

potatoes

australia
| Spring - 2021

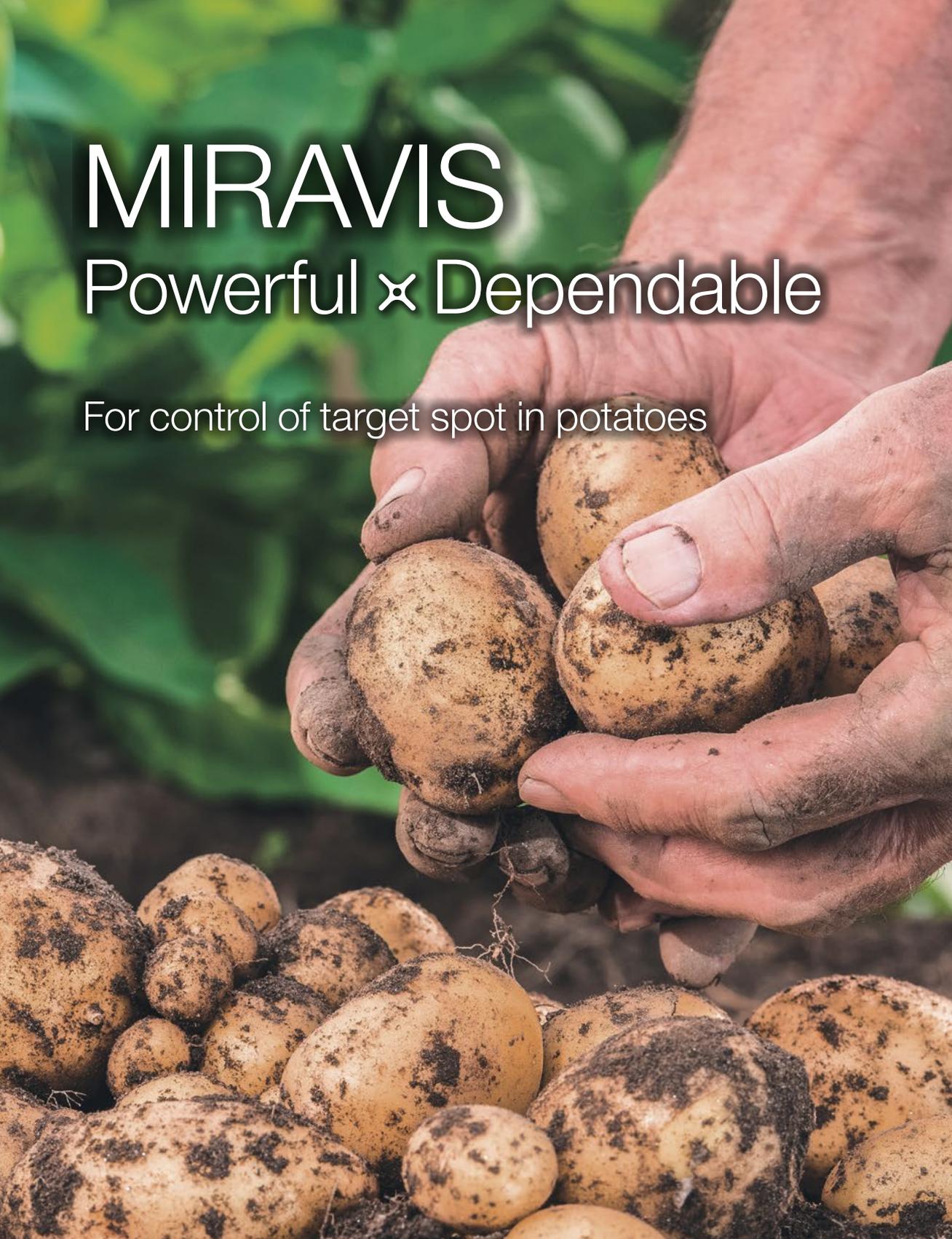


AUSVEG INVESTIGATION | VICTORIAN POTATO GROWING LAND UNDER THREAT
ADVOCACY UPDATE | AGRICULTURE VISA
COVER STORY | NICOLE STEVENS: A RISING POTATO INDUSTRY STAR

MIRAVIS

Powerful x Dependable

For control of target spot in potatoes



 **Miravis**[®]

syngenta[®]



**IS YOUR
CROP
PROTECTED?
SCAN HERE**

© Registered trademark of a Syngenta Group Company. AD21/409

®



24



26



36

Contents

Industry update

- 05 Editorial
- 06 Message from the Chair
- 30 Regional updates

Features

- 08 Energy project leaves Ballarat growers in the dark about their future
- 12 Potato export update
- 14 New vegetable harvesters for Aussie potato growers
- 16 Overcoming food safety challenges across the fresh produce chain
- 18 Research in soil health for potato crops delivering results for growers
- 20 Fair Farms – don't pay the price with your life: focus on electrical safety
- 22 Relationships key to potato crop protection
- 24 Network of high-tech surveillance units to cover several key potato growing regions in final stage of program
- 26 Remembering Tony Biggs: A horticulture industry stalwart
- 28 Australian Agriculture Visa announcement delights growers
- 34 Disease profile: Potato Spindle Tuber Viroid
- 36 Grower profile: Nicole Stevens – a rising potato industry star
- 38 New humic acid product has the potential to kick start your soil health
- 39 What AUSVEG does for the potato industry

PotatoLink

Flip over the magazine to read *PotatoLink*.

Bill Bulmer
AUSVEG CHAIR

Michael Coote
AUSVEG CEO

Shaun Lindhe
COMMUNICATIONS MANAGER

Michelle De'Lisle
EDITOR

EDITORIAL ENQUIRIES: AUSVEG
Phone: 03 9882 0277
communications@ausveg.com.au

PRINT
RA Printing

GRAPHIC DESIGN
Stray Orbit

COVER PHOTOGRAPHY
AUSVEG

ADVERTISING
Tim Withers
AUSVEG Account Executive – Advertising
Phone: 03 9070 0704
tim.withers@ausveg.com.au

CONTRIBUTORS
John Baker
Tyson Cattle
Julie Finnigan
Growcom – Fair Farms team
Shakira Johnson
Zali Mahony
Haydon Martin
Sam Turner

AUSVEG would like to thank its content partners for this edition:



ausveg.com.au/infoveg



[#ausveg #infoveg](https://twitter.com/ausveg)



facebook.com/AUSVEG



[@ausveg #ausveg](https://instagram.com/ausveg)



Search "AUSVEG"

Disclaimer: Any information or advice contained in these publications is general in nature and has been prepared without taking into account readers' individual objectives or circumstances. Readers should not act or refrain from acting or alter any business practices on the basis of opinions or information in these publications without first carefully evaluating the accuracy, completeness, appropriateness, currency and relevance of the information for their purposes and obtaining appropriate professional advice relevant to their particular circumstances (including any decision about whether to consider acquiring any product).

All information, expressions of opinion and recommendations in these publications are published on the basis that they are not to be regarded as expressing the official views and opinions of AUSVEG, unless expressly so stated. AUSVEG, authors and all persons involved in the preparation and distribution of these publications are not to be taken as giving professional advice and hence do not accept responsibility

for the accuracy or currency of any of the opinions or information contained in these publications. AUSVEG accepts no responsibility for errors or misstatements, negligent or otherwise, and is not obliged to correct or update the information or opinions expressed in these publications. The information in these publications may be based on assumptions and may change without notice. AUSVEG specifically disclaims any loss, damage, claim, expense, cost (including legal costs) or other liability (whether based in contract, tort, strict liability or otherwise) for any direct, indirect, incidental or consequential loss or damage arising out of or in any way connected with access to or reading of these publications, including (but not limited to) any loss or damage whatsoever caused by a reader's reliance on information obtained from these publications. AUSVEG does not accept any liability to advertisers for the publication of advertisements which may be held to be contrary to law. Material published in these publications is copyright and may not be reproduced without permission.

© Copyright AUSVEG Ltd 2021.

This work is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced by any process without prior permission from AUSVEG. Requests and enquiries concerning reproduction and rights should be addressed to AUSVEG at: 3 Glenarm Road, Glen Iris VIC 3146.

ISSN 1834-2493



Editorial

When most consumers pick up a potato at a supermarket or a greengrocer, they don't think about what it takes to grow the product that they hold in their hands.

If they did, they would hopefully appreciate the journey – from seed, to plant, to harvest and through the complex supply chain – that ensures products are delivered to consumers fresh and in a timely manner.

They would hopefully appreciate the scale and efficiency of an industry that supplies enough fresh potatoes for every Australian to eat around 18 kilograms every year.

And they would undoubtedly see the dedication, tireless work and care of every grower who invests time, money and effort in growing each and every potato that makes their way to consumers – as well as those that don't quite make it onto the supermarket shelf.

Not only is the potato industry large and complex, but it is efficient and resilient.

There were over 1.388 million tonnes of potatoes grown in Australia in 2019/2020, with a farmgate value of over AUD\$716 million – the highest of all vegetable commodities.

They are grown in many different regions around Australia – from far north Queensland to southern Western Australia – and can be found in supermarkets and restaurants all over the world.

While many have been forced to slow down due to the pandemic, potato growers, their suppliers and the supply chain that is involved in potato growing, harvesting, packing and selling have been busier than ever.

It's the same at AUSVEG, which has been working behind the scenes to help advance the causes of potato and vegetables growers on issues that are important to them, including labour, biosecurity, rising input costs and other more localised issues such as the Western Victoria Transmission Network Project (WVTNP) that threatens the livelihoods of the region's potato growers and their farming land.

When AUSVEG advocates to all levels of government and the broader industry, it makes sure that people who make decisions that affect growers' lives and livelihoods listen to the concerns of growers and appreciate time, money and effort it takes to grow potatoes and operate their businesses.

This edition of *Potatoes Australia* details some of the work that AUSVEG has done on behalf of growers. Be sure to read about the WVTNP and its implication on local growers on page eight, as well as an overview of AUSVEG's recent advocacy activities on page 28.

There is also an overview of what AUSVEG does for the potato industry on page 39. Don't forget to flip the magazine over and read the latest Hort Innovation-funded potato research as part of the *PotatoLink* project, delivered by Applied Horticultural Research.

GIVE YOUR PRODUCTION AN ASA-'LIFT'



When it comes to harvesting, ASA-LIFT brings you innovative, specialised crop solutions to drive production further.

Since 1936 ASA-LIFT has built a solid reputation for quality, innovation and constant evolution to meet market demands. Maximise your harvest with an ASA-LIFT mounted, trailed or self propelled vegetable harvester - now proudly available from LANDPOWER Vegetable Centre.

For your local LANDPOWER Vegetable Centre dealer go to:
vegetablecentre.com

LANDPOWER
Vegetable Centre



Message from the Chair

While I think everyone is sick of reading about the pandemic, the last 20 months have shone a light on the importance of sticking up for growers and making sure their voices are heard loud and clear.

