

potatoes

australia

April/May 2016

Stuart Coles

A passion for knowledge

Nicole Rose

Young grower

PSTVd update

New testing requirements



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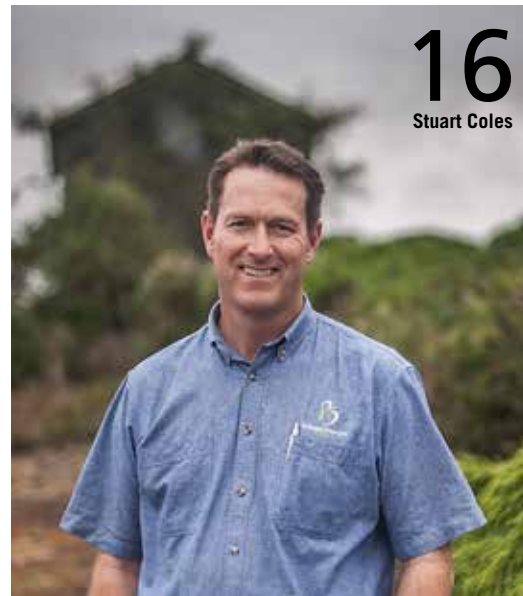
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AUSVEG Chairman and CEO messages



Geoff Moar

AUSVEG Chairman

The 2016 National Horticulture Convention is just around the corner and delegates can once again look forward to an exciting line-up of speakers and networking events. I am pleased to confirm that one of the latest additions to the speaker program is Mr Jon Entine, a highly respected American author and science journalist. He founded the Genetic Literacy Project, an independent outreach organisation that aims to educate the public on GMO biotechnology and genetics in both human and agricultural use.

Mr Entine has won 20 international journalism awards, including Emmy Awards for his acclaimed television documentaries. Mr Entine's work includes articles about genetically modified potatoes, an issue he feels strongly about. I am very pleased to welcome Mr Entine to the 2016 Convention, and urge all growers to make the most of this opportunity to hear from one of the international potato industry's most passionate advocates.

Another exciting feature of the Convention is the National Awards for Excellence. These awards recognise and celebrate those growers and industry members who have made their mark on the industry in the past year. I am pleased to report that many potato growers have been nominated and all are of the highest calibre. The National Awards for Excellence is a wonderful opportunity for growers from all industries to come together and honour the best in the business. I wish all nominated growers the best of luck.

During your time at the 2016 Convention, look out for the AUSVEG Communications booth

on the Trade Show floor. The AUSVEG booth should be your first stop for R&D information, updates on the potato industry and potato levy information. AUSVEG staff will be happy to answer your questions and provide information on insightful levy-funded research.

As part of AUSVEG's dedicated work to represent growers, we work closely with Horticulture Innovation Australia to communicate the ways that your National Potato Levy is being invested in R&D projects. To keep growers informed on the levy investment process, a regular update will be included in each issue of *Potatoes Australia* magazine. You will find this update on page 9 of the current issue. I hope this information will give growers an insight into the importance of the National Potato Levy in enabling industry-changing research and development.

Geoff Moar
Chairman
AUSVEG



Richard Mulcahy

AUSVEG Chief Executive Officer

A number of promising political announcements have been welcomed by the Australian potato industry in recent months. Firstly, Potatoes New Zealand has withdrawn its application seeking market access for fresh potatoes for processing into Australia. AUSVEG has resolutely opposed New Zealand's attempts to export fresh potatoes into Australia for several years, as it would substantially increase the risk of an incursion of Zebra chip disease.

The Tomato-potato psyllid, which is not yet present in Australia, often carries the bacterium that causes Zebra chip disease. Unfortunately, the New Zealand potato industry has been devastated by the effects of this disease, which can drastically reduce the yield and health of potato crops. Therefore, it is a great relief to know that this decision will help the Australian potato industry to maintain its enviable status as an industry that is free of Zebra chip disease.

Additionally, AUSVEG was pleased to be notified of the Federal Government's introduction of an 'effects test' to address the misuse of market power. This long-overdue reform is a vital development and will ensure that growers can operate in a more open and competitive marketplace that treats all supply chain participants fairly and equally.

The effects test will make it easier for the Australian Competition and Consumer Commission to prove that the conduct of one or more businesses has the purpose or likely effect of substantially reducing competition. This is particularly important for smaller potato growers,

who often fall prey to larger businesses that are able to dominate the market. AUSVEG is extremely pleased to see that growers will now have a realistic avenue for addressing the misuse of market power.

Another welcome announcement is the Federal Government's decision to implement a cross-departmental review of the proposed 'backpacker tax'. The proposed tax would prevent temporary workers who come to Australia on the Working Holiday Maker program from being able to access the \$18,200 tax-free threshold and instead face a tax rate of 32.5 per cent from the first dollar they earn.

Statistics from the Department of Immigration and Border Protection show that the number of backpackers coming to Australia has steadily declined over the past two years, with over 34,000 fewer visas granted in 2014-15 than in 2012-13. Given these concerning figures, it is likely the proposed tax would deter more backpackers from coming to Australia to work.

As Australian growers rely heavily on backpackers to fill the labour shortages that exist in rural areas of the country, it is vital that this critical source of labour is not diminished by short-sighted policy decisions.

AUSVEG hopes the review will help to acknowledge the importance of backpackers as a labour source in the Australian potato industry.

Richard J Mulcahy
Chief Executive Officer
AUSVEG

AUSVEG Chairman

Geoff Moar

AUSVEG CEO

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**FRONT COVER:**

Stuart Coles

Photograph by Belle Young

This issue of *Potatoes Australia* brings you the latest news and R&D updates on a range of serious potato diseases and pests.

The article on page 14 is dedicated to the African black beetle, which causes damage to both potato plants and tubers, resulting in significantly reduced yield and quality. We speak to Stewart Learmonth from the Department of Agriculture and Food Western Australia to find out what growers should look out for and how to best manage this pest.

On page 28, *The Front Line* biosecurity column features an interview with Dr Siobhan de Little, who discusses the

latest methods for controlling Green peach aphid infestation in potato crops. This pest continues to demonstrate resistance to multiple insecticides, causing large crop losses across Australia.

We also explore the latest research from the University of Tasmania, which examined the effectiveness of visually grading seed potatoes as a way of removing diseased tubers, in order to meet certification standards (page 18).

This edition also features exciting international research. On page 27, we provide the details of a new potato variety developed in Bangladesh, which is resistant to Late blight.



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Visual grading of seed potatoes

Researchers hope it may ease the strain on many potato growers who deal with the constant threat of this disease.

Our Grower profile focuses on Tasmanian grower Stuart Coles, who discusses his journey from city kid to agronomist to farm manager. Stuart believes in constant learning, and ensures that both he and his staff have regular opportunities to grow their knowledge (page 16).

Nicole Rose from Pemberton in Western Australia features in our Young grower profile. Like Stuart, Nicole also enjoys improving her skills and learning as much as she can about the potato industry. She believes that workshops and training days are a great way

to motivate young potato growers (page 24).

On page 12, our feature article focuses on the important issue of farm safety. As farms are some of the most dangerous workplaces in Australia, we look at the ways to make your growing operation a safer working environment.

We have also introduced a new 'Regional Update' section in the magazine, which will provide the latest news and developments from key potato growing areas around the country (page 32).

Finally, the 2016 National Horticulture Convention is fast approaching. Turn to page 8 to read about the new speakers and exciting events that are planned for this year's delegates.



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The Front Line



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New speakers and exciting events confirmed for the National Horticulture Convention

AS WE APPROACH THE 2016 NATIONAL HORTICULTURE CONVENTION, THE NUMBER OF EXCITING ANNOUNCEMENTS CONTINUES TO GROW. SEVERAL WORLD-CLASS SPEAKERS WILL HEADLINE THE EVENT AND POPULAR NETWORKING OPPORTUNITIES WILL RETURN TO RACV ROYAL PINES ON THE GOLD COAST FROM 23-25 JUNE.



Jon Entine.



Jack Vessey.

The 2016 National Horticulture Convention continues to gain momentum, with unprecedented levels of interest from members of the Australian horticulture industry.

As we draw towards the end of the early bird registration period, delegate numbers are the highest they've ever been, thanks to the collaboration with leading industry representatives and Convention hosts AUSVEG, Apple and Pear Australia Limited, Central Markets Association of Australia in partnership with Fresh Markets Australia, Growcom and Persimmons Australia Inc.

With a star-studded speaker line-up and a record number of supply chain companies exhibiting in the Trade Show, the 2016 National Horticulture Convention has cemented its status as the biggest event in Australian horticulture.

World-class speakers

The speaker program features an exciting array of industry experts from Australia and overseas, who will be discussing a range of important issues within the horticulture industry.

The keynote address will

be presented by Rob Kaan, Managing Director of Dow AgroSciences Australia and New Zealand. Mr Kaan has extensive international experience in the areas of crop protection solutions, fertiliser technologies, carbon mitigation in agriculture and urban pest management

Jon Entine, Founder of the Genetic Literacy Project, will also be one of the key speakers at the Convention. The Genetic Literacy Project is an independent organisation that educates the public on the use of genetic modification in human and agricultural science. A winner of 20 international journalism awards, including two Emmys and a National Press Club Award, Mr Entine's presentation is not to be missed.

Delegates will also hear from Jack Vessey, President of Vessey & Company Inc., which is the premier growing, packing and shipping operation in the Imperial Valley, California.

As Managing Director and CEO of Elders Limited, Mark Allison has been a pillar in the industry for 30 years. Drawing on extensive experience from his long career in agribusiness, Mr Allison will discuss past, present and future issues of

the horticulture industry.

The Assistant Commissioner for the ATO, Scott Parkinson, will also present on taxation requirements for growers. Shedding light on an important issue in the horticulture industry, Mr Parkinson's presentation is sure to offer valuable insights to delegates.

