Coutts, DAFWA.



Dr Doris Blaesing, RMCG.

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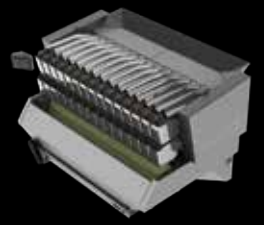
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## Strengthening the future of Aussie farming and manufacturing

Representatives from AUSVEG recently participated in the Australian Manufacturing and Farming Program's (AMFP) "Geelong is Strong" Industry Day, held at the Royal Geelong Showgrounds in late April.

The brainchild of Democratic Labour Party Senator John Madigan, also supported by Independent South Australian Senator Nick Xenophon, the event was the latest in a series of showcases supporting local manufacturing, farming and food processing sectors, held in regional centres and Adelaide and Canberra in recent years.

The event also gave attendees an opportunity to network with businesses, and local, state and federal politicians, and featured two panel discussions involving local manufacturing businesses,

and elected representatives.

AUSVEG staff were available to answer attendees' questions throughout the day-long event at a booth featuring fresh Australian vegetable produce and industry information.



AUSVEG staff man the booth at the AMFP event.



Senator John Madigan addresses the Geelong crowd.

Photographs courtesy of AMFP.



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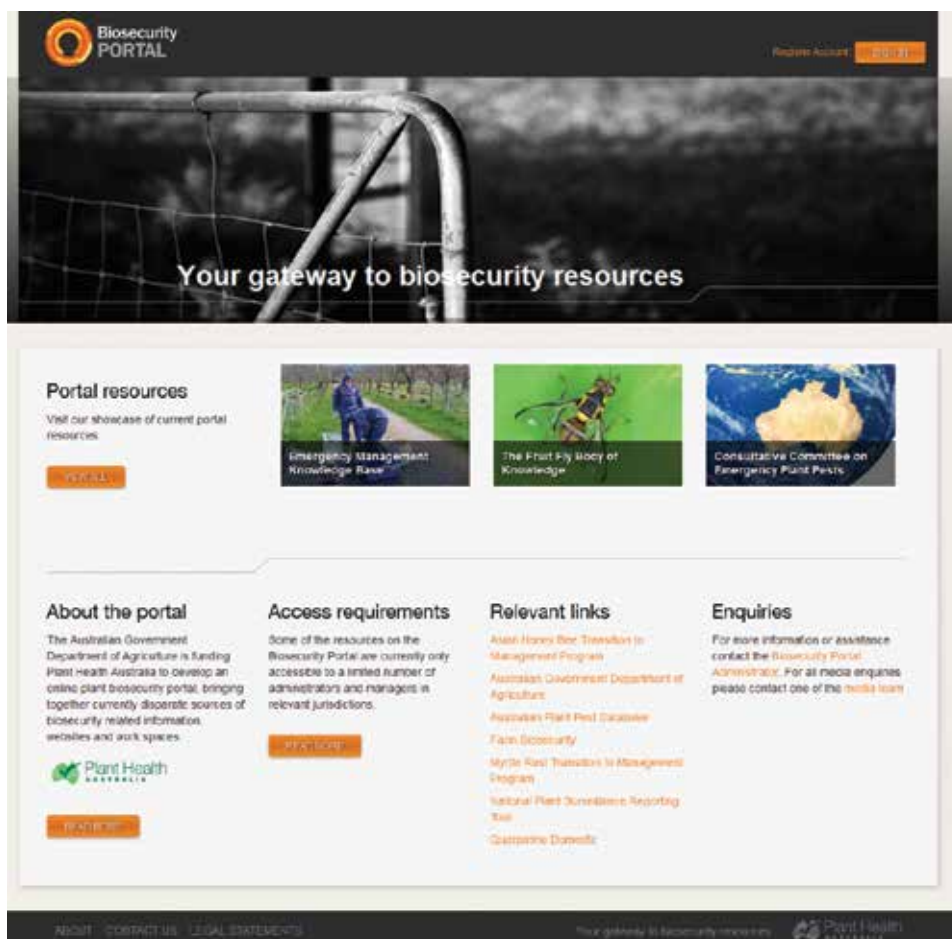
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## The Front Line

## New gateway to biosecurity information



DEVELOPED BY PLANT HEALTH AUSTRALIA (PHA), WITH FUNDING FROM THE AUSTRALIAN GOVERNMENT, A NEW 'BIOSECURITY PORTAL' IS SET TO GIVE USERS UNPARALLELED ACCESS TO BIOSECURITY RESOURCES. PHA PROGRAM MANAGER BIOSECURITY PLANNING & IMPLEMENTATION, BRAD SIEBERT, SPOKE TO **THE FRONT LINE** ABOUT THE BIOSECURITY PORTAL.