Recently, AUSVEG – along with AUSVEG VIC and the Victorian Farmers Federation – has been working with local Ballarat growers on the Western Victorian Transmission Network Project, which could see high-quality growing land used to construct high voltage, 85-metre powerlines.

While we all understand there is a need for a robust energy network, that is nothing compared to the need to preserve and maintain Australia's prime agricultural land for current and future generations. This project's current proposed route for above-ground high voltage powerlines will go straight through the heart of Ballarat's potato growing land, which boasts some of the most productive soils in the country.

This decision will impact the livelihoods and businesses of dozens of potato growers – and sets the dangerous precedent that it is acceptable to destroy irreplaceable prime agricultural land to save a few bucks.

Not all soils are created equal, and we must do what we can to protect the future of our growing regions so that we can protect our food security for generations to come.

Standing up for growers is one of AUSVEG's core activities. Since COVID-19 emerged in 2020, just as growers have laboured to ensure Australian families are fed and healthy during the pandemic, AUSVEG has worked tirelessly behind the scenes to advocate to all levels of government and deliver services to benefit potato growers around Australia.

Over many years, AUSVEG has joined the wider agriculture and horticulture sectors in advocating strongly for the Australian Agriculture Visa as it is a critical element to ensure growers can access a reliable and efficient workforce.

We welcomed the commitment from the Federal Government to deliver the regulations to enable the creation of the Ag Visa, and we will continue to engage with government and the relevant departments to ensure it meets the needs of growers and workers.

The AUSVEG team works across a range of different areas: from advocacy to biosecurity, export and trade development, communications, extension and environmental sustainability – not to mention delivering the Hort Connections event alongside the Produce Marketing Association Australia-New Zealand.

I encourage you to read what AUSVEG has delivered for the potato industry during the last 18 months, and get in touch to find out how it can help you with the issues that you and your businesses are facing.

Bill Bulmer
Chair
AUSVEG

BASELIER

Full Width Cultivators

with Ridging ability



2 - 4 - 6 - 8 Rows

75 - 90 cm Row Width

Fixed or Folding

Ridging Hood with Parallelogram and Crumbler Tines

Welded Hook Tines-Tine Clamps mounted on Rotor Shaft

Gearboxes from 250hp to 510hp (Oil coolers available)

Steel or Rubber Wheels



VIN ROWE

FARM MACHINERY

3 ENDEAVOUR ST, WARRAGUL. VIC 3820 | PH (03) 5622 9100 | VINROWE.COM.AU
FOR FURTHER INFORMATION CONTACT WAYNE MILLS 0417 945584



Energy project leaves Ballarat growers in the dark about their future

The future of potato production around Ballarat is under threat by a proposed major energy project that could result in above-ground transmission lines cutting through the major Victorian potato growing region. AUSVEG National Manager – Communications Shaun Lindhe provides an overview of the issue and its potential impacts on potato growers.

Gold is not the only thing you will find if you dig through the rich, volcanic soils of Ballarat, located around 110 kilometres north-west of Melbourne.

The city, once the focal point for Victoria's Gold Rush in the 1850s and 1860s, is a major producer of potatoes – particularly for the processing industry, which supports the local economy and helps feed Australia's growing appetite for potato chips, fries and other snacks.

However, this sector is under threat from a major energy project that proposes to install above-ground, high-voltage transmission lines cutting through the heart of Victoria's potato processing farmland.

What is WVTNP?

In late 2019, AusNet Services was awarded a contract to deliver the Western Victoria

Transmission Network Project (WVTNP) by the Australian Energy Market Operator.

The project will require 190 kilometres of new overhead high-voltage transmission lines to run from Sydenham to Bulgana – running through dozens of farms in the state's west – and would require about 380 towers, each up to 85 metres high.

A new terminal station will also be built to the north of Ballarat.

According to a statement from AusNet, the project will help to ensure sustainable and clean renewable energy being produced throughout western Victoria can enter the electricity grid as the state moves from coal-generated electricity to sustainable green power in coming years.

Producers and landholders in the Ballarat region have received letters of notice from AusNet via post that their land will be affected by the WVTNP. According to AUSVEG VIC – the peak industry body for Victorian vegetable and potato growers – indications are that compensation will only be offered to landholders whose properties will have easements directly cutting through their land, which will represent a small percentage of overall landholders impacted by the project.

Impact on local businesses

According to growers in the area, the businesses in the region are under threat if potato production is compromised by the project.

Xavier Toohey, who was awarded the

2021 Corteva Agriscience Young Grower of the Year, runs a potato growing operation in Wallace, Victoria. He is worried about the impact that the project will have on the future of his family business.

"The reality is that we won't be able to farm with the powerlines in here, simple as that," Xavier says.

"I've invested heavily in water and infrastructure to grow crops, but as soon as these powerlines come in a lot of our equipment won't be able to go underneath them.

"We've invested in a GPS pivot, one of only a few in Australia, and if these powerlines go up the GPS won't work properly."

Keeping the business alive won't be as simple as relocating the farm.

"The rich volcanic soil here is perfect for growing potatoes, but there is only a limited amount of it – just a couple of kilometres away the soil changes and it isn't nearly as good for growing," Xavier says.

"If they do this project here, what are we going to do in 30 years when we need this area to be a food bowl?"

"The compensation they are talking wouldn't be enough to relocate even if we wanted to. Are they really going to compensate us for the future crops that would have come from these paddocks?" According to Xavier, the WVTNP will have a greater impact on neighbouring properties.

"The project will affect a couple of my paddocks in Springbank, but it won't affect



Photograph by LJM Photography.

me as much as some of my neighbours where the powerlines will go through each of their paddocks. Some of them are the biggest growers in the district, so it could lead to massive shortage of spuds for the area," he says.

"Even if the powerlines go underground, there's no guarantee that we will be able to continue farming here, particularly if AusNet goes for the cheapest option."

Growers' concerns

According to AUSVEG VIC Executive Officer Tim Withers, local growers are voicing their concerns but fear that they are not being heard by AusNet.

"Local growers feel their concerns have not been taken seriously by AusNet and that the impact of the project on the region's potato production is an afterthought," Mr Withers says.

"Growers have told us that they are being overlooked to find the cheapest route to deliver the project, no matter the cost to the region and the local industry."

According to Mr Withers, should the WVTNP be approved in its current proposed format, growers anticipate the following impacts:

- Restrictions on the use of machinery over 4.3m in height.
- Restrictions on irrigation systems and layouts.
- No fuel storage.
- No aerial spreading or spraying of crop protection and fertiliser products.
- Inability to adopt modern ag-tech due to electrical interference.

"There are also concerns that workers moving between farms will not adhere to adequate biosecurity measures, and risk spreading diseases across farms in the region," Mr Withers says.

Lack of consultation

Ballarat Potato Growers Association Chairman Chris Stephens says a major criticism of the project was the lack of consultation.

"From the start, we were disappointed with their consultation with the ag sector. Letters were sent in the mail and someone from AusNet offered landholders a \$500 gift card to access their properties, but once they signed on the dotted line there was no limit to what they could do," Chris explains.

"No one even knew anything about the project before that stage.

"Since then, AusNet has communicated poorly with landholders. Every question I've asked I haven't received a clear or direct answer.

"Even though AusNet claims to be communicating with us they are not. They are taking information people have given them and providing no answers back to the community."

Claims from local producers describe the consultation process by AusNet as inadequate across the board.

"The consultation with the region has been poor. They turn up to consultations with a pencil and paper – nothing's online – and there's no feedback on your questions six weeks after a meeting," Xavier says. →



2021 Corteva Agriscience Young Grower of the Year, Xavier Toohey. Image courtesy of Corteva Agriscience.

Quick Facts



Ballarat region home to rich, volcanic soils perfect for potato growing.



Major energy project involves 190 kilometres of new overhead high-voltage transmission lines – 380 towers, each up to 85 metres high.



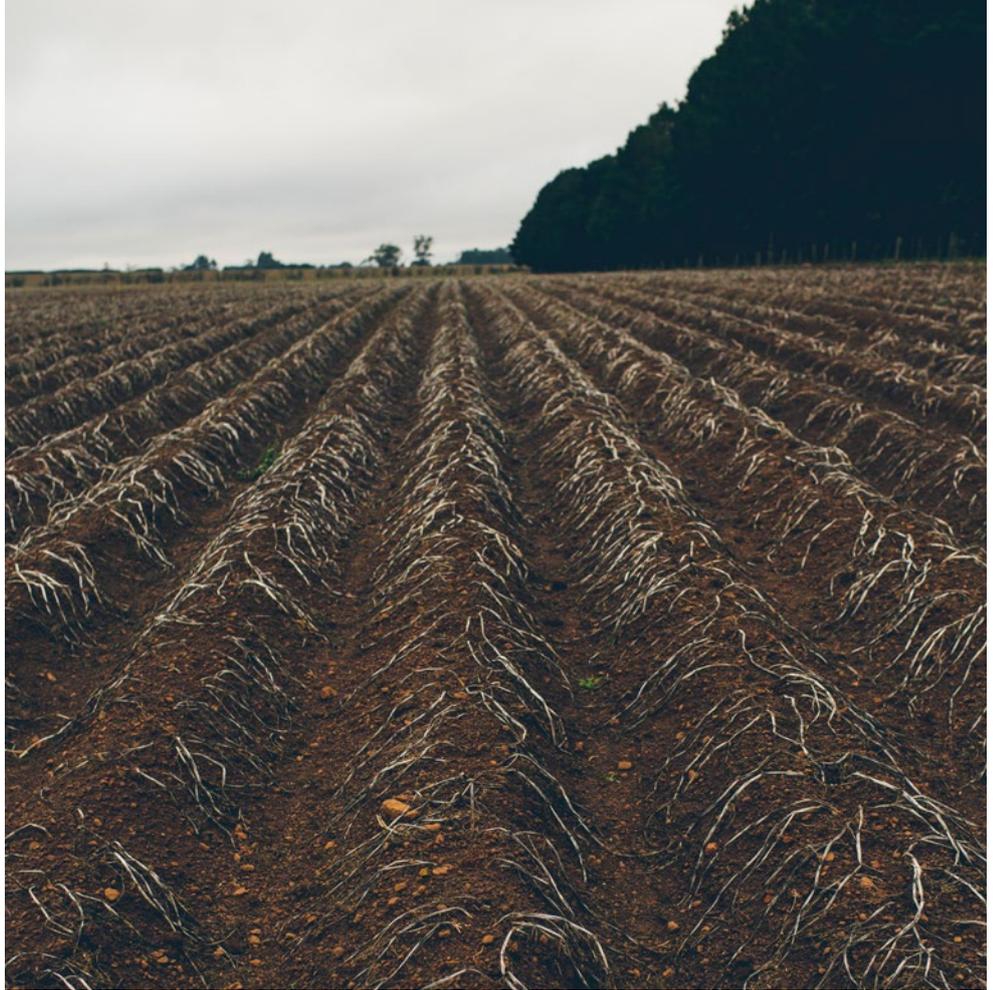
Affects 1,000 hectares of potato-growing land – equivalent to 60 per cent of McCain's production area in Ballarat.