Don your masks

The popular DuPont Friday Theme Night will once again provide the perfect setting for delegates to unwind and network with other industry members. Following the hugely popular Mexican Fiesta of 2015, this year's glamorous Masquerade Night is an event not to be missed.

High tea for women in horticulture

The ever-popular Women in Horticulture event is open to all full delegates, acknowledging and celebrating the integral role that women play in Australian horticulture. With insights from leading Australian businesswomen, the event has the perfect mix of social

and business interaction. This year, delegates will be treated to a High Tea at the luxurious Palazzo Versace, setting the scene for a relaxing Saturday.

Indoor skydiving for young growers

A highlight of the social program, the NextGen Young Grower event is open to full delegates under the age of 35. This year's event will get your adrenaline pumping with indoor skydiving on Saturday afternoon. With places strictly limited, the event is only open to those who have registered as full delegates.

Get in early and save!

Early bird registrations close on **25 April 2016**. Delegates are strongly encouraged to make use of the significant savings on offer. To register online, please visit registration.hortconv.com.au.



For more information, please visit hortconv.com.au or contact AUSVEG on (03) 9882 0277 or convention@ausveg.com.au

THE NATIONAL POTATO LEVY AT WORK

WHO PAYS THE NATIONAL POTATO LEVY?

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

- The charge is set at 50 cents per tonne for fresh and 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, these funds are managed by Hort Innovation.

HOW IS LEVY MONEY INVESTED?

There are now two pools with different funding priorities.

Pool 1 is funded by grower levies with contributions from the Federal Government. This pool has a **one to five year scope** and will invest in applied R&D designed to directly benefit growers. This includes pest and disease management and biosecurity matters, with findings communicated through a variety of channels including *Potatoes Australia*.

Pool 2 has a **one to 15 year scope** and matches strategic co-investment funds with at least \$20 million, at the Pool's maturity, of government seed funds annually. This pool aims to address multi- and cross-industry challenges and opportunities of strategic and long-term importance to Australia's horticulture industries.

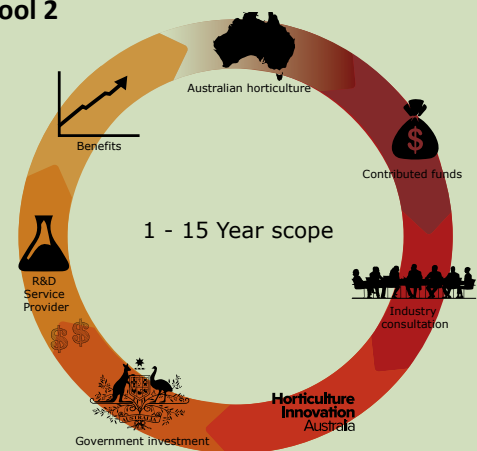
Five 'Foundation Funds' have so far been established in Pool 2 and will work with an expert panel to direct strategic projects. They are:

- **The Leadership and People Development Fund**
- **The Fruit Fly Fund**
- **The Asian Markets Fund**
- **The Green Cities Fund**
- **The Health, Nutrition and Food Safety Fund**

Pool 1



Pool 2



HOW CAN GROWERS GET INVOLVED?

Potato growers play a fundamental role in advising on the allocation of both levy and co-investment funds, and will be engaged in extensive consultation with Hort Innovation in regional grower meetings, industry-specific consultation programs and individual grower and grower group consultation.

Growers can also submit ideas for R&D projects via Hort Innovation's Concept Portal at horticulture.com.au/concept-proposal-form.

For more information about the National Potato Levies, visit ausveg.com.au/rnd/thelevysystem/potatolevy.htm.

New testing requirements for PSTVd: What you need to know



Effects of Potato spindle tuber viroid. Photo courtesy of European and Mediterranean Plant Protection Organization Archive, bugwood.org.

Potato spindle tuber viroid disease (PSTVd) is a disease of solanaceae crops. The viroid has not been detected in Australian potatoes; however, it has been found in ornamental plants in Queensland and capsicum in Western Australia.

In order to control PSTVd, new testing regulations have been imposed for seed potatoes entering NSW Seed Potato Protected Areas and the states of Victoria and South Australia. These regulations have been imposed by the New South Wales Department of Primary Industries (NSW DPI), the Victorian Department of Economic Development, Jobs, Transport and Resources (DEDJTR) and Biosecurity South Australia (BSA). These import conditions are now in effect.

New regulations

Potatoes for propagation that are entering NSW Seed Potato Protected Areas, the state of Victoria or the state of South Australia will be prohibited unless consignments adhere to

the following requirements:

- Sourced from a property where an officer responsible for agriculture has issued an area freedom certificate certifying that the state or territory or part of the state or territory is known to be free of PSTVd; or
- Produced and certified under an approved Certified Seed Potato Scheme that includes mandatory PSTVd testing; or
- Tested in a manner approved by the relevant state body (NSW DPI, DEDJTR or BSA); and
- Accompanied by a plant health certificate, plant health assurance certificate, permit or approved certified seed tag, certifying or declaring that the material has met one of the three conditions described above.

Where requested, consignments must be presented for verification by an inspector or by

NEW REGULATIONS HAVE BEEN INTRODUCED FOR THE IMPORTATION OF SEED POTATOES INTO VICTORIA, SOUTH AUSTRALIA AND PARTS OF NEW SOUTH WALES, WHICH AIM TO CONTROL FOR POTATO SPINDLE TUBER VIROID DISEASE. *POTATOES AUSTRALIA* TAKES A CLOSER LOOK AT THESE REGULATIONS, ENSURING GROWERS KNOW EXACTLY HOW TO COMPLY.

NSW SEED POTATO PROTECTED AREAS

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Cabonne Council
Guyra Shire Council
Upper Lachlan Shire Council
Bathurst Regional Council
Glen Innes Severn Council

Oberon Council
Walcha Council
Blayney Shire Council
Goulburn Mulwaree Council
Orange City Council

a person accredited to do so by the relevant state body.

Symptoms

PSTVd is a contagious pathogen of solanaceous crops, including potato, tomato and eggplant. On potatoes, symptoms can be difficult to recognise and may be confused with those of nutrient imbalance, spray damage, insect damage or other plant diseases.

Typical symptoms of severe infections include colour changes in the foliage and stunted leaf growth. Tubers are elongated, often with pointed ends. The eyes of the tubers can be deep and more prominent, while surface cracking may also occur. Sprouting can also be delayed and progress at a slower rate than in unaffected potatoes.

It is common for foliage and tuber symptoms to become progressively more severe with each generation of infected plants.

Transmission

PSTVd is particularly difficult to control because it can be transmitted between plants by touch. The use of cutting or pruning tools, contaminated machinery, movement of animals or physical contact between plants can spread the viroid. Additionally, PSTVd can remain infectious in seeds for long periods of time and can even be passed from one generation to the next through infected tubers.

It is important to maintain good biosecurity practices on-farm to prevent plant pathogens from impacting crops. These practices include wearing vinyl or latex gloves when handling infected plants, washing cutting tools after each use and changing or sterilising clothes and shoes when moving between areas. It is also important to always work in clean areas first and then move to infected areas.

USEFUL CONTACTS

NSW Department of Primary Industries
(02) 6391 3100
biosecurity@dpi.nsw.gov.au

Biosecurity South Australia
(08) 8226 0995
biosecuritysa@sa.gov.au

Department of Economic Development, Jobs,
Transport and Resources in Victoria
(03) 9651 9999
marketaccess@ecodev.vic.gov.au



For more information, please contact AUSVEG National Manager – Scientific Affairs Dr Jessica Lye or Assistant National Manager – Scientific Affairs Mr Nicholas Schmidt at (03) 9882 0277 or jessica.lye@ausveg.com.au or nicholas.schmidt@ausveg.com.au.

This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

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Managing the risks to create safer spud farms

WHILE IMPLEMENTING ROBUST SAFETY PROCEDURES ON-FARM MAY SEEM LIKE A BURDEN, TAKING SHORT CUTS IN THIS AREA CAN LEAD TO DISASTROUS RESULTS. *POTATOES AUSTRALIA* SPOKE TO SAFE WORK AUSTRALIA TO FIND OUT HOW GROWERS CAN CREATE A SAFE WORKPLACE.

Farms are among the most dangerous workplaces in Australia. In the period between 2003-04 and 2013-14, there was an average of 43 injury-related fatalities per year in the agriculture industry. Of these deaths, a total of 16 occurred in the mushroom and vegetable growing sector, which includes the potato industry.

Farm safety is an important responsibility that any potato grower should take seriously. There are numerous injuries reported on farms each year, resulting in employees being unable to work for lengthy periods of time and, ultimately, compensation claims that must be paid.

A spokesperson from Safe Work Australia (SWA)

highlighted the importance of safety on farms.

“Farmers have a duty of care to ensure that workers and other people on their farm are not exposed to health and safety risks, so far as is reasonably practicable.

“It is very important to identify all the things that could harm someone as a result of the work carried out on the farm and do whatever you can to eliminate or minimise the risks associated with those hazards.”

Identifying hazards and risks

Data from SWA shows that the most common causes of injury on vegetable and potato

farms are muscular stress from objects, and falls on the same level, rather than from a height. These injuries are likely to occur due to manual tasks, including the use of machinery and other farming equipment.

“Most incidents involving machinery at rural workplaces are from vehicle or powered mobile plant rollovers, maintenance activities and collisions between pedestrians and vehicles reversing, loading and unloading,” the SWA spokesperson explained.

The spokesperson also warned of the dangers associated with chemical use, including petrol, diesel, herbicides and pesticides, degreasers and cleaning products.

“Exposure to some of these chemicals can cause health effects like dizziness and nausea, can be corrosive to skin and eyes and have long-term health effects like cancer and damage to lungs, the liver and other organs. Additionally, some hazardous chemicals may be flammable or corrode metals.”

With these hazards in mind, potato growers should ensure they take appropriate measures to minimise risks to themselves and their staff.

Controlling the risks

To assist growers, the SWA website features many Codes of Practice that include practical information to help manage the risks to farm workers.