Biosecurity resources are not uncommon, but they tend to be highly dispersed and hard to access. By constantly accumulating and standardising high-quality biosecurity information, the Biosecurity Portal promotes accessibility.

"The Biosecurity Portal will amass a range of biosecurity material, including surveillance and diagnostics data, training modules, technical information, national policy, strategy and legislation documentation, and a number of helpful biosecurity tools," says Brad.

Not all of this information will be freely accessible, but public access to the Biosecurity Portal homepage is currently enabled. The homepage will feature more information and other tools as the Portal develops.

"The Biosecurity Emergency Knowledge Base, which will soon contain a massive amount of biosecurity information, will be open to the public. This

will put a weight of biosecurity information at the fingertips of the wider public, giving everyone the ability to limit biosecurity risk," says Brad.

The Biosecurity Portal will also contain specialist biosecurity information for industry-specific biosecurity issues. The Fruit Fly Body of Knowledge, which is currently under restricted access, will assist in the management of fruit fly.

"Fruit fly is a significant pest of a number of industries. The management of fruit fly is a priority of government, industry and the wider community and providing ease of access to information regarding fruit fly is a step in the right direction," he says.

The Portal's National Plant Surveillance Reporting Tool (NPSRT) will act as an online database for plant pest survey information. This is highly important when transitioning to management of a pest or

disease incursion.

"Compiling plant pest survey data will give managers a much better idea about the host range and spread of pests and diseases. This will allow managers to rapidly plan pest and disease management responses," says Brad.

Other areas of the website are intended to give biosecurity managers access to an array of relevant information.

### Portal welcomed

The Portal was recently welcomed by Minister for Agriculture, Barnaby Joyce, who believes increased access to biosecurity resources will improve Australia's capacity to share information.

"Currently there are many databases of biosecurity information held by governments, industry and community groups but each tends to be isolated, limiting

their usefulness. [The Portal] will bring significant benefits to Australia's biosecurity system by making important biosecurity information accessible," said the Minister at the time.

The Biosecurity Portal is overseen by the Portal Management Committee consisting of representatives from the Department of Agriculture and Plant Health Australia, the national coordinator of the government-industry partnership for plant biosecurity in Australia.



To visit the portal go to: [www.biosecurityportal.org.au](http://www.biosecurityportal.org.au)

For more information, contact AUSVEG Biosecurity Officer Dean Schrieke on (03) 9882 0277 or email [dean.schrieke@ausveg.com.au](mailto:dean.schrieke@ausveg.com.au)

## The Front Line

# Building our Post Entry Quarantine defences



The Department of Agriculture recently embarked on an ambitious project designed to build Australia's future quarantine capacity and reduce the risk of pests and disease entering Australia on imported plant material.

The new Post Entry Quarantine (PEQ) facility is to be located in Mickleham, roughly 30 minutes from Melbourne's CBD. The new facility will progressively replace four aging PEQ facilities currently in use around Australia, while a number of private and State Government operated PEQ facilities will continue to operate.

Agriculture Minister Barnaby Joyce and Parliamentary Secretary to the Minister for Finance, Michael McCormack, recently took part in preliminary digging at the Mickleham site. When construction finishes, the PEQ facility will be Australia's largest, representing an investment of over \$400 million. "This facility is an important component in protecting and maintaining Australia's reputable biosecurity system," said Minister Joyce.

The 144-hectare PEQ facility will handle the quarantine clearance of both live plants and animals, including dogs, cats, horses, ruminants (such as alpacas), live birds, bees and fertile eggs for the domestic poultry industry. The first operations on the site will commence from 2015, with all PEQ functions managed on the



The new Post Entry Quarantine facility.



Mickleham site by 2018.

"Australia is free from many of the pests and diseases found in other parts of the world and we want to keep it this way – this modern facility will significantly enhance our capacity to manage the heightened risks posed by ever increasing amounts of new plant and animal material coming in to Australia," said Minister Joyce.

The PEQ facility's plant compound has a glasshouse capacity of 2000m<sup>2</sup>, supported by 1200m<sup>2</sup> of shade house and an integrated diagnostic laboratory capability. The facility can house a wide range of plant species with different climatic

zones created through the management of temperature and humidity settings in the glasshouses.