Impacts approximately 29 local growers, as well as neighbouring properties.



AUSVEG, AUSVEG VIC, VFF and local growers calling for consideration of alternative route.



"It's 2021! If they are fair dinkum on consulting with us, notes would be online and available for anyone to see. They are not taking the job seriously."

Threat to future of local potato industry

According to Chris, the WVTNP sets a dangerous precedent that will have far reaching implications for farmers in Ballarat and across Australia.

"There is no other area in the world where high voltage powerlines have gone straight through highly productive irrigation districts. This will be the first case in the world," Chris says.

"What they've done is draw a line on the map without taking the land usage into consideration.

"The planning has been poor – no feasibility studies were undertaken that took into account the impact on the local industry and its economy. Farmers are getting thrown under the bus.

"This will be an ongoing issue for other areas as well. This is the first of 12 new transmission lines up and down the east coast of Australia. There will be many farmers in the same position as us."

The issue isn't just with properties directly along the proposed route.

"Already, neighbouring properties have had energy companies looking to buy land to build solar and wind energy farms near

the proposed substation, given the closer the energy farms are to the substation the cheaper it will be to provide energy to the grid," Chris says.

"Family farms can't compete with big companies. If we lose this soil, then it proves decision-makers don't care at all about food security."

Impact on potato processing

Any impact on potato production will have significant flow-on effects on for growers and processors in the region. This will be particularly relevant to McCain Foods – a major contractor for growers in the region – with growers already worried that they will be unable to fulfil their contracts due to the impact of the WVTNP.

In a submission lodged by McCain Foods to the State Government, it argues AusNet's rules and restrictions on producers would threaten up to 1,000 hectares of potato-growing land – equivalent to 60 per cent of the company's production area in Ballarat.

"While the exact route is yet to be determined, McCain Foods estimates it will impact approximately 29 local growers and their businesses – many of whom supply to the region's food processors," a McCain Foods spokesperson said.

"While this does not pose a risk to the ongoing viability of the McCain Foods Ballarat processing facility, we will always

seek to support our growers, with whom we have longstanding relationships.

"We would hope that every effort will be made to avoid disrupting the livelihoods of all growers in our local region.

"We also are concerned about the potential loss of some of the most valuable agricultural soil in Victoria, and indeed Australia. With highly efficient centre pivot irrigation, which maximises the application of our precious water resources, our growers in this region produce some of the best quality and highest yielding potato crops in the world.

"Australia is a country of limited high-quality soils so this productive land should be protected and farmed sustainably for the food security of future generations.

"McCain is aligned with our growers that these constraints directly threaten the potato industry in the region."

Alternatives on the table

Mr Withers says that industry understands the need to upgrade energy infrastructure, but there are other alternatives that must be considered that do not put the region's potato industry under threat.

"Further planning of alternate options to deliver the project is needed, including the exploration of underground power cabling options along existing easements such as the Western Freeway," he says.

"This would not only future-proof the project from climate disasters, but it would protect local land values, national crop production and protect the community from exacerbating disasters such as bushfires fuelled by destroyed power infrastructure."

AUSVEG VIC, AUSVEG and the Victorian Farmers Federation will continue to lobby the State Government to encourage alternatives to the current proposed route that prioritises profits over preserving prime agricultural land.

Find out more

Contact AUSVEG VIC Executive Officer Tim Withers on 03 9882 0277 or email info@ausvegvic.com.au.



Built to last.

Turn Key washed potato grading lines

Custom designed and manufactured vegetable grading and packaging solutions.

edp australia pty ltd specialise in the supply of fresh Fruit and Vegetable preparation and packaging machinery to the Vendors of the Australian wholesale and retail markets.



edp 5 tonne wet hopper
featuring programmable auto flashing vales



edp stainless steel barrel washer
1200mm dia. x 3600 long



edp stainless steel flat-bed washing unit
1800mm wide x 38 row nylon brushes



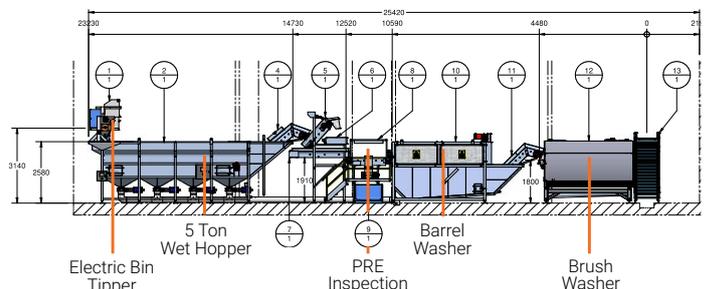
We stock a wide range of consumable products

edp.com.au

KEEPING MANUFACTURING
IN AUSTRALIA

sales@edp.com.au
(03) 5820 5337

edp australia pty ltd.



Potato export update

Potato exporters have continued to supply international markets during for the first six months of 2021 while experiencing market and logistical disruptions. Total potato export value has dropped six per cent to AUD\$22,420,507 and volumes are down eight per cent to 30,759 tonnes compared to the same period of 2020. AUSVEG’s Sam Turner reports.

From January to June 2021, potato export volumes have fallen from 32,686 tonnes 2020 to 30,759 tonnes compared with the same time last year. Export value has also dropped from AUD\$24,241,214 in 2020 to AUD\$22,420,507 over the same period. This represents a six per cent reduction in volume and an eight per cent reduction in value for the period (Table 1).

Australian potato exports demonstrate clear seasonality, with export value peaking in March and exports continuing throughout the year. For the majority of the 2020/2021 financial year, potato export results have been below those of the corresponding month in the previous financial year (see Figure 1).

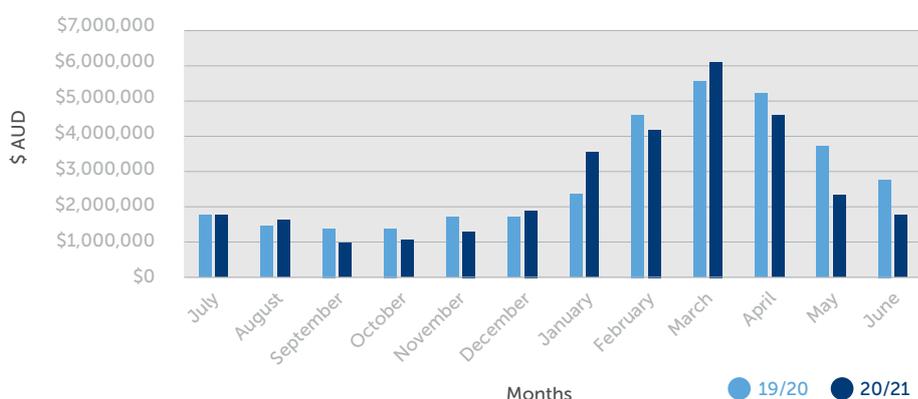
Figure 2 Top 10 Australian potato export destinations by value, January to June 2020 vs 2021 (AUD \$1,000,000)



Table 1 Year to date potato export figures

Potato exports	2020	2021	% ▲
Tonnes	32,686	30,759	-6%
\$ AUD	\$24,241,214	\$22,420,507	-8%

Figure 1 Australian Potato Exports Value Financial Year '19-20 vs '20-21



Export destinations

The main export destination for Australian potatoes is South Korea, followed by the Philippines, Malaysia, and Singapore. South

Korean imports have continued to grow in the first six months of 2021, with trade increasing 26 per cent in volume to 16,513 tonnes and increase 24 per cent in value to AUD\$9,642,314 (see Figure 2).

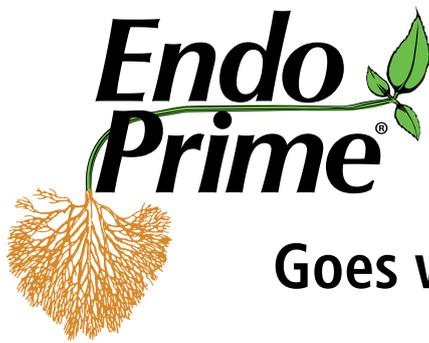
Export outlook

While demand for Australian potatoes continues to grow in a range of export markets, COVID-19 disruptions are impacting potato exporters. Growers continue to face challenges with increases in freight costs, reduced freight capacity, inconsistent sailing schedules and difficulties in securing containers.

In addition to these challenges, growers are also facing rising input costs. Over the last few months, cardboard and packaging prices have increased, along with other imported farm inputs. These expenses are on top of the labour shortages, due to international travel restrictions and the increased regulatory charging regime for export certification that commenced on 1 July 2021.

Find out more

Growers interested in identifying export events or discussing export opportunities can contact the AUSVEG Export Development team on 03 9882 0277 or email export@ausveg.com.au.



Goes where roots can't.



EndoPrime® from Sumitomo Chemical AgroSolutions is a plant and soil enhancement product that contains arbuscular mycorrhizae fungi (AMF). Mycorrhizae are beneficial fungi that naturally exist in healthy soils, colonising the root systems of plants. EndoPrime includes 4 high performing endo-mycorrhizae species that have been proven to increase crop resilience, productivity and overall plant and soil health.

Boost productivity following soil disturbance

Aggressive soil disturbance practices common in many horticultural crops in Australia such as bed formation and root crop harvest have been shown to significantly reduce beneficial mycorrhizae levels in the soil. Inoculating crops with EndoPrime following soil disturbance events helps minimise the chance of lost productivity.



Photo shows ground prepared ready for potato planting in an aggressive way, where AMF levels will be expected to be very low.

Quickly re-build mycorrhizae levels following chemical fumigation or brassica crops

Chemical fumigants and growing brassica crops have also been shown to significantly reduce beneficial mycorrhizae present in soils. Inoculating crops with EndoPrime quickly rebuilds beneficial mycorrhizae levels, reducing the chances of lost productivity.

Increased nutrient uptake

One of the most significant ways mycorrhizae help plants is by increasing the surface absorbing area of roots. They do this by forming an intricate web of hyphae capturing and assimilating nutrients, thus better utilising the nutrient capital already in soils and more efficiently utilising applied fertiliser.

Improved water uptake

The same extensive network of fungal filaments important to nutrient uptake are also important in water uptake and storage. In irrigated horticultural systems, plants treated with mycorrhizae often exhibit far less moisture stress between irrigations compared to non-treated.