FOUR STEPS TO RISK MANAGEMENT

Step 1: Identify the hazards

This involves finding things and situations on-farm that could cause harm to people. This can be done by inspecting the workplace, observing work behaviours and talking to workers.

Step 2: Assess the risks

This involves thinking about what could happen if someone is exposed to a hazard and the likelihood of it happening.

Step 3: Control the risks

Risk can be managed using the hierarchy of control. The higher the control in the hierarchy, the more effective it is. The hierarchy of control is:

- Eliminate the hazards.
- Substitute the hazards.
- Isolate the hazard.
- Engineering controls.
- Administrative actions.
- Personal protective equipment.

Step 4: Review control measures

Control measures should be checked regularly to make sure they are working as planned and have not created new hazards.

Tips to prevent manual handling injuries include using mechanical aids or getting help to lift heavy loads wherever possible, as well as maintaining correct lifting techniques.

When using chemicals, SWA advises growers to always read the label and safety data sheets, and to put in place controls such as using the chemical in a well-ventilated area and wearing appropriate protective clothing. Chemicals should also be stored somewhere out of the elements, where they are not at risk of damage or rupture from use of machinery and equipment.

Advice for growers around machinery includes ensuring every vehicle is 'fit for purpose' based on its suitability for the task, work environment, operating requirements and any operator training that is required. This can minimise the risk of incorrect use of machinery, which can cause injuries.

It is also advised that

guards be installed on machinery to prevent contact with or access to rotating or moving parts of the machinery.

Create an emergency plan

In the unfortunate case of an accident, all growing operations should have a comprehensive emergency plan in place. This can include ensuring there is easy access to a first aid kit, that at least one person is trained in first aid and routes are planned to the nearest hospital or emergency department.

The emergency plan should be discussed with staff and visitors to the farm on a regular basis.



For more practical information, please visit safeworkaustralia.gov.au or contact your state Safe Work body.

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Symptoms of African black beetle infestation include chewed stems of potato plants.



Beating the beetle

THE AFRICAN BLACK BEETLE CAN BE A COSTLY PROBLEM FOR POTATO GROWERS, CAUSING DAMAGE TO BOTH THE POTATO PLANT AND TUBERS. STEWART LEARMONTH FROM THE DEPARTMENT OF AGRICULTURE AND FOOD WESTERN AUSTRALIA TALKS TO *POTATOES AUSTRALIA* ABOUT HOW TO MONITOR AND CONTROL THIS PEST.

Insects are one of the most problematic issues that potato growers have to deal with. A species of particular concern is the African black beetle, which damages both potato plants and tubers, and can fly into a well-maintained potato crop at any time, wreaking havoc on a grower's yield.

Stewart Learmonth, an entomologist at the Department of Agriculture and Food Western Australia (DAFWA), has studied these beetles for many years. He has seen the devastation it can cause to potato crops and knows how big a problem it can be for growers.

"As an establishment pest, where it chews the stems of plants, the standard of potatoes can be reduced significantly – half a crop could be affected," he said.

"At crop maturity, damage levels can be quite high."

Spotting the signs

African black beetles can be found in both the adult and

larval form. Adults are present during the winter, mating in spring and laying eggs under the soil surface. After laying eggs, the adult population dies off and the larvae develop during late spring to summer.

It is important to note that young larvae do not tolerate wet conditions. While older larvae do tolerate wet conditions, they struggle in drier conditions. As such, larvae can still survive when irrigation is used, which may contribute to greater plant damage from both larvae and subsequently adults.

Larvae and adult beetles can both be troublesome. Larvae live in the soil and are less damaging than adults, however they can damage tubers if crops reach maturity during December to January, when larvae are older. Adult beetles, on the other hand, feed directly on the tubers, causing holes.

"It's primarily the adult beetle that causes the damage," Mr Learmonth explained.

"At crop maturity, both the adult and larvae can be pests,

but it's more likely to be the adult. The main reason is that the African black beetle spends most of its life as an adult."

Mr Learmonth says there are several warning signs.

"In potato crops, the signs are the presence of chewed stems during establishment, then the presence of holes in tubers at crop maturity. In the ware trade, holes in tubers are cause for rejection, even if the holes have occurred quite early in the development of the tuber."

Knowing the enemy

The African black beetle is found in several regions around the country, primarily in Western Australia and South Australia, and to a lesser extent in Victoria and New South Wales. The beetle attacks a wide range of plants, including potatoes. Given that it favours grass and pastures, issues generally arise when crops are planted in infested pastures.

"The first thing is for growers to know if they're in a risk area,"

Mr Learmonth said.

"The risk of damage to potatoes from the African black beetle obviously depends on the presence of the insect at the time of planting.

"We suggest monitoring the soil before the crop is planted to avoid a potential massive crop establishment problem."

Monitoring the soil can be done simply by going into the paddock with a spade and checking the soil for the presence of beetles.

"Being aware of what the beetle looks like is crucial," Mr Learmonth explained.

"It's usually the adult stage that growers are looking for – big shiny beetles," he said.

The beetles tend to walk around on top of the soil. By checking a number of spadefuls of soil for the presence of beetles, growers can work out the density of the beetle population. DAFWA recommends that 44 x 15cm square spade samples equals one square metre, and more than three adult beetles per



Tubers showing holes caused by African black beetle adults.



The adult form of the African black beetle.

square metre is considered a threat to crops.

“Anything over five per cent (density) is considered to be getting very annoying and costly for potato growers,” Mr Learmonth confirmed.

Take cover

While it is easy for growers to check for resident populations of beetles on their property, Mr Learmonth warned that large infestations can fly in unexpectedly.

“If crops are maturing in late summer to early autumn, they can be subject to an invasion of the flying stage of the beetle,” he said.

“Beetles actively fly at that time of year, and often, although you might have a constant

population of beetles, there are weather conditions that trigger these flights. People have reported beetles hitting tin roofs, sounding like rain! So growers need to be aware of the possibility of fly-ins.”

Adult flight activity can be monitored by using light traps, or observing activity around lights near buildings and on streets. High levels of flight activity indicate the possibility of crop invasion.

Managing the threat

There are several methods for controlling the African black beetle. Chlorpyrifos is the most commonly used insecticide for this pest, and is available as a liquid, wettable powder and slow release polymer.

A method specific to potato crops is to incorporate insecticide in the soil to a depth of 15cm prior to planting. Growers should use a rotary hoe to ensure thorough mixing, as this maximises direct contact of the insecticide with the beetles. Mr Learmonth advised that application should be in the late afternoon or early evening.

“The beetles walk around on the surface quite a bit and they don’t burrow that deeply. At night they’ll come out and walk around. So a late afternoon or early evening application of insecticide will produce some mortality of African black beetle adults.”

i For more information please contact Stewart Learmonth at the Department of Agriculture and Food Western Australia on (08) 9777 0167 or visit agric.wa.gov.au

The topic for this article was selected following the results of PT13013 *A review of knowledge gaps and compilation of R&D outputs from the Australian Potato Research Program.*

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Project Number: PT15007

Horticulture Innovation Australia



African black beetle can cause devastating reductions in crop yield.



The science of success

TASMANIAN POTATO GROWER STUART COLES LOVES TO LEARN. STARTING OUT AS AN AGRONOMIST, HE MADE THE CHANGE TO FARM MANAGER AND TOOK WITH HIM A WEALTH OF SCIENTIFIC KNOWLEDGE IN THE PROCESS. STEPHANIE EAVES CHATS TO STUART ABOUT LEARNING, TEACHING AND THE CHALLENGES OF MANAGING A LARGE GROWING OPERATION.

For Stuart Coles, farming has always been linked with science and learning. As Farming Project Manager for Tasmanian business Botanical Resources Australia, Stuart is in his element, taking an analytical approach to everything he does.

“I enjoy working with the systems, in the environment; setting yourself up with a plan and targets and making decisions that have an influence,” he says.

Botanical Resources Australia is primarily a grower of pyrethrum, but as the company has expanded, it has diversified to include a separate farm

operation that grows potatoes and other crops. Under Stuart’s careful management, the potato and vegetable operation has gone from strength to strength.

“I’d say over the last three or four years we’ve gone from being mediocre potato growers to being good growers,” he explains.

A lifelong passion

Stuart’s passion for farming began during his early years growing up in Hobart, when he found himself drawn to the rural life.

“I’ve been interested in

farming as far back as I can remember,” Stuart says.

“I grew up in town, but I kicked around dairy farms and other farms when I was a young fella.”

After working for a couple of years at the local agricultural merchandise company, Roberts Ltd, Stuart headed to the University of Melbourne to study a Bachelor of Applied Science.

Following the completion of his degree, Stuart went on to become an agronomist, focusing on a variety of different crops. A role at Botanical Resources Australia as a pyrethrum agronomist eventually turned

into a farm management role, and Stuart has never looked back.

“Agronomy is pretty focused – you’re looking at one individual crop or problem. With farm management you take more of a systems approach.

“Farming is a whole different challenge. It’s much more diverse, there’s a lot more to think about. And you’ve got to be pretty innovative in the way you think about farming these days – working out what your drivers of profit are and how to do things right on a larger scale.”





Growing knowledge

Potatoes are an important crop in Stuart's operation. Botanical Resources Australia grows early potatoes and Russet Burbank potatoes for Simplot, and Stuart believes that northern Tasmania is a great place to grow high quality spuds.

"We've got a reliable climate, good quality soils and the benefit of having the processor in the same location," he says.

"We work with our seed producers, selecting good quality seed from good quality paddocks. I also try to get good agronomy information, and then I try to get that information down through all levels of staff."

Part of this information dissemination is agronomy training for all staff. Stuart believes that this makes a huge difference to the quality of people's work.

"We have training with our agronomist for everyone down to farm workers and spray operators, so that they understand the need for on-time watering and spraying.

"Everyone can understand the three or four key things that they need to do and what they can influence in operating and managing the crops."