Parliamentary Secretary to the Minister for Finance, Michael McCormack, believes that moving quarantine operations to a single site supports greater efficiencies in operations.

"It's close to the international airport, isolated from agricultural production areas and has been designed to manage climatic requirements of different plant species," he said.

Waste of a quarantine concern is managed at the compound level with steam sterilisers for solid waste and a small liquid

waste treatment capability in the laboratory. The installation of screens on drains across the facility provides filtration of runoff.

Quarantine import fees, which have not been revised since 2009, are currently being reviewed for the new PEQ facility.



For more information, go to the Department of Agriculture website at [www.daff.gov.au](http://www.daff.gov.au), or contact AUSVEG Biosecurity Officer Dean Schrieke on (03) 9882 0277 or email [dean.schrieke@ausveg.com.au](mailto:dean.schrieke@ausveg.com.au)



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## Glowing psyllids shed light on disease

US RESEARCHERS ARE USING TINY FORCEPS AND A GLOW-IN-THE-DARK GENETIC MARKER TO BETTER UNDERSTAND AN INFAMOUS POTATO PEST, AND ZEBRA CHIP DISEASE.

Much has been written about the problems posed by the Tomato-potato psyllid (TPP) and associated Zebra chip disease in New Zealand. The issues, however, are not just limited to our trans-Tasman neighbours. The tiny insect, which is responsible for transmitting the Zebra chip-causing bacterium *Candidatus Liberibacter solanacearum*, has also caused plenty of problems for potato growers in the United States and other parts of the American continent.

In an effort to better understand the pest and address the issues posed by Zebra chip disease, researchers from the United States Department of Agriculture (USDA) have been employing some novel techniques. Working from a laboratory in Washington State, research entomologists, Dr Rodney Cooper and Dr Joseph Munyaneza, are using tiny forceps and a fluorescent microscope to dissect and study the insects. Dr Cooper recently took the time to discuss his work with *Potatoes Australia*.

### Background

Dr Cooper says despite Zebra chip first being recognised in America in the mid-1990s, the association between the disease and the psyllid was

only established more recently. Dr Cooper says that means there is still much to be learned about the biological interactions between the pathogen and the psyllid, including mechanisms of acquisition and transmission.

“Zebra chip disease was first noticed in the mid-1990s in Mexico, and outbreaks have since occurred in all the potato growing regions of the western United States,” says Dr Cooper.

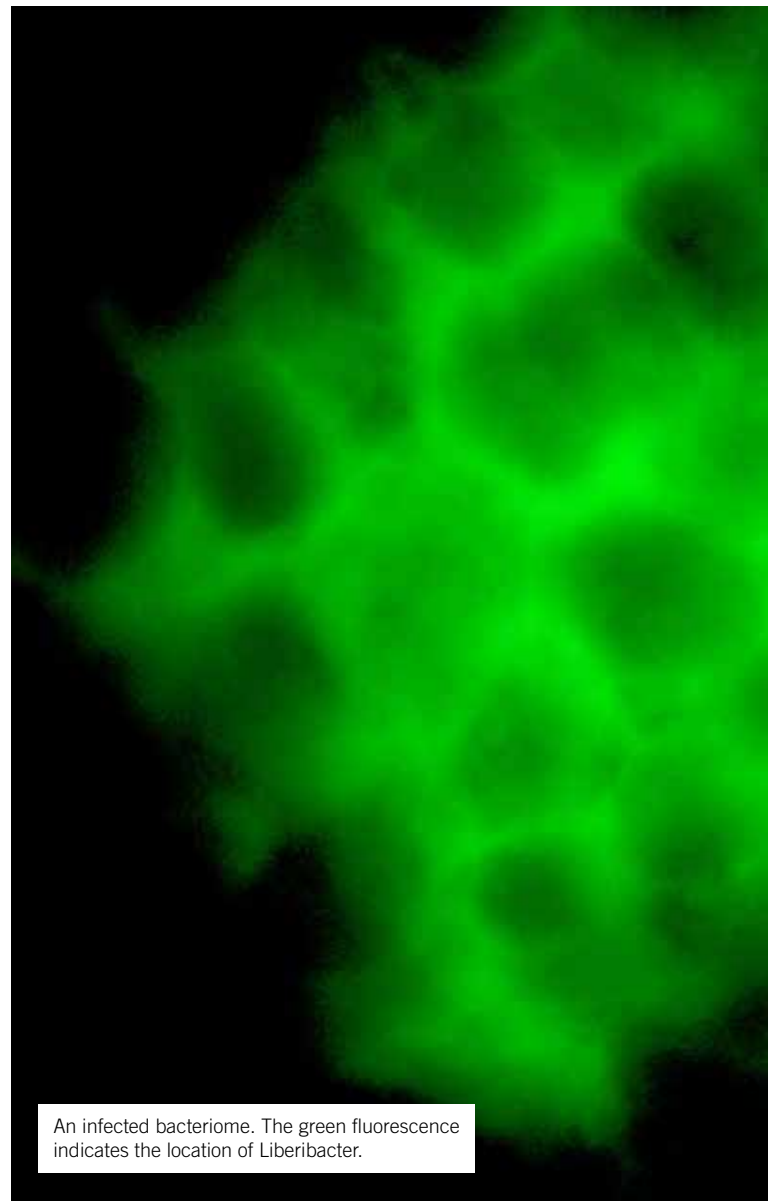
“The pest status of the potato psyllid has increased dramatically with the appearance of *Liberibacter* and Zebra chip disease. *Liberibacter* infects all Solanaceous crops, and typically kills the aboveground portions.”