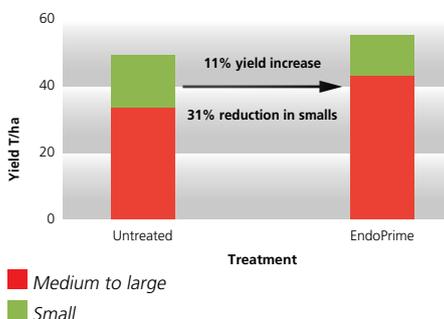
Easy application

Effective Methods of Applying EndoPrime are:

- As a seed dressing along with other seed treatments
- As a dip/drench when seedlings still in trays
- As a bare root spray/dip prior to planting
- By adding to the growing media including crops grown under cover
- Applied to solid fertiliser or combined with liquid fertilisers
- Via an In-furrow spray at planting
- Through drip irrigation at establishment or later in permanent plantings

EndoPrime consistently increases yield and tuber quality in potatoes

Effect Of Endoprime On Kipfler Potatoes Mornington Peninsula VIC



KEY AREAS ENDOPRIME HAS BEEN SHOWN TO IMPACT:

- Crop yield
- Root and shoot biomass
- N, P, K and trace mineral uptake
- Water uptake during moisture stress
- Improved resilience against disease and pest attack
- Crop resilience under plant stress conditions
- Soil health

www.sumitomo-chem.com.au

© EndoPrime is the registered trademark of Sumitomo Chemical Australia.



ASA-LIFT TK Series.

New vegetable harvesters for Aussie potato growers

Landpower Vegetable Centre has added the Asa-Lift range of vegetable harvesters to its Australian and New Zealand stable following acquisition from GRIMME. The acquisition consolidates its position as the world's leading manufacturer of cultivation, planting, harvesting and handling equipment used in the potato and vegetable industries. Landpower GRIMME Product Specialist Haydon Martin reports.

Asa-Lift was established outside Copenhagen in 1936 to serve the needs of Danish vegetable growers. It quickly became recognised as a leader as it expanded into international markets in the 1960s.

GRIMME originally acquired a 70 per cent share of the company in 2013 and purchased the balance last year. It has invested heavily in new product development and production facilities, allowing Asa-Lift to significantly expand its operations, which now offers more than 150 machines across 30 different crops, including potatoes, beans, beet, cabbage, carrots, celery, chives, fennel, onions, parsnip, leeks and lettuce.

"Asa-Lift has always enjoyed a reputation for innovation, quality, performance and after-sales service," Landpower Vegetable Centre Product Specialist Haydon Martin says.

"Its integration with GRIMME over the past eight years has opened up significant improvements in terms of electronic and manufacturing technologies, with each design drawing on the considerable experience gathered from around the world."

Landpower Vegetable Centre was an exhibitor at Hort Connections, which was held at the Brisbane Convention and Exhibition Centre from 7–9 June.

"The addition of the new range of

harvesters furthers the business's expertise in vegetable production and means it can now offer a complete range of cultivation, planting, harvesting and handling technology across all of the major potato vegetable crops grown in Australia," Haydon says.

Additional services for growers

GRIMME was founded in Damme, Germany, in 1861, the family-owned company employs more than 2,700 people worldwide, with a physical presence in 12 countries and operates in more than 120 countries.

It also owns Spudnik, a US potato harvesting machinery manufacturer; and two original equipment manufacturers (OEMs) – Internorm, which produces polyurethane products, and Ricon,

which produces webs and conveying technology.

Haydon paid tribute to Vin Rowe Farm Machinery in Warragul, Victoria, which has represented the Asa-Lift brand in Australia for the past 40 years.

"Landpower has represented GRIMME in Australia and New Zealand for the same length of time and we respect the level of commitment that Vin Rowe has made to growing the brand over the years," he says.

All new sales inquiries will be directed to Landpower, effective immediately, although Vin Rowe will continue to provide service and parts to its existing customers until 31 March 2022.

Find out more

Please contact Landpower GRIMME Product Specialist, Haydon Martin, on 0447 184 250.



The Landpower Vegetable Centre is located in Altona in Melbourne's west. Images provided by Landpower.

Decades of breaking new ground.

We're always innovating, delivering world leading products and providing unrivalled support to our partners in the Australian potato industry. Through years of research and development, technology and testing, our comprehensive potato portfolio provides sustainable protection from storage, to planting, right through to harvest and beyond. We will continue to innovate, to evolve, to deliver. It's what we do.

 **Amistar**[®]  **Vibrance**[®] **Premium**

 **Miravis**[®]

 **RidomilGold**[®]
MZ



syngenta[®]

Become a member of Syngenta Potato Partners.
www.syngenta.com.au/potatopartners

Overcoming food safety challenges across the fresh produce chain

Across two days, Hort Connections 2021 delegates were invited to participate in thought-provoking and interactive speaker sessions. One of these was hosted by Mark Turner – a Professor in Food Microbiology, University of Queensland – and he spoke about food safety, and how pathogen outbreaks can be minimised in pre- and post-harvest stages of vegetable production.

University of Queensland Professor Mark Turner took to the Hort Connections stage on Wednesday 9 June as part of the Supply Chain and Consumers Speaker Sessions, sponsored by Nieleesen.

Mark is a Deputy Head of the School of Agriculture and Food Sciences at the University of Queensland and leads a research team in the area of food quality and safety. His session focused on fresh produce safety challenges and opportunities, and covered the pathogens that are present in the farm environment to controls that minimise the risks of these outbreaks occurring.

Salmonella and listeria monocytogenes are pathogens of concern when it comes to food safety. Mark discussed outbreaks that have occurred in the United States and Australia, and he pointed to new technologies that are being used to identify the strains and where they originated.

Whole Genome Sequencing (WGS) investigates the entire DNA sequence to link cases and identify outbreaks. It was successfully used in a recent outbreak of salmonella in red onions in the U.S.A., the largest salad outbreak in over a decade affecting more than 1,600 people. WGS was used to trace the pathogen back to an operation where it was found in water and sediment samples that had likely come from grazing sheep in adjacent land. There had been cross-contamination in the processing and handling of the product.

While outbreaks are not as prevalent in Australia, listeria – a foodborne illness caused by the bacteria *Listeria monocytogenes* – has higher mortality rates than salmonella. Deaths occur in 20-30 per cent of listeria cases. Therefore, it is important that there are controls right

along the supply chain to minimise the risk of foodborne illnesses such as listeria.

Pre-harvest and post-harvest controls

Mark outlined what can be done in the field prior to harvest taking place. Treating and testing water, keeping livestock away from the crop to avoid faecal contamination, avoiding wildlife intrusion and using good equipment and personal hygiene were among controls to prevent pathogen infection. The focus then shifted to post-harvest and pathogen persistence in processing environments. Mark pointed out that cross-contamination can occur during produce washing and time-temperature abuse (when produce is kept at a temperature for a dangerous amount of time, which can lead to pathogen growth) can also take place.

New technology is a weapon in the food safety space. In addition to WGS, big data and the Internet of Things are being used to mitigate risk. Drone data is looking at animal intrusion, weather patterns are being recorded and there are new biological sanitation methods that are being trialled with positive results.

The bottom line

Mark said there is no way to achieving zero risk of contamination – pathogens are present in the farm environment and tracing back outbreak sources can be difficult. However, there is significant research being undertaken and lessons learned about food safety practices and fostering awareness of the risks results in better controls measures throughout the supply chain.



Mark Turner.

Find out more

Presentations from the 2021 Supply Chain and Consumer Speaker Sessions are available to watch on the Hort Connections website: hortconnections.com.au/speaker-sessions-2021.



Knowledge grows

Improving productivity needn't cost the earth.

Quality nitrate fertilisers from Yara can optimise the yield and quality of crops without costing the earth. We've already reduced the carbon footprint of our nitrate fertiliser production by 40% by making our production plants and processes among the most energy-efficient in the world. Our ongoing development of 'green' ammonia technology and climate-smart agricultural practices means we're on track to reduce emissions by another 30% within a decade and carbon neutral by 2050. Contact Yara and find out how our integrated crop nutrition programs can deliver better agronomic, business and environmental outcomes for your farming business.



© 2021 Yara YAR21398



EndoPrime Potato Trial untreated.
Images courtesy of Julie Finnigan, Serve-Ag.



EndoPrime Potato Trial treated.

Research in soil health for potato crops delivering results for growers

Following a study on groundwater salinity, an investigation into soil crop health has been undertaken in Tasmania with early trials delivering promising results. Serve-Ag Technical Agronomist Julie Finnigan reports on the findings.

From 2016–2020, Serve-Ag was involved in *Impact of groundwater quality on the management of centre-pivot-grown potato crops (PT16001)*, a strategic levy investment under the Hort innovation Potato – Fresh and Potato – Processing Funds.

While completing this investment – which assessed groundwater quality in areas of potato production – Serve-Ag investigated the health of the soil that crops were growing in, with trials of Endoprime® delivering promising results.

This prompted Serve-Ag Technical Agronomist Julie Finnigan, who regularly undertakes trials on a range of products across a variety of crops to find solutions for growers, to commence a series of trials for herself using EndoPrime, a product from Sumitomo Chemicals Australia.

The product contains arbuscular mycorrhizal fungi, which is beneficial fungi that naturally exist in soils colonising the root systems of plants to form a symbiotic relationship. The four high performing species contained in the product have been proven to increase crop productivity, as well as overall plant and soil health.

Within the soil, plant roots are limited in the area they can access and absorb nutrients and moisture. Root hairs that absorb nutrients and moisture through the tips are typically only a few millimetres long.

The area where the plant roots can extract resources is commonly referred to as the depletion zone. Mycorrhizal hyphae grow out well beyond the depletion zone, with hyphae stretching out up to 65 centimetres, absorbing beneficial moisture and nutrients along their entire length for more efficient nutrient uptake and healthier plants.

Trial results

The product was applied in-furrow at planting during the trial – a process that Julie describes as very easy.

“It was mixed with Amistar®, which is compatible. The mixing was easy, and we had no clogging during application. It also comes in a convenient pack size and doesn’t need refrigeration,” she says.

According to Julie, there were only minor differences observed between the treated and untreated crops above ground during the growing cycle.

Below ground however, it was a very different story.

“The treated crop had more stolons, earlier tuber initiation and more even tuber growth throughout the growth cycle,” she says.

“When we came to harvest, the treated crop had fewer small size tubers and more in the priority size range – on average they were 8-10 per cent heavier.

“Across the six trials we had an average yield increase of 4.5T/ha, which is impressive, with one site producing an additional 6.3T/ha in the treated crop.”

Return on investment

“One thing to remember is that when applying in-furrow at planting, the EndoPrime application does not add another process, so you are only really looking at the cost of the product,” Julie says.

“We applied the product to a range of fresh market and processing potato crops and the lowest return on investment was around 10 to one, with the average being 20 times return on investment.”

The results have prompted one of Julie’s colleagues to put the product into the program for all his potato growers, while one grower involved in the trials has just asked to ensure that they have enough to treat all of his paddocks.

“I would say at least try it on half a paddock. It is not an expensive product to try, and I don’t think you will be disappointed,” Julie says.

Find out more

Visit sumitomo-chem.com.au/endoprime.

SKALS
- we'll sort it out!