American quality

Stuart is committed to constantly learning and passing this information on to others. Earlier this year, he attended the 2016 U.S.A. Industry Leadership and Development Mission, where he and eight other vegetable growers visited numerous sites in the United States, from farms to crop protection research facilities to the John Deere tractor factory. Although this mission was funded by the National Vegetable Levy, Stuart believes much of the knowledge he gained can assist his potato growing practices.

"One of the bigger things I took away from the trip was the integration of quality management through the systems in America," he explained.

"When we stepped into

paddocks, we were accosted by quality people everywhere. People at every level knew what they were supposed to do. I suppose that complements my ideas on getting people up to speed with agronomy."

Stuart plans to implement some of the quality control practices he saw in the United States on his operation.

"These days in the safety and quality environment that we operate in, you've got to make it part of what you do – make it a cultural type of thing."

A family pursuit

Stuart's passion for teaching does not stop at work. He has passed on his love of farming to his five children by getting them involved in growing seed potatoes on their 50 acre farm at home. Stuart says he would be happy if his kids wanted to make a career in the farming industry.

"The oldest one is doing Ag Science (at university), so he must like the idea of it," Stuart laughs.

"There are plenty of opportunities in farming, especially at the smart end of farming, with managing yield and the new technologies. There's going to be so much more for people than just sitting on a tractor – they'll be running paddocks and things like that."

There's no 'I' in team

While Stuart enjoys the responsibilities and mental challenges of managing the Botanical Resources Australia farming operation, he is quick to point out that he couldn't do anything without his hard-working staff.

"I must say, I'm only a small cog in this thing. The fellas on the ground do the actual work!"

Equipped with a modest approach and a love of teaching and learning, Stuart plans to lead his team onward and upward into the future.

"Simplot is our customer, and the goal is to keep growing our contract with them and growing our relationship with them," he says.

Photography by Belle Young



When grading sometimes fails to make the grade

VISUAL GRADING OF POTATO SEED TUBERS HAS LONG BEEN THE ACCEPTED METHOD OF ENSURING DISEASE-FREE SEED. HOWEVER, A RECENT STUDY BY THE UNIVERSITY OF TASMANIA HAS FOUND THAT THIS METHOD MAY NOT BE EFFECTIVE IN ELIMINATING THE THREAT OF DISEASE IN SOME CIRCUMSTANCES. *POTATOES AUSTRALIA* SPEAKS TO DR ROBERT TEGG ABOUT THE IMPLICATIONS OF THIS RESEARCH.

It is common practice within the potato industry to visually grade seed tubers as a way of removing those tubers that appear to be diseased in order to meet certification standards. These graded seed tubers are sold to growers, who plant and grow the crop for sale in the fresh, processing or seed markets.

While a grading process is certainly important, there was some concern within the industry that this visual grading method might not be effective in all cases. A team at the University of Tasmania, led by Dr Robert Tegg and Dr Calum Wilson, conducted a study to investigate whether these concerns were warranted.

“There was an industry concern that if highly contaminated seedlots were being heavily graded, that the actual visually clean tubers that remained may still harbour a lot of residual pathogen DNA that may pose a disease risk when planted,” Dr Tegg explained.

Method

The study focused solely on the *Spongospora subterranea* inocula, which produces the disease Powdery scab.

The team sampled commercial potato tuber seedlots over multiple years from 2011-13. Seedlots were

of the Innovator and Russet Burbank varieties, which are popular in French fry processing. The seedlots had various levels of Powdery scab incidence ranging from five per cent (low) to 40 per cent (very high).

From each seedlot, all tubers were visually assessed and graded to remove those tubers with signs of Powdery scab. There were no signs of any other disease, allowing the researchers to focus on Powdery scab.

Before and after the visual grading process, the tubers were qPCR (quantitative polymerase chain reaction) tested to quantify the levels of pathogen DNA that was present, thereby showing how effective the grading process is.

The study also investigated the effects of planting visually disease-free tubers (graded from heavily contaminated seedlot) on progeny plant disease in pot and field trials.

Results

The results of the study supported the initial concerns of potato industry members.

“Grading becomes less effective as the initial seedlot disease levels increase,” Dr Tegg explained.

“This is because levels of pathogen inoculum, which are most likely present as tuber

surface contaminants, are significantly greater in highly contaminated seedlots.

“Seedlots with high levels of disease – greater than 10 per cent – retain significant levels of pathogen after grading, and pose a significant risk to the grower if planted under disease-conducive conditions.”

Dr Tegg confirmed that grading tubers with lower levels of disease (five to seven per cent infection) is still worthwhile, as it succeeds in substantially reducing levels of pathogen DNA.

The study also found that planting visually clean tubers (graded from a highly contaminated seedlot) can result in significant progeny root and tuber disease under disease conducive environments, confirming the risk of planting heavily graded seed.

Further study needed

As the findings show that the current grading method is not always effective in removing Powdery scab disease from highly contaminated seedlots, Dr Tegg would like to see future studies that test this method on other diseases.

“There is a need to undertake this work with a wider range of important soil-borne pathogens and diseases, for example, Common scab,

Black scurf, etc.,” he said.

“Further work is required to clarify the absolute upper limit at which seed grading would be effective – for example, is an eight per cent infection level suitable for grading?”

Recommendations

Although there are still many questions that need to be answered before any changes are made to the way seedlots are graded, Dr Tegg believes that growers should still be aware of the risks and take necessary precautions to ensure their seed is of the best quality.

“Buying certified seed is a key recommendation that underpins the supply of disease-free seed at an affordable price,” Dr Tegg said.

Dr Tegg also advised growers about the potential benefits of using DNA testing or qPCR to determine pathogen levels present in a seedlot.

“In most circumstances, peel qPCR testing is not required, however in some circumstances – if the grower is planting on virgin or high quality sites, or has early generation elite seed – then the qPCR test may be a useful investment to confirm the pathogen status of the planting material.”

A commercial qPCR test is available through the South Australian Research and

Development Institute (SARDI). This can allow growers to test for a range of important potato pathogens, simply by providing some seed peel from the seedlot in question.

If seed growers do happen to find a high level of disease in their crop, Dr Tegg advises that grading should not

be undertaken.

“For seed growers, if they have an initial infection incidence greater than 10 per cent, severe grading to meet certification standards and selling on as seed is not recommended. Potentially the crop should just be sold for processing purposes,” he said.



Researchers Dr Robert Tegg and Dr Tamil Thangavel plant tubers with variable pathogen loads on the north-western coast of Tasmania. Photo courtesy of Mark Balendres.



For more information, please contact Dr Robert Tegg at robert.tegg@utas.edu.au or 03 6233 6830

The research presented is part of a multi-pronged research drive through the Australian Potato Research Program (Phase 2), funded by Horticulture Innovation Australia Limited using the Processing Potato Levy and funds from the Australian Government. The University of Tasmania/Tasmania Institute of Agriculture has provided in-kind support.



Project Number: PT09039



While symptoms of disease can sometimes be visually identified, this process of grading seed potatoes is not always effective.



Be prepared: understanding the Ag Commodities Report

THE AGRICULTURAL COMMODITIES REPORT, PUBLISHED BY THE AUSTRALIAN BUREAU OF AGRICULTURAL AND RESOURCE ECONOMICS AND SCIENCES, PROVIDES AN OVERVIEW OF THE STATE OF THE PRIMARY AGRICULTURAL INDUSTRIES IN AUSTRALIA. *POTATOES AUSTRALIA* TAKES A CLOSER LOOK AT THE TRENDS AND PROJECTIONS OF THE POTATO INDUSTRY.

The key to a successful business is to always be prepared. The March 2016 Agricultural Commodities Report from the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) allows potato growers to be fully prepared for what lies ahead by providing them with a snapshot of where the industry is, and where it is expected to go.

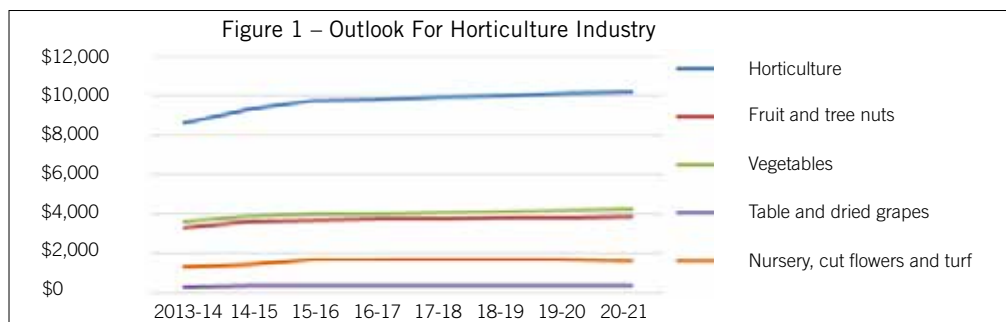
Figure 1 presents forecasts for the horticulture industry as compared to other industries. It shows that the real value of the horticulture industry is expected to rise from \$8.6 billion in 2013-14 to \$10.2 billion in 2020-21.

A key component of the projected growth of the horticulture sector is the vegetable industry, which is expected to increase from \$3.6 billion in 2013-14 to \$4.2 billion by 2020-21.

Industry growth forecasts are heavily influenced by export development, as this is seen as one of the Australian vegetable industry's key opportunities for growth. The ABARES forecasts therefore rely on assumptions made upon the future growth of the export market and exchange rate fluctuations over the same period.

Weaker dollar, stronger exports

The exchange rate plays a vital role in driving export growth for the Australian economy. The lower the exchange rate,



Source: ABARES Agricultural Commodities Report, March Quarter 2016

the greater the demand for Australian exports on the world market, as overseas customers are able to purchase more Australian produce for less money.

Over the past three years, the Australian dollar has weakened against most other currencies, which has provided a platform for Australian vegetable exports to grow from \$278 million in 2012-13 to \$299 million in 2014-15. ABARES predicts that this weakness will persist over the next few years before gradually strengthening toward 2020-21.