“If [infected] potato plants live long enough to produce tubers, the tubers are small and contain striped patterns – hence ‘Zebra chip’ – rendering them unmarketable.”

### Understanding more

Dr Cooper says the point of beginning the psyllid dissections was to better understand the biological interactions between the pest and *Liberibacter*.

“Our initial goal was [to] gain a better understanding of where in the psyllid’s body *Liberibacter* is located and to determine the mechanisms of acquisition and transmission of *Liberibacter* by



An infected bacteriome. The green fluorescence indicates the location of *Liberibacter*.

the psyllid,” he says.

“Similar methods will be used to study differences among psyllids of different haplotypes, ages, etc. in their ability to acquire and transmit *Liberibacter*. This information is paramount to predicting the risk of *Liberibacter* outbreaks and spread, and to applied research to develop methods

of controlling the psyllid and pathogen.”

### The technique

Dr Cooper says though learning to dissect the tiny creatures proved somewhat tricky at first, he soon got the hang of the delicate procedure.

“Learning to dissect the

“ Learning to dissect the psyllids took a bit of practice, and the perfect amount of coffee. ”

- Dr Rodney Cooper

psyllids took a bit of practice, and the perfect amount of coffee," he says. "I dissect the insects under a stereo microscope with fine-tipped forceps. With a little practice, it isn't as difficult as it might seem."

Dr Cooper says the technique used to study the TPP/Liberibacter interactions in specific organs and tissue is called 'fluorescent in-situ hybridisation'. This involves submersing dissected organs in a solution containing a molecular fluorescent probe that binds to Liberibacter DNA.

"Unbound probe rinses away from the sample, but probe bound to Liberibacter remains and is visible when viewed under a fluorescent microscope," he says. "The probe basically makes Liberibacter glow-in-the-dark."

### Findings so far

Though a glow-in-the-dark potato pest might sound like

the stuff of sci-fi movies, Dr Cooper's work is far more than a novelty. He says research to date has resulted in some significant findings.

"We have found the nymphs are less likely to harbor Liberibacter in their salivary glands than are adults, which may account for nymphs being less likely than adults to transmit Liberibacter to host plants," he says.

"We also found a high incidence of Liberibacter colonising the bacteriome – a special organ in psyllids where beneficial symbionts are found – of potato psyllid. We don't yet know whether colonisation of the bacteriome by Liberibacter is incidental or biologically relevant."

Dr Cooper says collaborative work with another researcher, Dr. Venkatesan Sengoda, has provided evidence that acquisition and transmission of Liberibacter by psyllids, "follows a pattern consistent with a propagative, circulative, and persistent mode of

transmission."

"In other words, psyllids acquire Liberibacter by feeding on infected plants, Liberibacter passes through the gut wall into the insect's blood where it multiplies, [then] after about two weeks, Liberibacter numbers are high enough for Liberibacter to colonise the salivary glands where it is discharged with saliva into new host plants."

Dr Cooper says while the primary Zebra chip disease control method involves spraying potato crops with insecticides, researchers are seeking to provide growers with more sustainable approaches, through their research.



For more information:  
[www.ars.usda.gov/is/pr/2014/140501.htm](http://www.ars.usda.gov/is/pr/2014/140501.htm)



A dissected adult psyllid. The large yellow mass is the bacteriome.