GRADING LINE
Flexible Setup - Optimal Precision



SHOCK PRINCIPLE ENSURES OPTIMAL PRECISION
•
LIMITED MOVING PARTS ENSURES RELIABILITY
•
ACCURATE ON LONG POTATOES

VR

VIN ROWE

FARM MACHINERY

3 ENDEAVOUR ST, WARRAGUL. VIC 3820 | PH (03) 5622 9100 | VINROWE.COM.AU
FOR FURTHER INFORMATION CONTACT WAYNE MILLS 0417 945584

Don't pay the price with your life: Focus on electrical safety

The Fair Farms Program was designed and developed by Growcom to ensure Australia has a strong, thriving horticultural industry that benefits not only individual farmers and the industry, but the broader community. In this column, the team focuses on powerlines and what horticultural workers can do to minimise the risk of an electrical incident occurring that may result in injury or even death.

In July, a worker on a pineapple farm in Queensland tragically lost their life after a harvester hit overhead powerlines. Each year too many farm workers are killed or seriously injured by electrical incidents on rural properties.

Within the Fair Farms Program, we remind employers of their workplace health and safety standards that help make sure tragedies like this don't happen. We are here to raise awareness and support farms to help prevent the chances of accidents, so that the entire Australian horticulture industry thrives.

Tips to consider when working around powerlines

Plant and machinery, irrigation pipes, augers, cranes and excavators all have the potential to contact powerlines and when that happens the result can be deadly. Electricity from powerlines can arc or jump across lines, **even if there is no direct contact**.

Powerlines can sag between the poles and can be as much as three or four metres below the cross arms supporting them. Sometimes they are difficult to see – on the horizon, in low light or in high winds that force the powerlines to sway some distance.

Workers and equipment must be kept a safe distance from powerlines. Electrical safety laws in each state and territory set out the minimum safe distances (exclusion zones).

There are practical steps farmers can take to keep workers safe:

- Arrange for your electricity provider to install visual markers. Install highly visible ground markers and have a

safety observer on the ground.

- Work in the direction away from powerlines, not towards them.
- Avoid working near powerlines if you can. If you can't, then know the height and prevent entering the exclusion zone. Re-check clearances if you buy new plant and equipment.
- Report unsafe power poles on or near your property to the electricity distributor. If you own the poles, have them periodically checked by a licenced electrical contractor.
- Don't locate machinery or equipment under powerlines and always lower machinery near powerlines.
- Store irrigation pipes well away from powerlines.
- Train your workers to identify where powerlines are located and induct all workers and visitors.
- Keep vegetation and crops away from power poles and stay wires.
- Ensure your emergency procedures are up to date and your workers are familiar with them.

Powerlines may also be located below ground. Before doing any work involving trenching or drilling holes, it is necessary to take steps to find out if underground electrical cables are at or near where the work is to be done. The 'Dial Before You Dig' service is available around Australia and can be contacted through its website: 1100.com.au.

Whether powerlines are above ground or below ground, electrical safety laws require that before commencing work you complete a risk assessment and put in place suitable safety measures that might include the above.

Applying a risk management approach to electrical safety involves:

- Identifying the risk.
- Assessing the risk.
- Decide on what is needed to control the risk.
- Implement the control measures.
- Monitor and review the controls to assess effectiveness.

Taking a little time to ensure the work is done safely could save a lot of heartache and trouble. It could save a life – and that life could be yours.

Fair Farms supports all members of the Australian horticulture supply chain with the tools, information and training they need to be a great employer. In addition, participants of the program can demonstrate their compliance to their customers, workers and consumers through certification. Weeding out the bad seeds who undercut the industry to raise their own profits is a priority, so is making sure businesses can attract and retain staff.

Find out more

Please visit the Fair Farms website at fairfarms.com.au. Visit fairwork.gov.au and growcom.com.au for more information regarding your obligations as an employer.

Fair Farms is developed and delivered by Growcom with support from the Federal Department of Agriculture, Water and the Environment and AUSVEG.



Phosphorus trials demonstrate improved P performance with reacted carbon technology

Summarised by Dr Doris Blaesing, RMCG

Background:

Potatoes are considered to have a low phosphorus (P) uptake efficiency compared to most other crops, with only about 5 to 25% of fertiliser P taken up in the year it is applied, depending on variety and conditions. Therefore, P fertiliser inputs are commonly high and costly for potato producers.

A large, healthy root system is the most important plant attribute for effective nutrient and especially P acquisition, particularly from P-fixing soils where it forms insoluble aluminium, and iron phosphates in acid soils and calcium phosphates above pH 6.4 (P-fixing). Adequate phosphorus availability is closely linked to root development and leads to greater exploration of the soil for water and nutrients. Tuber numbers, sizing and disease resistance are also enhanced when adequate phosphorus is available to the crop. Increased P availability and uptake efficiency can be achieved by keeping P in the soil solution and available for root uptake. This can be accomplished with the use of polymers, for instance to create polyphosphate, or via organic compounds that complex anions. Humic and fulvic acids have been used to complex P-anions. Leonardite is a mineraloid produced by surface oxidation of lignite (a precursor to brown coal). It is comparable to soil humic acid and bioactive due to its molecular structure which complex P-anions and can thus be very effective in 'protecting' P from being fixed.

Reacted Carbon trial:

A replicated trial was conducted in Northwest Tasmania at the Forthside Vegetable Research Station during the 2020/21 season on a ferrosol soil.

The purpose of the trial was to evaluate a new liquid P fertiliser formulated with leonardite called **Structure**® from Loveland Agri Products, to investigate whether the yield of processing potatoes (Russet Burbank) on P-fixing soils could be maintained or improved despite a reduction in total applied phosphorus.

The use of Structure is promoted to deliver a mobile and more available source of P to the root zone that is less prone to fixation. It contains N 9.1 : P 11.9 : K 00 + Zinc 0.26% + 7.8% Reacted Carbon (derived from Leonardite); it has a low salt index and pH of 6.3.

Treatments included five fertiliser treatments with decreasing rates of total applied phosphorus as follows: 260 – 181 – 142 – 115 – 69 kg/ha achieved via:

- Decreasing P application rates of an industry standard dry NPKS granular fertiliser blend (11-13-19-1) as follows: 2000 – 1350 – 1000 – 750 – 350 kg/ha total blend.
- Increasing rates of Structure alongside the granular fertiliser as follows: 0 – 50 – 100 – 150 – 200 L/ha

Rates of N, K, and S were kept constant at 220, 380 and 20 kg/ha respectively in all treatments; to achieve this, the required rates of a granular blend that did not contain P were applied together with the decreasing rates of the 11-13-19-1 blend.

Summary:

The results indicate that reducing the overall P rate to 142 kg/ha via applying half of the standard granular fertiliser rate of 2000 kg/ha plus adding 100 L/ha of Structure may be a good approach in low P and P fixing soils*. This represented a 45% reduction in applied P in this trial.

The next steps would include to trial the approach of reducing granular P rates and incorporating Structure as a more available P source in commercial crops using a site-specific approach and trialling split applications. Commercial trials should also consider the results from the 2020/21 grower field trials. These trials conducted in several commercial crops around Ballarat Victoria and Northwest Tasmania showed improved tuber set and yield increases when some granular P was replaced with Structure.

A further consideration would be to apply some Structure during the growing season rather than all at planting to provide for the increasing crop demand.

*Disclaimer: Growers should seek agronomic advice from Nutrien Ag Solutions before changing their fertiliser practices or prior to using Structure.

This trial was independently conducted by Arvensis Research for Nutrien Ag Solutions. For more information on Structure or details relating to this trial, enquiries can be directed to:

Michael Darling
Crop Nutrition Manager – Nutrien Ag Solutions
0411 245 958
or michael.darling@nutrien.com.au.



- Increased phosphorus availability
- Improved phosphorus mobility
- Reacted Carbon formulation
- Greater crop utilisation





Stuart Millwood from Nutrien Ag Solutions.

Relationships key to potato crop protection

Helping growers achieve positive results through crop protection requires considerable investment in scientific research and development. But for Syngenta the measure of success is as much about bringing new products to market as it is relationships, be it with growers, agronomists, suppliers or researchers, helping move the industry forward.

If anyone was to ask growers and agronomists in the potato industry about crop protection companies, Syngenta is a name that is mentioned more often than not.

It's well known that the company sets a very high bar and provides support to the industry to achieve better outcomes – but no matter which way you cook your spuds, its success all boils down to one thing: relationships.

Syngenta offers many products for growers – MIRAVIS® fungicide, AMISTAR® 250SC fungicide, BOXER GOLD® herbicide, RIDOMIL GOLD® 480 SL. But behind these well-known and trusted products is a team that is just as passionate about potatoes as you are.

"It is deeply satisfying," Tasmania-based Syngenta Territory Sales Manager Wayne Richardson said.

"For me, it's exciting to work for a company that places potatoes so high on the agenda."

A team that is passionate about potatoes

Wayne is among a team of equally dedicated Territory Sales Managers and

Technical Services Leads at Syngenta who has spent years investing in relationships with growers, agronomists, suppliers and researchers. Wayne said he believed this had resulted in a lot of goodwill flowing both ways.

"We've got a long history of having close relationships with industry and growers directly through what we do with application technology, our technical team and the people on the ground, as well as the salespeople like myself," he said.

"We're always bringing new products to the market that are quickly adopted by growers because they've demonstrated a great fit.

"It helps when Syngenta is able to deliver a product like MIRAVIS®. Growers consistently report 7-14 days of added green leaf retention through the management of target spot.

"Those last 10 days in the crop are when you're putting on all your tuber bulking, which can add tonnes to your crop."

Delivering results for potato growers

Tom Brown from Serve-Ag in Bridgewater,

Tasmania, says his primary client is a fresh market producer whose fungicide crop protection program is heavily geared towards Syngenta products.

"From the start point they're using VIBRANCE® Premium and AMISTAR® 250SC, which form the backbone of our protectant strategy," Tom explained.

"Post-planting, we've been extremely happy with the performance of MIRAVIS® for target spot control, which has been a key product over the course of the last two seasons. That disease for us is our number one pressure in-crop and we've had really good late season control."

In Prospect, Tasmania, Stuart Millwood from Nutrien Ag Solutions attributed the uptake of Syngenta products to the way its people work with him and his growers.

"We're lucky in that we have a good local rep in Tasmania (Wayne Richardson), who helps growers keep abreast of the latest technology and product solutions and make that transition to the field," he said.

"It is a global R&D company that has a full range of products for potato production in Tasmania – the workshops and demo days are certainly beneficial in that regard."

Focus on collaboration

Elsewhere in Australia, there's more evidence of this collaborative approach.

According to Lachlan Hauser from Hauser Farms in the Lockyer Valley, his farm has benefited from new technologies.

"We started using VIBRANCE® Premium four years ago after I went to a Potato Partners get-together in Adelaide. It's been a big contributor to the increase in quality of our commercial yields and particularly our own stored seed," Lachlan said.

Lachlan spoke of his region's unique growing challenges; while fewer potatoes are grown in Queensland, he attributes some of the crop success to high performing products and his supportive local rep, Fiona Neville.

"I've got a good relationship with Fiona, so if anything new comes out, we try it," he said.