Challenging times

Potatoes are Australia's fifth largest vegetable export. In 2014-15, Australian potato exports were valued at \$17.92 million, representing over 6.6 per cent of total vegetable exports. ABARES indicates that exports declined over the past five years to 2014-15 and do not appear to show any sign

of recovery in the face of a falling exchange rate. ABARES expects that this trend is likely to continue in the short-to medium-term.

The ABARES Agricultural Commodities Report indicates that while domestic demand for fresh potatoes has grown, demand for processed potatoes has declined due to strong competition from imported produce. Over the period 2000-01 to 2013-14, the gross value of potato production grew slightly as the proportion of more highly priced fresh potatoes rose. ABARES expects potato production to decline to around 1.16 million tonnes in 2020-21 as the processing sector continues to contract.

Looking ahead

The latest edition of the Agricultural Commodities Report presents a positive outlook for the vegetable industry as a whole. Growth in Australian vegetable exports due to lower exchange rates is cited as a key

factor for positive projections for the industry; however, the report also presents some challenges for the Australian potato industry, particularly the processed potato industry.

The ongoing branding of Australian vegetables as clean, green produce is likely to play an important role in helping to support continued growth within the potato industry.



The Agricultural Commodities Report is available at agriculture.gov.au/abares/recent-publications. For further information, please contact AUSVEG on (03) 9882 0277 or info@ausveg.com.au

This communication has been funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007



The pollution solution for China's potatoes

THE GROWTH OF THE POTATO MARKET IN CHINA HAS INADVERTENTLY CONTRIBUTED TO POLLUTION OF THE COUNTRY'S RIVERS AND LAKES. RECENTLY, A TEAM OF SCIENTISTS DEVELOPED A NEW TECHNOLOGY THAT TRANSFORMS DISCHARGE FROM CROPS INTO A NUTRIENT-RICH FERTILISER.

According to Forbes, China has become the world's biggest producer of potatoes in recent years. The country has discovered the many benefits of the potato, including its nutritional value and its reduced need for irrigation when compared to other crops such as wheat and rice. This makes the potato a suitable crop to grow in China's parched west and northwest regions, and to feed the country's hard-working population.

For these reasons, the Chinese Government has been encouraging its citizens to farm the 'earth bean', as it is known in China. As a result, there are now nearly six million hectares of potato crops in the country and the Ministry of Agriculture plans to expand that to 10

million hectares and increase potato production by up to 50 million tonnes in 2020.

Potato pollution

Although China's increase in potato production is an exciting development for the country, it has resulted in an unforeseen issue – the protein-rich discharge from starch processors has become a leading cause of river and lake pollution across the country.

The pollution has been a growing problem, so far forcing officials to shut down more than 10,000 small starch processing plants, a drastic move that is likely to affect tens of thousands of workers and growers, and impact the potential growth of the Chinese potato market.

Until recently, there has been no solution to this problem; however a team of researchers has finally cracked the case.

A suitable solution

Lanzhou Institute of Chemical Physics researcher at the Chinese Academy of Sciences, Liu Gang, led his team to successfully develop a new technology that solves the problem of protein-rich water discharge by inventing a filter that catches protein, starch and fibre, removing it from the water. The technology works to effectively divide the chemical oxygen demand (COD) of the drainage from potato processing factories.

Not only can this new technology remove the cause of the pollution, it also means the processed water can be used to help new potato crops to grow. As the processed water is still rich in nitrogen, phosphorus and potassium – nutrients that are essential to the growth of tubers – it can be used as irrigation water for potato crops.

Liu Gang and his team at Lanzhou Institute have been

testing the new technology for the last four years, and the results have shown that the processed water is not harmful to crops. There are currently three starch companies that use the purifying technology, with positive results.

It is hoped that the success of this technology will boost China's potato production, allowing the country to reach its targets. If this occurs, the rest of the world will certainly be watching as China becomes a larger player in the global potato industry.



For more information, please contact Liu Gang at gangliu@licp.cas.cn

This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007



PLRV stunted plant.

Know the signs: an update on Potato leafroll virus

THE HIGHLY INFECTIOUS POTATO LEAFROLL VIRUS CAN HAVE DEVASTATING EFFECTS ON A POTATO CROP. *POTATOES AUSTRALIA* SPOKE TO PLANT PATHOLOGY EXPERT BRENDA COUTTS FOR AN UPDATE ON WHAT TO LOOK FOR, HOW THE VIRUS IS SPREAD AND HOW TO MANAGE IT.

Potato leafroll virus (PLRV) affects potato plants across the country, causing issues with yield and quality of crops. This is a huge problem for potato growers and as such, it is important that growers are able to recognise the signs of this destructive virus and know how to manage it.

Brenda Coutts, a Research Officer at the Department of Agriculture and Food Western Australia (DAFWA), is an expert on the virus, and confirmed that the consequences of PLRV can be serious.

“Depending on the variety, PLRV-infected plants produce few and smaller tubers. Russet varieties sometimes show internal browning that affects marketable yield,” Ms Coutts explained.

“If crops grown for certified or registered seed become infected, then they can be downgraded.”

PLRV symptoms

Potato growers should be constantly monitoring their crops for signs of the virus.

“Symptoms of PLRV infection are visible in the young leaves with upward rolling of the leaf margins, which commonly occurs in the basal portion of the leaf,” Ms Coutts said.

“The affected leaves are slightly pale and may show purpling or reddening. The leaves are often crunchy when touched. Infected plants can also be stunted. Symptom expression varies with variety, environmental conditions, crop

vigour and the age at which the plant becomes infected.”

These symptoms may also vary slightly depending on whether the infection is primary or secondary. This refers to whether the virus has been transmitted to a previously healthy plant (primary) or an infected seed has produced an infected plant (secondary). The main difference is that while a primary infection might produce symptoms only on young leaves, a secondary infection is likely to produce symptoms on all leaves.

Added to these plant symptoms are tuber symptoms, which include reduced yield and size of tubers. There may also be internal browning of tubers of the Russet varieties.

Looks can be deceiving

Although the recognition of symptoms is an important first step to managing the virus, Ms Coutts warned growers that these symptoms might not always be present in PLRV-infected plants.

“Recently, in some varieties, there have been instances where visual foliage symptoms are subtle or not expressed in PLRV-infected plants,” she said.

“This is a serious issue, as it can lead to crops having unacceptably high levels of PLRV. Although such symptoms may be subtle or invisible, these apparently healthy plants can act as sources of the virus for spread by aphids to nearby plants, and the seed tubers they produce will carry the

virus, providing sources for subsequent crops.”

Ms Coutts added that the cause of the subtle symptom expression is unknown.

Virus transmission

Aphids carrying the virus are one of the main causes of primary infection of PLRV,

particularly the Green peach aphid (for more information, see page 28). Aphids must feed on an infected plant for several hours before they acquire the virus. The aphid then flies to another plant and feeds on it, transmitting the virus to the new plant.

“Green peach aphid is highly efficient in spreading PLRV and commonly occurs in potato

growing areas,” Ms Coutts confirmed.

Secondary infection occurs when infected seed is planted or infected self-sown potatoes are present.

“PLRV can be introduced into a crop by planting seed stocks containing infected tubers, as infected potato plants grow from them,” Ms Coutts said.

Other plant hosts of PLRV include tomato, capsicum and solanaceous weeds, such as nightshade, wild gooseberry and thornapple.

might be infected. It is advised to monitor crops regularly and remove infected plants showing virus symptoms from seed potato crops.

Ms Coutts also suggests using insecticide to minimise the transmission via aphids.

“Apply insecticides early in the life of the crops to control early aphid arrivals,” Ms Coutts advised.

“Use as directed on the label and do not wait until aphids are visible, as this will be too late.”



PLRV upward rolling.

Management

There are several management strategies that growers should be aware of. The first of these is to plant only certified or virus-tested tubers. Correct diagnosis is essential, so growers should ensure they use a reputable service.

Growers should also remove all self-sown potatoes and solanaceous weeds and avoid planting new and seed potato crops near old crops, as these

i For more information on Potato leafroll virus, please contact Brenda Coutts at brenda.coutts@agric.wa.gov.au or visit agric.wa.gov.au.

This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007

Horticulture Innovation Australia

TRIAL HELPS WA GROWERS LEARN TO IDENTIFY PLRV

Potato leafroll virus (PLRV) can be difficult to recognise if you have never seen it before. Last year, a trial conducted in Western Australia aimed to educate seed growers by displaying a crop that included diseased plants.

The trial took place on Daryl Smith’s property, near Busselton. Mr Smith worked with the Department of Agriculture and Food Western Australia (DAFWA) to get the trial up and running.

“The Ag Department found some seed that had some virus in it, and they asked if they could put a trial in a commercial crop,” he said.

“They preferred to do it in a commercial crop because then if the virus did spread, it wouldn’t be endangering any seed crops.”

Spot the difference

The DAFWA representatives selected a date when the virus would be most easy to identify, and on this day a group of seed growers and their staff were brought to the property to observe the symptoms of the virus and learn how to identify it.

“The problem is, with the seed scheme here, all the G2 seed gets screened for us, so a lot of growers don’t actually see it,” Mr Smith said.

“They were able to readily identify those plants that were infected. And those who couldn’t identify it were shown what it looked like.”

Mr Smith said it was a great experience for all involved, as the seed growers were able to gain first-hand experience in identifying PLRV. It is hoped this will help them to spot the symptoms in the future.



Q&A Young grower profile

Name: Nicole Rose
Age: 27
Location: Pemberton, Western Australia
Works: Ryan Family Farms
Grows: Maranka, Orchestra, Laura, Senna, Royal blue, Nadine, A.G90 and Crop 55



How did you first become involved in the potato industry?

I first became involved in the potato industry in 2010 when I got myself a job grading potatoes for Colin Ayres and his family down near Albany in Western Australia. It was only meant to be six weeks of work while they were grading and it turned into a year and a half of work. I had so much fun working for Colin and Chris. I then went on to work in the dairy industry for several years before I moved to Manjimup in 2015 to live with my partner. I was looking for full time work and Glen and Dean Ryan were looking for a worker, so that worked out well.