## Getting acquainted with *Verticillium* in Australia

RESEARCH CONDUCTED AT THE UNIVERSITY OF MELBOURNE HAS INVESTIGATED LINKS BETWEEN NEMATODES AND VERTICILLIUM SPP. IN POTATO EARLY DYING IN POTATO CROPS. CONDUCTED WITHIN THE AUSTRALIAN POTATO RESEARCH PROGRAM PHASE 2 (APRP2), THE RESEARCH HAS ALSO REPORTED ON THE DIFFERENT SPECIES AND STRAINS OF VERTICILLIUM FOUND IN AUSTRALIA.

Many Australian potato growers have indicated losses of up to 20 per cent as a result of potato early dying (PED), with processing companies suggesting reductions of yield of up to one per cent. It's often hard to attribute the early die-off of a crop to one particular factor, so a University of Melbourne project was funded to better understand the role that *Verticillium* wilt plays in PED in Australia.

PED refers to the early maturation and death of a potato crop. It can be caused by an interaction between different species of the soil-borne fungal pathogen *Verticillium* (*Verticillium dahliae*) and the root lesion nematode *Pratylenchus crenatus*. *Verticillium* can establish in a field through the use of infected seed tubers or by movement of infected soil. The pathogen can also survive in the field for over 10 years through the production of durable resting

structures called microsclerotia. The nematode interacts with the fungus to enhance the development of the visual PED syndrome symptoms and to reduce tuber yield when population levels of the two pathogens are too low to cause disease alone.

The project had multiple aims in order to better understand PED in Australia. Although the work completed was the first step, the outcomes of the project indicated that considerably more work is needed to better understand the disease.

### Pathogens and nematodes

The interaction between *V. dahliae* and *P. crenatus* in PED syndrome had not been previously investigated in the Australian potato production system. University of Melbourne PhD student Prakash Vijayamma Ramakrishnan

Nair showed that a synergistic interaction occurs between *P. crenatus* and *V. dahliae* which leads to increased PED severity in potato plants. Prakash also showed that *V. dahliae* was widespread in seed potato tubers in south east Australia. Another potentially more serious *Verticillium* species (*V. albo-atrum*) was also identified in a few tuber seed lots in Tasmania and Victoria. The aggressiveness of isolates of *V. dahliae* to infect and cause disease was found to vary with some isolates being highly pathogenic.

Within the research setting, tubers infected with *V. dahliae* appeared to have little impact on first generation plants grown from these tubers. However, tuber infection may play a significant role in building up soil inoculum over several generations of planting, and may be important in transmission of the pathogen between regions. A critical level of inoculum build-up in the soil needs to be reached

before infection and disease development occurs, and this may take several cropping seasons depending on the initial level of inoculum of *Verticillium* and nematodes in the soil.

### Implications for future research

Further investigations are needed to measure soil inoculum build-up in the field over several cropping generations and to determine the soil threshold level of inoculum of both *Verticillium* and nematodes required to cause disease. This information could be integrated into the commercial pre-plant soil testing service, Predicta Pt, developed by the South Australian Research and Development Institute (SARDI). Currently, SARDI reports levels of *V. dahliae* in pre-plant soil tests, but without risk ratings, as the relationship between DNA levels with the actual risk of disease in key potato growing regions needs



University of Melbourne Masters student Veradina Dharjono (Dina).

to be validated. It may be that these DNA-based technologies are developed further to provide a means of testing seed tubers to determine their inoculum load. Current visual-based certification systems are unable to detect *Verticillium* infection.

### Resistant cultivars

University of Melbourne Masters student Veradina Dharjono (Dina) was involved in screening several Australian potato cultivars for resistance to *V. dahliae* in glasshouse trials and showed that some varieties are considerably more resistant than others. This work could be repeated in commercial fields that have a long history of PED incidence, to study resistance of



Leaf displaying symptoms of Verticillium wilt.



University of Melbourne PhD student Prakash Vijayamma Ramakrishnan Nair, in the field.

commercial potato cultivars.

Dina also explored the possibility of using soil amendments to control *V. dahliae*. This preliminary work was conducted in the laboratory. Two amendments were trialled and were successful in reducing the viability of microsclerotia. These encouraging results may lead to the testing of suitable amendments in the field.

This project was funded as part of APRP2 and was supervised by Professor Paul Taylor (University of

Melbourne), Dr Tonya Wiechel (DEPI Victoria) and Dr Nigel Crump (VICSPA). The inclusion of students in the research program is important in the development of new knowledge but also in generating highly skilled plant pathologists that can help solve industry issues in the future, continuing Australia's innovation capacity and capability.