"We grow during autumn and winter, and harvest towards the end of winter into spring and summer. As such, we can get a lot of target spot/early blight pressure coming into the end of spring when we get the first of the thundery showers of the season.

"With green leaf retention MIRAVIS®

has really assisted towards the crop health, prolonging the life of the canopy, in turn increasing yields – it's been a game changer.

"We use a lot of different products from seed treatment to herbicides and fungicides that are reliable and highly compatible with a range of other insecticides, fungicides and foliar nutrients.

"We don't have any problems with it. It works."

As testimonials go, "It works" is at the forefront and underlies Syngenta's commitment to the Australian potato industry with the best quality products, services and people.

It's a commitment forged on the back of over a decade of positive relationship building in the industry, and one it maintains with ongoing research, development and training already in play for 2021 and 2022.

Find out more

Please visit syngenta.com.au/crops/potatoes to sign up to Syngenta Potato News.



Lachlan Hauser uses a lot of Syngenta products from seed treatment to herbicides and fungicides.

Footy Fans Don't Eat Carrots, Kale or Peas at a Game.

They only eat potatoes. **YOUR POTATOES.**

Dressed as chips they wear crinkle-cut jerseys or beer batter.

Golden. Tasty. Crisp. Footy fans of all codes love your potatoes.

And when the home team scores and fans rise as one...

Your potatoes fly high in celebration.

Your hard work, farmer's sense and

A little help from Kendon, in the BIG BLUE DRUM

Have made your potatoes... number one.

Make your potatoes number one, use KENDON HIGH K, Slow Grow, Potato Dust and No-Sprout.



KENDON The Farmer's Mate Since 1950
Owned by an Aussie Farmer for Aussie Farmers
Available at Your Local AG Distributor



For the latest technology in farm chemicals switch to the one in the BIG BLUE DRUM

Kendon



Insecticides, Fungicides, Wetting Agents, Surfactants,

Plant Growth Regulators, Herbicides, Disinfectants, Foliar Fertilisers



Elisse Nogarotto and Dr Francesco Martoni pictured performing high throughput diagnostics trials using Next Generation Sequencing at AgriBio, Melbourne.



Sentinel 6 at Campsey Ash Farms in the Lockyer Valley, Queensland.

Network of high-tech surveillance units to cover several key potato growing regions in final stage of program

The ability to accurately monitor the timing, abundance and movement of airborne agricultural pests and pathogens is limited and fragmented across the Australian landscape. iMapPESTS is a five-year project that explores how cutting-edge surveillance, diagnostics and reporting tools can benefit industry. Shakira Johnson provides a project update.

The aim of the *iMapPESTS: Sentinel Surveillance for Agriculture* program is researching and developing smart surveillance and cutting-edge diagnostic technologies. These include custom-designed mobile surveillance units (termed 'sentinels') that incorporate specialised airborne trapping equipment and technology.

Sentinels are deployed to various locations around the country to capture airborne samples that are examined in a laboratory to test the presence or absence of priority pests and pathogens.

In a unique collaboration that is utilising the latest technologies, Australia's agriculture and horticulture industries have joined forces to develop a national surveillance system capable of rapidly monitoring and reporting the presence of airborne pests and diseases for multiple agricultural sectors, including viticulture, grains, cotton, sugar, forestry and horticulture.

iMapPESTS completed the construction of six sentinels in early 2021, with a seventh expected to be rolled out later this year. Sentinels 5 and 6 were most recently unveiled in Queensland at Hort Connections and the Lockyer Valley Growers Expo back in June. Sentinel 6 has remained in Lockyer Valley where it is currently collecting samples over spring (see image above).

Throughout the year, these six sentinels will be deployed to different growing regions around the country for extensive testing and optimisation.

Sentinel features

Every sentinel looks unique but all six share similar features – each is equipped with several airborne samplers, power supply, a weather station, telemetry and an industrial computer for remote control and monitoring. They also include automated technology to configure samplers for different sampling requirements.

The new edition units, Sentinels 4 through to 7, are smarter, smaller, lighter and more flexible compared with earlier sentinels, which is particularly important in a period where movement of people and goods can change quickly, and especially important for responsiveness to respond to biosecurity incursions.

As iMapPESTS nears the end of the initial sentinel development stage, the project team will deploy all seven sentinels to multiple strategic locations across the country for in-field trialling. This, includes key potato growing regions such as the Northern Adelaide Plains, Riverlands, Atherton and south-east Queensland and the Riverina. Each trial gives the team the opportunity to

engage with stakeholders in the region and deliver important pest and disease data that could help inform on-farm pest management actions, biosecurity response efforts and area freedom claims.

Targets for reporting to industry

Laboratory analyses of the sentinel samples quantifies the pests and pathogens present. Molecular testing can deal with large numbers of samples rapidly and accurately. Yet, molecular tests for many of the pests and pathogens do not yet currently exist. iMapPESTS includes the development of is developing more diagnostic tests using next-generation sequencing by Agriculture Victoria (AgVic), Sugar Research Australia and University of Queensland.

A priority pest and disease list has been developed to monitor targets across each of the diverse plant industries, with a focus on targets that affect multiple industries (e.g. green peach aphid and grey mould caused by *Botrytis*). After the sentinel captures airborne pests and diseases – including many long-distance dispersal insects such as aphids – the samples are dispatched to SARDI and/or AgVic for inspection.

Rohan Kimber, research scientist at the South Australian Research and Development Institute (SARDI), uses

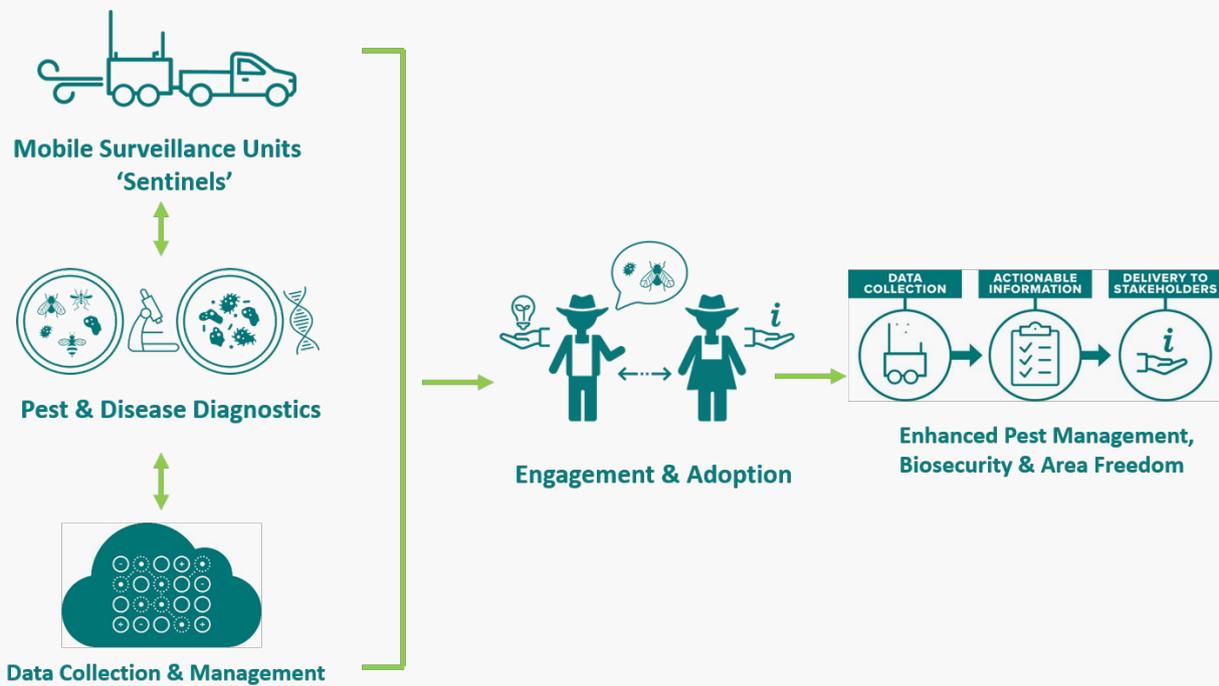


Figure 1. Overview of iMapPESTS Sentinel Surveillance for Agriculture.

Western flower thrips as an example of a destructive pest.

The localised reporting of pests and pathogens aims to provide farmers across industry sectors with improved ability to make decisions relating to pest management on-farm.

“Western flower thrips spread across the Australian landscape. They can survive and build up in crops that have low susceptibility, and then fly to potato and vegetable crops where they transmit viruses, such as tomato spotted wilt virus,” Dr Kimber said.

Visualising patterns of individual pest and pathogen occurrences, together with weather data, will help researchers and decision makers build an understanding of pest and population dynamics.

“These trials are not only providing us with valuable insights into pest and pathogen populations and dynamics, but are helping us identify the most effective and efficient insect and spore samplers for target capture,” Dr Kimber said.

Next generation diagnostics for biosecurity targets also delivers snapshot of insect biodiversity

Molecular testing can deal with large numbers of samples rapidly and accurately. Yet, molecular tests for many of the pests and pathogens do not yet exist. iMapPESTS includes the development of more diagnostic tests using next-generation sequencing by AgVic, Sugar Research Australia and University of Queensland.

The iMapPESTS diagnostics collaboration is exploring something known as high throughput sequencing (HTS) to investigate ways of reporting on a wider range of insects captured, including targets

of biosecurity concern. This is because the HTS approach takes a sample of insects or fungi captured by the trap and sucks out all the genetic code, resulting in a ‘DNA soup’ that can be scanned using a reference tool, or database, of known DNA codes for hundreds of thousands of different insects or fungal species. If a particular species was trapped, its DNA code will be present in the soup and flagged by the reference database, indicating its presence in the trap. These techniques have the potential to detect many targets in one test and pick-up biosecurity threats early, allowing for a more effective response to an incursion.

To further investigate the impact of this new diagnostics method and how it might work in the iMapPESTS surveillance system, a selection of insect samples from the sentinels are being processed at AgVic’s AgriBio using the HTS diagnostic method. The results will be made available on the iMapPESTS website.

iMapPESTS website: Central information hub for industry

The iMapPESTS website includes an interactive map of locations for current and previous sentinel trials. People can interrogate that will take you to individual trial pages where stakeholders can interrogate the data collected for insects and pathogens trapped at a particular trial site. During sentinel trials, data is regularly shared through these pages as summaries and observations from iMapPESTS entomologists, plant pathologists and local service providers (including crop consultants and agronomists), as well as a data dashboard that features weather

(temperature, rainfall, and humidity), and pest and pathogen numbers.

By the end of the project in 2022, the team aims to have a demonstrated a proof-of-concept surveillance system that is suitable to different regions and supported by the appropriate rapid diagnostic tests for key insect pests and pathogens across industry sectors.

The iMapPESTS team will work with growers and industry representatives to understand the best way to communicate and visualise the dynamic pest and pathogen information for end-users. Growers and those involved in plant pest management are encouraged to visit the iMapPESTS website for more information or to get in touch.