What is your role in the business?

I am a full time Farm Hand for Ryan's. I have been given three patches of spuds to grow, fertilise and irrigate and (at the time of printing) we are now harvesting them. I was tipping bins at planting, helping out with the cattle on the farm and operating machinery. I pretty much do anything that is needed.

How would you describe your average day at work?

At the moment my average work day consists of checking the spuds to see how much moisture is in the soil and irrigating if necessary. I check the calving cows, then do odd jobs or go 'Catros-ing'. We 'Catros' the ground after the spuds are harvested and then seed it.

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

I enjoy the people I work with – they are a great bunch of guys. Free spuds are always good! There is so much to learn and I am forever learning new things and improving my skills and building confidence.

What are the biggest challenges you face working in the industry?

There is a bit of uncertainty going around at the moment with the deregulation of the potato industry in Western Australia but I don't think that



will affect me too much. As a female working in a male-dominated workplace, I sometimes feel that strength and confidence holds me back a bit, but I give it a good go!

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

I would like to see something done about all the spuds that are wasted in Australia, whether we export to third world countries or feed them to the homeless.

How do you think more young people could be encouraged to take up jobs in the potato industry?

I guess it's like all areas of

agriculture. It's hard to find good workers and reliable ones. To get young people into the industry and to stay, offer to send them to workshops and training days, offer reasonable timetable and wages suitable to their skill level and revise it once they gain more skills. Field days are always good for young people to network with like-minded people.

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

If I wasn't potato farming I would be helping on my partner's beef farm or another farm with cattle. I love cows!

Where do you see yourself in five years?

In five years' time I will be a full time farmer's wife with a few kiddies to look after!



Photography by Peter Kovacsy



with Scott Mathew

Some of the recent weather events experienced throughout Australia's potato growing regions have had many growers questioning how these events might affect the use of their soil-applied fungicides. This edition, I aim to answer this common question.

What are some of the factors that may affect the performance of soil-applied fungicides?

Soil-applied fungicides are used to control a number of important soil-borne diseases, such as *Rhizoctonia solani* (Black scurf) and *Phytophthora erythroseptica* (Pink rot) in potatoes. These fungicides, when applied at planting as an in-furrow application, need to be applied around the seed piece and in the area where the daughter tubers will be formed. This provides protection against these two diseases.

The physical and chemical properties of a fungicide are a measure of how the fungicide interacts with the environment. The unique chemical characteristics of a fungicide influence its behaviour in soil.

Three of the key properties that we use to help predict both availability and mobility in the

soil include: water solubility; soil adsorption and fungicide half-life. In basic terms, the solubility and soil adsorption coefficient (K_{oc}) will determine the amount of the fungicide that will be available to fight disease, whereas the half-life relates to the persistence of the fungicide in the environment.

Water solubility

This is a measure of how readily the chemical will dissolve in water. It is typically expressed as the maximum amount of pesticide that will dissolve in one litre of water, and is usually expressed in parts per million (ppm). The higher the solubility, the more chemical that will dissolve in the water and the more likely the chemical will move through the soil away from the site of application.

Soil adsorption coefficient (K_{oc})

This is a measure of how strongly a chemical adheres to soil in preference to remaining dissolved in water. K_{oc} values can vary substantially, depending on soil type, soil pH and the properties of the fungicide.

Fungicides with a high K_{oc} value are typically not very water soluble and will preferentially adhere to soils rather than be dissolved in water. Such pesticides are unlikely to be carried off-site in runoff as dissolved substances; instead, they may be transported on sediment particles.

SOIL-APPLIED FUNGICIDES ARE IMPORTANT IN THE MANAGEMENT OF MANY SERIOUS DISEASES, HOWEVER THERE ARE SEVERAL FACTORS THAT MAY AFFECT THE PERFORMANCE OF THESE PRODUCTS. SYNGENTA TECHNICAL SERVICES LEAD SCOTT MATHEW EXPLAINS WHAT THESE FACTORS ARE AND HOW TO MANAGE THEM.

Fungicide half-life

This refers to the length of time it takes for 50 per cent of the fungicide to break down to secondary compounds. For example, if 200g of active ingredient with a half-life of 45 days is applied, we would expect 100g of active ingredient to have degraded or dissipated 45 days after application, with another 100g remaining. After another 45 days, 50g of active ingredient should be left in the field.

There are several different types of half-lives.

1. Soil half-life is the amount of time taken for half of the pesticide to degrade in soil. This half-life is influenced by the presence of soil micro-organisms, which can break down the pesticide; soil type (e.g. sand, loam, clay); soil pH; sunlight; temperature and the presence of oxygen.
2. Photolysis half-life is the amount of time taken for half of the pesticide to degrade from exposure to light.
3. Hydrolysis half-life is the amount of time taken for half of the pesticide to degrade from reaction with water.

Table 1: The half-life of Metalaxyl-M (e.g. RIDOMIL® GOLD) and Azoxystrobin (e.g. AMISTAR® Technology) varies with soil characteristics and environment.

Product (active ingredient)	Solubility (avg, mg/L)	K_{oc}	Soil half-life (avg. days)	Hydrolysis half-life (avg. days)
Metalaxyl-M	26000	163	60 (aerobic soil)	1000
Azoxystrobin	6	581	112 (aerobic soil)	31

Source: PAN Pesticides Database – Chemicals



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. This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007

Better late than never: Bangladesh's GMO solution to Late blight

LATE BLIGHT HAS CAUSED DESTRUCTION IN POTATO CROPS AROUND THE WORLD FOR HUNDREDS OF YEARS. RECENTLY, A TEAM OF SCIENTISTS IN BANGLADESH DEVELOPED A NEW, GENETICALLY-MODIFIED VARIETY OF POTATO THAT IS RESISTANT TO THE DISEASE.

Late blight is a devastating disease that affects more than three million hectares of potato crops globally, causing economic losses of US\$2.75 billion a year, as estimated by the International Potato Centre in Peru.

The disease was responsible for the Irish Potato Famine, which led to approximately one million people starving to death in the 19th century. Now, scientists at the Bangladesh Agricultural Research Institute (BARI) hope that Late blight may become a thing of the past.

A genetically-modified variety of potato that is resistant to the Late blight disease was recently developed by scientists in Bangladesh. The variety has been the focus of many years of work by BARI, in cooperation with the Agricultural Biotechnology Support Project II (ABSPII), a USAID-funded consortium of public and private sector institutions that supports scientists, regulators, extension workers, farmers and the general public in developing countries to make informed decisions about agricultural biotechnology.

Genius gene development

The genetically-modified variety was developed using a retinoblastoma gene taken from wild potato varieties and infused into a potato variety that is called Katahdin in the United States. This was crossed with Diamant and Cardinal, two varieties that are popular in Bangladesh.

The new variety is in the final stages of field testing,

following months of trials, including nutrient composition testing, toxicology testing and efficacy testing. According to BARI Scientific Officer Md. Abu Kawochar, all results have so far been positive.

"Since 2006 we've exhausted all trials from laboratory to greenhouse to field tests to multi-location tests. Now the regulatory trial is going on in six sites in the country and all these have shown positive results," he said.

A new era

Although Late blight is not widespread in Australia, growers can never be sure of when an outbreak of the disease may occur.

The next step will be for BARI to apply to regulators for approval to sell the variety. Many growers in Bangladesh and around the world are expected to show interest in accessing this new potato variety, as resistance to Late blight could potentially mean greater yields and fewer expenses for potato growers.



For more information please contact Md. Abu Kawochar at kawochar@bari.gov.bd.

This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007

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Green peach aphid: a deceptive name for a potato pest

THE GREEN PEACH APHID (*MYZUS PERSICAE*) AFFECTS MORE CROPS THAN ITS NAME WOULD SUGGEST. IN THIS EDITION OF *THE FRONT LINE*, WE INTERVIEW RESEARCHER DR SIOBHAN DE LITTLE FROM CESAR PTY LTD, A SCIENTIFIC CONSULTING COMPANY THAT USES STATE-OF-THE-ART SCIENCE, TECHNOLOGY AND RESEARCH TO PROVIDE PRACTICAL AND INNOVATIVE SOLUTIONS IN AGRICULTURAL PEST CONTROL. DR DE LITTLE TELLS US ABOUT THE EFFECTS OF GREEN PEACH APHID ON POTATOES.



Cesar researcher Dr Siobhan de Little in the lab.
Image courtesy of Annabel Clouston, Cesar Pty Ltd.

Does Green peach aphid (GPA) affect potatoes?

Yes. GPA is a very common pest of potatoes. According to a survey conducted in 2014 by Cesar director Dr Paul Umina and his research team, GPA was considered a major pest of potato crops by growers and advisers in Victoria, Western Australia, South Australia and New South Wales.

What are the symptoms associated with GPA in potato plants?

Aphids can cause direct feeding damage to potato plants when large numbers build up, leading to water stress, wilting and reduced growth rate of the plant. More importantly, GPAs can transmit several viruses of potato crops, including Potato leafroll virus (PLRV) and Potato virus Y.

Although aphids need to colonise the potato plants before they can spread PLRV, once aphids acquire the virus, they

can spread it for the rest of their life. GPAs are the most effective vector of PLRV, making them a significant pest in potato crops.

What types of insecticides does GPA demonstrate resistance to?

GPA has a high propensity to develop insecticide resistance and, within Australia, GPA populations with resistance are common in all crops, including potatoes.

GPA populations we have tested across Australia from various agricultural crops all have a high level of resistance to synthetic pyrethroids and carbamates and a moderate level of resistance to organophosphates. Attempts to control resistant populations with these chemicals could lead to control failures, potentially resulting in yield loss, and is not advised.

My research has also recently demonstrated that some Australian GPA populations

DNA TESTING NOW AVAILABLE

Cesar offers a fast DNA testing service to growers and advisers to determine the presence of insecticide resistance in GPA populations found on crops. Knowing the resistance status of local GPA can help when making decisions about aphid control. More information about this service is available on the cesar website at cesaraustralia.com.