The final report for the project states that the research has shown PED to be a threat to potato production in Australia

and that *Verticillium* and nematodes play important roles in PED. A combination of resistant cultivars, avoidance of soils with high levels of *Verticillium* and nematodes, and soil amendment treatments may reduce PED. Finally, the report notes that further work in this area may provide a greater level of understanding of the impact that PED plays in Australian production.

This project has been funded by HAL using the Processed Potato Industry

Levy and matched funds from the Australian Government. The University of Melbourne and the Victorian Certified Seed Potato Authority have provided in-kind support.

### THE BOTTOM LINE

- *Verticillium (V. dahliae)* was found to be widespread in seed potato tubers in south east Australia.
- There is a synergistic interaction between nematodes and *Verticillium (V. dahliae)* which leads to increased PED severity in potato plants.
- The level of *Verticillium* and nematode inoculum required to cause disease requires further study, as do factors that facilitate the expression of the disease.
- Some varieties of potato plants are resistant to *V. dahliae* infection.
- Where soils have a high level of *Verticillium (V. dahliae)* and nematodes (*P. crenatus*) it is recommended that alternative planting sites are found or resistant varieties are used.



For more information:  
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University of Melbourne  
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Anne Ramsay  
Project Manager, APRP2  
Email: anner@sedadvisory.com.au

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This project is funded by HAL using the National Potato Levies, voluntary contributions from industry and matched funds from the Australian Government



## CALENDAR of events



**19-21 June 2014**

**AUSVEG National Convention, Trade Show and Awards for Excellence**

**Where:** Cairns Convention Centre, QLD

**What:** The AUSVEG National Convention showcases speaker sessions, entertainment and an impressive trade show. The event will provide delegates with an opportunity to forge relationships with members of the industry, supply chain, researchers and growers.

**Further information:**

AUSVEG (03) 9882 0277,  
[convention@ausveg.com.au](mailto:convention@ausveg.com.au),  
or [www.ausveg.com.au/convention](http://www.ausveg.com.au/convention)

**12-24 August 2014**

**2014 Potato Industry Study Tour**

**Where:** USA and Canada

**What:** This is an exciting opportunity for Australian potato levy payers to learn from leading agricultural businesses across the United States and Canada, during a 10-day study tour. The tour will involve visits to several major potato production regions of North America, including Idaho, in the United States, and New Brunswick in Canada.

**Further information:**

AUSVEG (03) 9882 0277 or [info@ausveg.com.au](mailto:info@ausveg.com.au)



Stu Jennings

As harvest down south is wrapping up, and other areas of Australia are just getting going, I've been thinking about the reasons why I wanted to get something like the YPP started.

It was all about communication. While I was overseas with a group of young growers, we realised how isolated we can get on the farm and how difficult it can be to just have friendships and

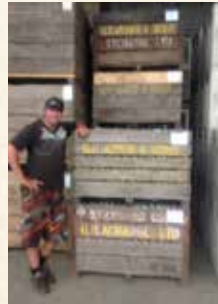
handle everyday stresses. Without some means of contact with the outside world, we can also miss out on vital information that could improve our operation. We need an easy way to communicate, as we may suffer from the 'grass is always greener' syndrome, and get a sore neck from looking over the fence.

Don't be afraid to ask questions, and don't be afraid to answer questions! Our entire industry can benefit from better communication.

Technology has made this a lot easier with things like Facebook and smart phones, and new apps that are being developed.

So please, if you are on the YPP Facebook page and have never shared anything, don't hesitate to do so! And if you consider yourself a Young Potato Person and are not on the page, come and join the conversation at [www.facebook.com/groups/youngpotatopeople/](http://www.facebook.com/groups/youngpotatopeople/)

Check out our mini profile of YPP member Chris Ayres (right).



**Name:** Chris Ayres  
**Age:** 28  
**Location:** Albany, Western Australia  
**Hobbies:** Football, fishing, water sports and shooting

I'm involved in the potato industry as a seed potato grower sending seed to most states of Australia.

I enjoy farming on our property in Albany because there is something new to learn each day with varietal developments and agronomic improvements.

My favourite way of making a potato dish is boiling immature potatoes with a good handful of fresh parsley, melting butter over the top.

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[www.youngpotatopeople.com.au](http://www.youngpotatopeople.com.au)

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