Find out more R&D

Please contact Engagement and Adoption Coordinator for iMapPESTS Shakira Johnson on 0433 937 564 or shakira.johnson@ausveg.com.au.

Further details can be found at the iMapPESTS website: imappests.com.au. You can follow the project on Twitter: @iMapPESTS.

The program (2017-2023) is supported by Horticulture Innovation Australia Limited, through funding from the Australia Government Department of Agriculture, Water and the Environment as part of its Rural R&D for Profit Program and Grains Research & Development Corporation, Sugar Research Australia, Cotton Research & Development Corporation, Wine Australia, AgriFutures Australia, and Forest and Wood Products Australia.

Project Number: ST16010

Hort Innovation | **VEGETABLE FUND**
Strategic levy investment



Remembering Tony Biggs: A horticulture industry stalwart

A pioneer in leadership, education and communication has been lost to the Australian horticulture industry, with the unexpected death of Tony Biggs on 17 July 2021. Produce Marketing Australia Chief Operating Officer John Baker reflects on Tony's life, and his extensive service and contribution to Australian horticulture.

In his 40 years in Australia, Tony Biggs made a significant difference across a range of organisations and industries.

He and family moved from Kent in the United Kingdom – where Tony had been lecturing at Wye College – to Hawkesbury Agricultural College (now Western Sydney University's Hawkesbury campus) in 1980. He was appointed Head of the Department of Horticulture, before becoming Principal Horticulturist Vegetables with the New South Wales Department of Agriculture in the mid-1980s. He had a big impact at both organisations and their staff.

Upon his arrival in Australia, Tony had observed there was no dedicated national magazine for commercial production horticulture. In 1990, he helped establish and was founding editor of *Good Fruit & Vegetables*. Supported by his wife Frances, Tony produced over 200 issues in the next 13 years.

A communications trailblazer

Tony was an excellent communicator and had a particular flair in translating and editing scientific research and results into everyday language.

In a recent interview with the current editor of *Good Fruit & Vegetables*, he said the technical content of the magazine was based around news and stories on current research from around Australia and overseas. There was a major detailed monthly business article entitled 'Enterprise of the Month', along with interviews with national and international horticultural personalities, new product information and much, much more.



Tony Biggs. Image courtesy of Kelvin Tsui, Rabbit Photo (Richmond, NSW).

"I saw the technical content in being of paramount importance," Tony said.

He travelled extensively across Australia, seeking out stories and profiles in many diverse areas, building a wide network of colleagues and friends in the process. An annual highlight in the magazine were special features covering presentations from the Australian Horticultural Corporation's 'Marketing Edge' conferences, reaching a much wider audience and generating greater interest in marketing. This led to covering the Asiafruit Congress in Hong Kong and the United States' Produce Marketing Association Convention and Exposition on a number of occasions.

Concurrently, in 1991 Tony was appointed a Director of the Horticultural Research & Development Corporation – one of the forerunners of Hort Innovation. This was a position he held for nine years. Such was his contribution, Tony was asked to stay on the Board after completing the maximum allowable period of six years.

Industry impact

Through his family company Cardinal Horticultural Services, Tony undertook a range of other activities, usually in collaboration with Frances. He was the mushroom industry's R&D coordinator, including managing the new purpose-built facility at Sydney University. As well as seeing the need and being responsible for establishing the Australian Potato Industry Council, he and Frances provided the initial Secretariat.

His knowledge and experience of greenhouse horticulture and hydroponics in the UK – combined with collaborative research he undertook with Rick Donnan in Australia on the use of rockwool –

led to major advances in the technology and its application. Tony was largely responsible for establishing the Australian Hydroponics Association (now Protected Cropping Australia) and providing the foundation Secretariat.

His experience and attention to detail made Tony a natural choice to review a range of horticultural programs. In addition, he was a significant co-contributor to a number of production and marketing projects in different parts of Australia and across industries.

Further achievements

Prior to arriving in Australia, Tony had written *Vegetables* – a practical reference book for gardeners that was published by the Royal Horticultural Society. Its ongoing popularity resulted in regular updates over succeeding decades.

His prolific writing continued in 1985, when he co-authored *Principles of Vegetable Crop Production*, published in the UK and distributed internationally.

Volunteering was in Tony's DNA. He was a strong believer in the Australian Society for Horticultural Science, as a founding member and president/co-president from 2000 to 2004. For many years, Cardinal Horticultural Services provided the Secretariat for the Australian Plant Propagation Association.

Tony would regularly address industry meetings and field days. He also undertook a number of volunteer projects in the Pacific and Asia, associated with communication and education.

Tony's service and contribution to Australian horticulture was justly recognised in 2004, when he was awarded the prestigious Graham Gregory Medal.

Potassium nitrate benefits on top dressing application in potato



Prilled potassium nitrate (12% N - 38.2% K) is a potassium source that provides rapidly absorbed nitrate-nitrogen, plant's preferred nitrogen source, with 2-4 mm prill size.

Prilled potassium nitrate (12% N - 38.2% K)

Prilled potassium nitrate provides the ideal N:K ratio for potato

After tuberization, potatoes start to accumulate starch in tubers, this process requires large amounts of potassium and nitrogen in comparison with the other nutrients:

CHARACTERISTICS	N	P	K	Ca	Mg	S	Mn	B	Zn
SIZE OF TUBERS	+	+	+		+		+	+	
NUMBER OF TUBERS		+	+						
STARCH			+		+			+	
SKIN QUALITY				+	+	+	+	+	+
STORAGE			+	+				+	

Nutrient	Removal of nutrients in kg/mt of fresh tubers
N	3,0 - 5,3
P	0,6 - 1,1
K	7,4 - 9,8
Ca	0,10 - 1,5
Mg	0,25 - 0,45
Zn	0,002 - 0,003

Nutrient removal by potato tubers and foliage, per ton of tuber produced

Prilled potassium nitrate contains exclusively nitrate nitrogen

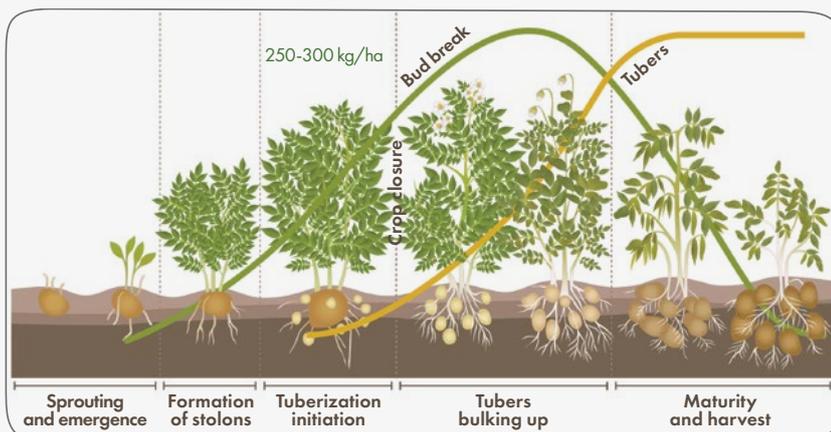
- Fast acting and readily soluble source of nitrogen, directly available for uptake by the roots, independent of the activity of nitrifying bacteria, resulting in faster uptake and greater efficiency for the plant.
- Promotes the uptake of potassium (K), calcium (Ca), magnesium (Mg), copper (Cu), iron (Fe), manganese (Mn) and zinc (Zn).

Prilled potassium nitrate is virtually free of chloride

- Increases dry matter and starch content, specific gravity of tubers and improve quality in processing and chipping potatoes.
- Yield and quality are negatively affected by chloride. Nitrate nitrogen (NO_3^-) acts antagonistically to chlorides (Cl^-) present in the soil or water.

Recommendation of use

- Apply prilled potassium nitrate at 250 to 300 kg / ha, as top dressing, at the beginning of tuberization period:



Proven benefits of prilled potassium nitrate in potato

- Total yield increase (tuber size and weight)
- Uniform % of commercial tubers (desirable size)
- Decrease darkening, hollow heart, scabies, blight and bruising
- Less reductive sugars in tubers = less coloration during frying
- Higher dry matter content
- Reduced weight loss during storage



AUSVEG National Public Affairs
Manager Tyson Cattle.

Australian Agriculture Visa announcement delights growers

AUSVEG – along with the rest of the agriculture and horticulture sector – has advocated strongly for the Australian Agriculture Visa for many years as it is a critical element to ensure growers can access a reliable and efficient workforce. While there is certainly still a lot of work to be done, and details to be worked through, there are already many commitments that will support Australia’s vegetable and potato industries. Tyson Cattle reports.

It’s great to get a commitment from the Federal Government – specifically a delivery date of 30 September for the regulations to enable the creation of the Australian Agriculture Visa (Ag Visa) to be put in place.

There had been various levels of commitment to the Ag Visa over many years, so it is great to have a deadline that government and the relevant departments are working towards.

The Ag Visa will initially target ASEAN countries; however, there will potentially be scope to have this expanded to other countries as it evolves.

While details are still to be finalised, the Ag Visa will likely be a four-year, multi-entry visa, with a potential to provide a permanent residency pathway for those who are willing to spend time in a regional area.

The visa will include some English language proficiency requirements and will cover all skill levels from unskilled, semi-skilled to skilled workers, complementing the existing Seasonal Worker Programme and Pacific Labour Scheme.

More details will become available in the coming weeks and months. However, there are some core-guiding principles that AUSVEG will continue to be led by.

Integrity

The integrity of the Ag Visa is the absolute number one priority.

The Federal Government, particularly the Nationals, have gone out on a limb to deliver this visa, which is normally outside of the remit for Australia’s immigration system.

That’s not to dismiss the need – the Ag Visa is certainly needed. However, because it is outside of Australia’s normal visa approach, it naturally brings with it additional pressure. That, mixed with previous reports of exploitation in the horticulture sector, means there will be additional scrutiny of the program.

The reality is the integrity of the visa needs to be the priority. A visa program such as this, which has taken years to develop, can be taken away in an instant.

The success of the Pacific Island programmes, which deliver a more productive workforce, has come largely on the back of the Approved Employer program.

A key element of being an Approved Employer is that a grower business must demonstrate that they are ‘fit and proper’ and meet a certain employer standard. Growers will need to demonstrate that they meet high workplace standards to be able to access workers under the Ag Visa.

Accessibility for growers

Growers should not shoulder a heavy administrative burden, or steep costs, to access workers under this visa.

High application costs to become a sponsor and excessive delays in processing times are issues with other visa pathways. Industry is committed to removing these barriers to entry for growers as much as possible.

If a grower can demonstrate they are ‘fit and proper’ in a reasonable way, then they should be able to access the programme.

Portability and mobility

Growers have said time and time again that portability and mobility of the workers between farms is a critical element that must be included in the visa, including the ability to easily move and transfer workers from farm to farm and from employer to employer.

This must be an efficient and effective process for both the employee and the employer’s benefit.