Green peach aphid adults and nymphs.
Photo courtesy of Andrew Weeks, Cesar Pty Ltd.

have evolved resistance to neonicotinoids (e.g. imidacloprid, acetamiprid).

Are there management strategies available to control the pest?

There is a general resistance management strategy for GPA available from CropLife Australia (croplife.org.au). This strategy suggests rotating between registered chemicals that have different Insecticide Resistance Action Committee (IRAC) chemical mode of action classification groups, and avoiding consecutive applications of chemicals with the same modes of action during and between seasons.

The research team at Cesar is developing additional resistance management strategies for GPA. General recommendations include:

- Avoiding repeated applications of products from the same insecticide group on GPA and other pests in the same paddock.
- Not re-spraying a paddock in the same season where a known spray failure has occurred using the same product or another product from the same insecticide mode of action group, or if a spray failure has occurred where the cause has not been identified.
- Encourage beneficial insects, avoiding broad-spectrum sprays, particularly early in the season. The management strategy will also include cultural practices aimed directly at aphid/virus management and attempt to describe the sensitivity of beneficial insects to various chemistries proposed for GPA management.

What research has been conducted to combat GPA in potato crops?

Project leader and Cesar director Dr Paul Umina and his research team have confirmed nation-wide resistance of GPA populations to synthetic pyrethroids, carbamates and organophosphates. We have also developed valuable base-line sensitivity data of GPA populations to newer chemistries registered against GPA.

Using state-of-the-art genetic tools, the Cesar research team has also been exploring the movement of GPA and spread of resistance across Australia. We have discovered three distinct genetic types (clones) of GPA that dominate the landscapes across Australia, demonstrating that aphids are moving freely across crops and regions. Widespread movement of insecticide-resistant clones of GPA demonstrates the need for an industry-wide approach to management.

Are there chemistries available for GPA in potato crops?

Yes, a range of chemistries are available for GPA in potato crops. In the 2014 Cesar survey, growers and advisers reported spraying potato crops one to two times per season to control GPA. These sprays were usually based on a threshold of GPA that was observed through routine monitoring (weekly or fortnightly). In some regions of Victoria, South Australia and Western Australia, the number of sprays per season was much higher – up to five or more sprays per season in some cases. For a detailed list of chemistries please visit: portal.apvma.gov.au/pubcris.

Where do you see GPA management going in the future?

Growers should have resistance management strategies in place for this pest, due to its propensity to develop insecticide resistance. Our finding of widespread movement of insecticide-resistant clones of

GPA across agricultural regions in Australia demonstrates the need for an industry-wide approach to management of this pest, including resistance management strategies that encompass multiple vegetable and broad acre crops, and ongoing monitoring of resistance in GPA across agricultural crops in Australia.



For more information, please contact Dr Siobhan de Little at sdelittle@cesaraustralia.com

The research project in this article has been funded by Horticulture Innovation Australia Limited using the National Vegetable Levy and funds from the Australian Government.

Project Number: VG12109

Any unusual plant pest should be reported immediately to the relevant state or territory agriculture agency through the Exotic Plant Pest Hotline 1800 084 884

For further information, contact AUSVEG National Manager – Scientific Affairs Dr Jessica Lye or AUSVEG Assistant National Manager – Scientific Affairs Mr Nicholas Schmidt on (03) 9882 0277 or nicholas.schmidt@ausveg.com.au or jessica.lye@ausveg.com.au.

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POTATO APHID: POTATOES ARE ONLY PART OF THE DIET

Australian potato production areas are also at risk from Potato aphid (*Macrosiphum euphorbiae*), although potatoes make up only part of this aphid's diet.

While Potato aphid can often be found enjoying potato, this pest is polyphagous, also attacking sweetpotato, aubergine, roses, lettuce and other cultivated plants. Potato aphid will also alternate hosts throughout its life cycle. The primary host of Potato aphid is the rose, on which Potato aphid populations will breed over winter.

Virus vector

Similar to GPA, Potato aphid can carry a wide range of potato viruses, and is therefore associated with decreased tuber production. Viruses carried by the aphid include Potato leafroll virus, Potato virus Y and Tomato yellow top virus.

Potato aphid is larger than GPA, with an elongated pear-shaped body. It has a variable body colour, usually either a shade of yellowish-green or pinkish-red.

Monitoring for Potato aphid should focus on paddock edges, as they are usually the first areas to become infested.

Research: Potatoes are more sustainable than pasta and rice

IN RESPONSE TO CHANGING DIETS IN THE UNITED KINGDOM, A NEW STUDY FROM ENGLAND HAS FOUND THAT POTATO PRODUCTION IS BETTER FOR THE ENVIRONMENT THAN RICE OR PASTA PRODUCTION. *POTATOES AUSTRALIA* SPOKE TO LEAD RESEARCHER DR TIM HESS TO FIND OUT MORE.

While many farming operations are sustainably managed, agriculture has the potential to significantly impact the environment when it is practiced without care. Not all crops are created equal, however, with some foods proving to be more sustainable than others.

In response to findings that households in the United Kingdom are purchasing fewer potatoes and more rice and pasta, a recent study from England compared the effects of the production of these foods on the environment. The study was led by Associate Professor of Water Management Dr Tim Hess, at Cranfield University in Bedfordshire, England.

“We know that the diet of the U.K. has been changing, and consumption of ‘traditional’ foods, like potatoes, has been declining, while consumption of foods associated with more exotic cuisines has been increasing. We were interested to explore how this impacts the environmental burdens associated with producing our

food,” Dr Hess said.

The study considered both greenhouse gas emissions and water consumption (water scarcity footprint) in its comparison of the carbohydrate-rich foods. Researchers drew from a large amount of data from various sources in order to produce a true estimate of these measures.

Sustainable spuds

After the data was analysed by the researchers, the results clearly showed that of the three foods, rice currently has the most negative effect on the environment.

“Rice has higher greenhouse gas emissions and particularly higher contribution to water scarcity than pasta or potatoes,” Dr Hess explained.

This is due to anaerobic conditions in paddy fields, which result in exacerbated methane and nitrous oxide emissions. There are also significant emissions associated with transporting the rice from



Potatoes, pasta and rice.
Photo courtesy of Tim Hess.

India to the U.K.

Pasta was found to be similar to potatoes in the amount of greenhouse gas that is produced in its production, however when the two foods were compared by portion size, potatoes were found to have lower emissions.

Potatoes and pasta were also found to have similar water consumption by portion size, while rice was found to use significantly more water than either. Overall, potatoes were found to have the least negative effects on the environment.

“The increased per capita purchases of rice and pasta and reduction in fresh potatoes seen in the U.K. over the last three decades has increased the environmental impact of the British diet,” Dr Hess confirmed.

Make a change

Although potatoes are comparably better for the environment, Dr Hess would like growers to think about how they can be even more sustainable.

“There is scope for growers to reduce the greenhouse gas emissions of potatoes in primary production, by good fertiliser management and efficient use of machinery,” he said.

“Water scarcity footprint depends more on ‘where’ and ‘when’ water is used rather than ‘how much’. Irrigation in unstressed catchments is more sustainable.”



For more information, please contact Dr Tim Hess at t.hess@cranfield.ac.uk.

This communication was funded by Horticulture Innovation Australia Limited using the National Potato Levy and funds from the Australian Government.

Project Number: PT15007

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UK potatoes being irrigated.
Photo courtesy of Giovanni Arre.

Controlled release fertiliser solves problems for Springbank growers



Left to right: Agronomist Andrew Powell and Victorian seed potato grower Reg Haintz look over the good quality of seed potatoes grown using controlled release fertiliser.

For HR Haintz and Sons in Victoria's Central Highlands, changing from multiple fertiliser applications down to mainly one application in their seed potato crops has been a "no brainer".

Danny Haintz and his father, Reg, grow about a dozen seed potato varieties over 35-40 hectares on their property at Springbank, east of Ballarat. In recent years, they have used conventional fertiliser blends and applied liquid fertilisers.

"With liquids there are too many problems in crops. Applications can be every three weeks, with up to six applications," Reg Haintz said.

A change in practice

The family trialled the new Multicote Agri controlled release fertiliser on their property in 2014 and last year they decided to use it for their entire crop. As a controlled release product, it feeds crops continuously throughout the growing season, achieving optimal growth and yield production.

Based on Haifa's polymer coating technology, Multicote Agri releases nutrients into soils in a gradual manner, according to plants' requirements. It also differs from other controlled release fertilisers because its

release rate is governed by temperature, not moisture. This is important in ensuring the nutrients being supplied to plants are not lost during periods of high rainfall or over-watering.

The Haintz family uses products with two-month and four-month longevity to suit their range of seed potato varieties. The fertilisers contain 15 per cent nitrogen, nine per cent phosphorus and 17 per cent potassium.

A targeted approach

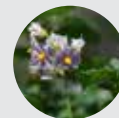
Andrew Powell, agronomist with Davies and Rose Rural and Hardware, said the controlled release fertiliser promoted good tuber set and mitigated plant stresses.

"Water is also not over-abundant here, so it's good to be more targeted with fertiliser and water. When we have a tough year and there are restrictions on watering, we can have problems. This is when the Multicote really shows out," Mr Powell said.



For further information, please contact Andrew Powell at Davies and Rose Rural and Hardware on (03) 5345 2766 or 0429 452 722.

CALENDAR of events



23-25 June 2016

2016 National Horticulture Convention

Where: RACV Royal Pines, Gold Coast QLD

What: Co-hosted by AUSVEG, Apple and Pear Australia Limited (APAL), Growcom, Persimmons Australia Inc and the Central Markets Association of Australia in partnership with Fresh Markets Australia (CMAA-FMA), the highly anticipated National Horticulture Convention will return to the Gold Coast with a program that is bigger and better than ever.

Further information:

Please contact AUSVEG on (03) 9882 0277 or email convention@ausveg.com.au or visit hortconv.com.au.

1-2 June 2016

Europatat Congress 2016

Where: Brussels, Belgium

What: This year's Europatat Congress will allow potato professionals to learn how to anticipate and respond to changes driven by the technological revolution, a growing demand for sustainability, new trade patterns, demographic shifts and modern consumer behaviour. It will present a unique opportunity to network with industry leaders from the potato and fresh fruit and vegetable sectors.

Further information:

europatatcongress.eu

Regional updates

South Australia



South Australian potato growers were recently advised of additional requirements for seed potatoes entering South Australia to be tested for Potato spindle tuber viroid (PSTVd), which came into effect on 29 February 2016.

According to Biosecurity South Australia, potatoes for

propagation will not be allowed into the state unless they have been:

- Grown on or sourced from a property located in a state or territory that has been issued an area freedom certificate stating that the state or territory is free of PSTVd; or
- Grown and certified under an approved Certified Seed Potato Scheme that includes mandatory PSTVd testing; or
- Treated, tested and certified by the Chief Inspector, Biosecurity South Australia, or

under an approved accreditation program administered by the agricultural department of the affected state or territory; or

- Consigned under other conditions approved by the Chief Inspector and outlined in a Plant Health Import Certificate.

To read the new conditions for entry, please visit pir.sa.gov.au.

AUSVEG SA is working with potato growers to ensure they clearly understand these requirements and to assist with any issues.

For more information, growers can contact AUSVEG SA on (08) 8221 5220 or email info@ausveg.com.au.

Jordan Brooke-Barnett

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Adelaide SA 5000
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Queensland



Atherton Tableland, Bundaberg, Killarney and Eastern Darling Downs and the Lockyer Valley remain key areas for Queensland potato production.

This edition's Regional Update comes from the Bundaberg region, where the season is shaping up well.

Summer rains have been

plentiful but as this article went to print, the soil was beginning to dry out which is good news for the start of planting at the end of March/early April. Water allocations for irrigation are also looking good with both surface water and underground supplies plentiful.

The harvest will start in July and wrap up by November.

A large percentage of the crop will be grown and sold for crisping to the two snack food companies, Smith's Snackfood Company and Snack Brands Australia. There are only three or four fresh market (brushed

or washed) potato growers in Bundaberg and a further three crisping growers. The crisping crop is likely to be around 8,000 tonnes this year. The market for crisping potatoes is growing but only slowly, and consequently the number of growers is static.

Crisping potato varieties grown in the Bundaberg region include Atlantics and Snowden. Smith's also has a range of its own varieties, bred in the United States. You must be a contracted grower to have access to these.

The varieties are always changing as new types come

through. In particular, the new varieties give growers the chance to produce more yield from their farms, which enables them to be more profitable on the same amount of ground, using the same equipment and inputs.

Pat Hannan

Growcom
Chief Executive Officer
68 Anderson Street,
Fortitude Valley, QLD 4006
Phone: (07) 3620 3844
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New South Wales



The big news for the Crookwell region is that recently, from 3 - 5 March, we had the Crookwell Potato Festival. Just over 2,500 people came to the actual festival, and roughly 700 of those came onto our potato farm for an eco-tour.

On the eco-tour, we take people through our property and

show them all the environmental work we have done. We have 32 per cent of the farm in permanent conservation areas now and a series of dry land projects where there are a lot of tree linkages and green corridors, which we are using to enhance the ecology of the birdlife and insects. This has lowered our reliance on insecticides and fungicides. We also have a 32 acre wetland which we developed in conjunction with our irrigation water, and turned it into a

wetland for the birdlife to breed in.

We also had a series of chefs come up for the Paddock to Plate tour, which was great. That was very successful and they went away very happy with some of the new varieties. In attendance was the Head Chef of the Australian Convention Centre, who buys \$50 million worth of produce a year, so it was great to have him attend.

It's always good to get people involved in these events so they can see what's happening and

to promote our farm industry. The Paddock to Plate tour is a good cultural exchange and a good avenue to get people to realise what really goes into their food.

Garry Kadwell

Crookwell Potato Growers' Association
Vice President
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Crookwell NSW 2583
Phone: (02) 4832 1800
Website: seedpotatoes.com.au



Western Australia



It has been a challenging summer for growers in Western Australia. With the Premier announcing deregulation of the industry, but not initiating the process, we have experienced great uncertainty. Market oversupply has led to significant levels of dumpings and greatly reduced grower returns.

We hope to have clarity soon on a timeline for deregulation and any industry adjustment assistance that will be available.

With the closure of the Smith's crisping plant at the end of this season, growers are faced with a difficult situation. Industry is working to identify opportunities for these growers. The lower Aussie Dollar will help as enquiries from export markets are leading to increased sales of both seed and processing potatoes.

Weather extremes have challenged growers' resolve in recent times. Manjimup/Pemberton growers received up to 200mm in less than 24 hours. Significant erosion and quality problems have been the main issues from the storm.

In better news, growers in the Manjimup/Pemberton region have the opportunity to register their expressions of interest for the recently launched Warren-Donnelly irrigation scheme. When completed,

the scheme will allow growers to participate in water trading in a network of connected private dams.

Simon Moltoni

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Website: pgawa.com.au

Victoria - seed



At the SPV meeting held on 8 March, all growers reported how the lack of rain had made for a long, difficult growing season. Some growers started irrigating in October and if they haven't run out of water, they are still going. Crops are, however, looking great, with very little virus seen and currently there are good signs of demand.

Our main project for 2016 is the development of a 'Seed Potato Supply Agreement'. The contract has been developed because of the growing discontent with 'contract' agreements. SPV felt it was time that seed growers had their own contract to assist with more equitable arrangements for seed supply.

Over the next few months we will be working on updating our website to make it mobile phone friendly. If there is relevant industry information you would like to see included in this

upgrade of the website, please give Pauline McPherson a call on (03) 5623 3025.

We would like to remind seed growers that our meetings are open to all financial members of SPV and we would love to have you attend a meeting. At the next meeting there will be continuing discussions regarding the seed supply document. The committee has called on legal advice in the discussion about the seed supply document and, given the importance of the document, would encourage all seed

growers to add their thoughts and ideas, and ideally bring them along to a meeting.

The next meeting is on 10 May at the AUSVEG office, 273 Camberwell Road, Camberwell and starts at 11am.

Dean Bone

Seed Potatoes Victoria
Chairman
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Warragul, VIC 3820
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Website: spv.org.au

Victoria



Recently, AUSVEG VIC took an important step forward with the appointment of Dean Bone, a seed potato grower from the Otways and the Chair of Seed Potatoes Victoria (SPV), to the AUSVEG VIC Executive Committee. The Committee was pleased to appoint Mr Bone following his nomination by SPV to represent this sector of the

Victorian potato industry.

Mr Bone is a well-regarded figure in the Victorian seed potato industry and his appointment to the AUSVEG VIC Executive Committee will enable the organisation to enhance the level of representation available to seed growers across the state.

This brings representation in Victoria in line with the successful national model that sees the vegetable and potato industries working side-by-side for the betterment of the

industries and its growers.

AUSVEG VIC aims to continue to build membership numbers, particularly within the state's fresh and processing potato industries, and we would like to see these sectors put forward nominees of their own for the AUSVEG VIC Executive Committee.

This is an excellent opportunity for growers around the state to take a hands-on role and ensure that AUSVEG VIC is upholding a strong and effective voice for growers.

AUSVEG VIC looks forward to working with Mr Bone and the other hard-working industry representatives on the AUSVEG VIC Executive Committee to build this vitally important sector of the Victorian economy.

AUSVEG VIC

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Stu Jennings

And then there was April!

Time is flying ...

Spuds are coming out of the ground all over the place and one thing we as farmers don't get a lot of is down time. I recently did the maths and worked out that in four

months I had only two days that I hadn't 'worked' – which of course just means I didn't do as much on those two days.

As farmers we don't do the 9am to 5pm thing, so after realising how little time I had spent with my family, I booked a couple of nights away at the beach. It's only a 50 minute drive away, so I knew if I had to come back for any reason, I would be able to – thankfully I didn't have to.

It's amazing what a small amount of time away from the farm can do for you. Sometimes you get so locked into what you are doing, you can forget about everything else in the world. Although the family and I were only away for a couple of days, I came back feeling recharged and more focused on what I had to do.

Take the time to do the same if you can, and if you can't get away somewhere, something as simple as playing a social sport or going out for tea one night a week can help too.

Let us know what works for you by sharing your 'Getaway' on the YPP Facebook page.

Speaking of which, don't forget to join in the fun of the 2016 YPP Photo Competition. Simply upload your pic on the YPP Facebook page and add a clever caption for a chance to win a trip to the Gold Coast this June to attend the National Horticulture Convention at Royal Pines Resort – sponsored by AUSVEG and ADAMA.

Happy Snapping!

Cheers,

Stu



@youngpotatopeps



Find us on Facebook

www.facebook.com/groups/youngpotatopeople/

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2016 YPP Photo Competition.

Join in the fun and post a picture on the YPP Facebook page and you'll be in the running to win a trip to the Gold Coast this June to attend the National Horticulture Convention at Royal Pines Resort.

Upload your pic - along with a clever caption - for a chance to be chosen as the winner. The best pic and caption will earn flights to the Gold Coast and accommodation at Royal Pines along with a full delegate pass to all the events at the convention including the Gala Dinner and Young Grower activity.

Get snapping as the competition closes on Monday May 1.



ADAMA





The best in the business

Grimme is the undisputed world leader in potato planting, harvesting and handling technology. From cultivators, separators, bed formers and planters right through to trailed and self-propelled harvesters and super-efficient grading and handling systems, Grimme has everything to get your crop planted, harvested, graded and stored with maximum efficiency and reliability. Combined with 24/7 harvest support, genuine parts and expert knowledge from Landpower, Grimme has got your potato technology requirements covered.

For more information, contact:

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Rob Breedveld
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Landpower Australia
03 9369 1188



www.landpower.com.au