It is important for the employee, or visa holder, to move where the work is needed so they can maximise their earnings.

This approach will also support employers to respond to peaks and changes to their seasons – if a harvest period is shortened or extended due to climatic conditions, then it provides the employer with some flexibility to extend its engagement with the worker, and the worker an opportunity to stay or go and follow the work.

This is no doubt a challenge in the design – and it would be unique to the Ag Visa, but it is a critical feature for the visa to meet the needs of growers.

We will need to continue to work through a range of other parts of the visa with government, and there is still a long way to go.

However, the industry is in a strong position and, if delivered right, this visa has the ability to change the workforce makeup for the vegetable and potato sector for years to come.

Key visas for the vegetable and potato industries:

- **Working Holiday Maker program** – The 'backpacker visa' continues to be used widely in horticulture for picking and packing roles.
- **Seasonal Worker Programme** – The SWP allows Approved Employers access to low-skilled workers from the Pacific Islands
- **Pacific Labour Scheme** – The PLS allows access to workers from Pacific Islands low and semi-skilled roles for up to 3 years.
- **Horticulture Industry Labour Agreement** – Allows horticulture growers access to semi-skilled and skilled workers from anywhere in the world under 31 occupations. The HILA includes a range of concessions specific to the horticulture industry and has a pathway to permanent residency.

Pacific Island workers

The Prime Minister recently announced a commitment to Pacific Island nations to bring in a further 12,500 Pacific Island workers into Australia by March 2022.

Since the Seasonal Worker Programme restart in July 2020, Australia has brought in more than 10,000 seasonal workers, predominantly for the Horticulture and Meat Processing industries.

At the time of writing, quarantine pathways currently exist for in all states, except from Victoria, to bring in seasonal workers.

Growers are urged to lodge their harvest workforce needs through their SWP applications as soon as possible, or if they are not Approved Employers then they are encouraged to contact a labour hire contractor who is an Approved Employer to ensure they are given the best opportunity to access workers.

If you are not yet an Approved Employer, you are urged to reach out to your nearest Approved Employer labour hire business.

Introducing AUSVEG Policy Officer, Chloe Betts

I joined the AUSVEG team in July this year, working alongside Public Affairs Manager Tyson Cattle from our Melbourne office.

The first month in the role has been a steep learning curve as I have been getting my head around all the issues in the agricultural space. It has been insightful to learn what is happening and my passion for the sector has strengthened.

I recently graduated from the University of California, Berkeley after completing a major in Conservation and Resource Studies with a focus on Agroecology and Sustainable Food Systems. Learning about the problems in the United States has helped me to understand current issues in Australia.

In California, I worked on community farms and was lucky enough to work with professors who are helping to uncover and push for change in the food systems of the Americas.

Earlier this year, I worked at Gemtree Winery in South Australia as a cellar hand where I helped to press the 2021 Vintage. I also worked at the Black Cat Truffle Farm in Creswick – located in west-central Victoria – which was a unique and interesting experience.

I am excited to bring my unique perspective and experiences to this position and help to advocate for positive change on behalf of the Australian vegetable and potato industries.

I hope to be able to meet growers when I can and hear about their experiences. In the meantime, please feel free to contact me by emailing chloe.betts@ausveg.com.au.



AUSVEG's new policy officer, Chloe Betts.

Find out more

Please contact AUSVEG National Public Affairs Manager Tyson Cattle on 03 9882 0277 or email tyson.cattle@ausveg.com.au. Further details can be found at ausveg.com.au/ausveg-advocacy.



Nathan Richardson
Tasmanian Farmers and
Graziers Association
Vegetable Council Chair

56a Charles St
Launceston TAS 7250
Phone: 03 6332 1800
Website: tfga.com.au

Tasmanian Farmers and Graziers Association

Rising input costs, increased land prices, worker shortages and COVID-19 have all been significant contributors to the issues faced by Tasmanian potato growers over the past year. Regardless of this, both Tasmanian Farmers and Graziers Association Potato Committees have recently completed price negotiations with the state's major processors, McCain Foods and Simplot Australia, with favourable outcomes for growers.

I would like to congratulate all of the Committee members, as well as the Chair of the TFGA McCain Potato Committee, Beau Gooch, and Chair of the TFGA Simplot Potato Committee, Trevor Hall,

for achieving outstanding results for growers.

The outcomes achieved by these committees are not limited to just price increases, but also changes to contract terms that greatly benefit growers and their farming operations as a whole. These outcomes show that this type of representation is absolutely crucial and those willing to step up on behalf of our industry are to be commended.

The TFGA encourages any grower considering taking on a role within one of the many commodity councils and committees to put their hand up and have a go.



Jordan Brooke-Barnett
AUSVEG SA
Chief Executive Officer

South Australian Produce Markets
Burma Road
Pooraka, SA 5095
Phone: 08 8221 5220

AUSVEG SA

AUSVEG SA continues to advocate on behalf of South Australian growers. It has been a challenging time for the industry – marked by further lockdowns, supply and workforce management challenges – and a key national inquiry into the future of piece-rates in our sector.

AUSVEG SA is working with AUSVEG and other state counterparts to press for immediate action on the Agriculture Visa that was recently announced by the Federal Government. This proposed visa was announced following the United Kingdom FTA agreement and concerns that requirements for backpackers to work in regional areas would be scrapped under this agreement.

As an alternative, Federal Agriculture Minister David Littleproud announced the intention to develop a dedicated Agriculture Visa geared towards countries in the Asia-Pacific to supplement the loss of this workforce due to the COVID-19 pandemic. AUSVEG SA and its national and state counterparts are concerned about the lack of progress on development of the visa since it was announced, and are working with national bodies to keep pressure applied on this critical issue.

AUSVEG SA is watching current Fair Work Commission hearings regarding the validity and application of piece-rates in horticulture. The national cases to the commission on behalf of horticulture are being led by the Australian Fresh Produce Alliance and the

National Farmers Federation.

Piece rates are a valuable productivity tool for growers across Australian horticulture; however, their applicability is under attack from unions concerned about instances of underpayment of workers. The findings of the Fair Work Commission will have implications for whether piece-rates will be able to be used and if so, under what conditions for the future. AUSVEG SA will update members once findings are handed down in the coming months.

In other news, AUSVEG SA hosted a parliamentary committee investigating stormwater management responses across the state. The committee featured key figures including The Hon. David Ridgway MLC, Terry Stephens MLC, Frank Pangallo MLC and Justin Hanson MLC.

The committee met with a number of key landholders in the Northern Adelaide Plains and will be presenting a report to parliament recommending immediate action on the cleaning of the Gawler River catchment. There will also be a critique of the lack of action in the spending and allocation of \$9 million towards river cleaning, along with a lack of movement in developing a long-term solution to protect landholders.

AUSVEG SA will continue to campaign on this issue on behalf of the Northern Adelaide Plains community, and hopes to see site works and river cleaning commence as soon as possible.

HEALTHY FIELDS, HEALTHY YIELDS.

STRIKE formulations are chloropicrin based pre-plant fumigants used to effectively manage soil borne pathogens in a variety of crops. **STRIKE** works to control disease while it promotes the growth of beneficial microorganisms such as Trichoderma and Mychorrizae.

Strike Controls:

- ▼ Fusarium
- ▼ Common Scab
- ▼ Verticillium
- ▼ Phytophthora
- ▼ Rhizoctonia
- ▼ Pythium
- ▼ Colloctotricum
- ▼ Nematodes

STRIKE™



trical.com.au



UNTREATED



TREATED



Potato Growers Association
of Western Australia Inc

Simon Moltoni
WA Potatoes
Chief Executive Officer

103 Outram Street
West Perth WA 6005
Phone: 08 9481 0834
Mobile: 0447 141 752
Email: simon@wapotatoes.com.au
Website: todatoes.com.au

WA Potatoes

The rain has continued with Western Australia recording the wettest July rainfall totals on record. Challenges for both planting and harvesting have been significant, with growers making every break in the weather count in order to meet supply. Despite the wet winter, there has not been widespread wind, hail or frost damage. We hope this continues to be the case.

The risk of a COVID incursion is looming on the horizon as we observe the situation on the east coast and wish all our fellow growers well in difficult circumstances. In Western Australia, our industry continues to consider how future lockdowns and

restrictions will impact businesses, using our fortunate situation to prepare for any challenges that may come.

Labour availability continues to be the major concern. With the recent UK/Australia free trade agreement there will be less demand for UK backpackers to spend time working in the regions. Some of this future shortfall will be addressed by the new working visa proposal for ASEAN countries. The recent announcement by Federal Agriculture Minister David Littleproud is very positive but it will take some planning and resources to develop this new opportunity into a reliable ongoing labour source.



Tim Withers
AUSVEG VIC
Executive Officer

3 Glenarm Road
Glen Iris, VIC 3146
Phone: 03 9882 0277
Email: info@ausvegvic.com.au
Website: ausvegvic.com.au

AUSVEG VIC

It was extremely pleasing to see Victorians receive four awards at the 2021 National Awards for Excellence, which were held in June at the Brisbane Convention and Exhibition Centre.

Catherine Velisha took home the Boomaroo Nurseries Women in Horticulture Award; Xavier Toohey picked up the Corteva Agriscience Young Grower of the Year award; East Gippsland Vegetable Innovation Days received the VISY Industry Impact Award; and Mark and Darren Todaro were recognised with the Butler Market Gardens Environmental and Sustainability Award. Congratulations to all Victorian winners and nominees this year.

Meanwhile, labour continues to be a priority. AUSVEG VIC – along with other horticulture industry associations – has been in talks with Agriculture Victoria and the state's Agriculture Minister, the Hon. Mary-Anne Thomas, regarding the workforce shortages that growing operations continue to face. The announcement on 7 September 2021 to extend the quarantine pathway with Tasmania to allow up to 1,500 workers from the Pacific Islands as part of the Seasonal Worker Programme and Pacific Labour Scheme will provide many Victorian growers with confidence for this season's peak harvest period.

AUSVEG VIC is also in discussions with

Ballarat growers in relation to the proposed Western Victorian Transmission Network Project that will directly affect around 45 potato growing businesses.

AUSVEG VIC met with the Ballarat Potato Council in July to discuss the project and the imminent threat it poses to potato growers, the community and Australia's supply of processing potatoes. Working with the Victorian Farmers Federation, AUSVEG VIC – in conjunction with AUSVEG – will consult with relevant government stakeholders to ensure growers' voices are heard, and the direct and indirect costs on the community are appropriately considered when determining the next phases of the project. I would like to thank AUSVEG for its support during these initial discussions.

Finally, AUSVEG VIC has been awarded the Seasonal Industry Support Program project delivery for filming and communicating six COVID-Safe videos. These videos will target seasonal workers, and drive adoption of COVID-Safe practices along with improving industry perception. They will also be translated to the workers' native languages to ensure these practices are clearly communicated. Through collaboration with key local councils across Victoria and two-way consultation with labour hire companies, the videos will be promoted to Victorian horticulture businesses and its workers.



VGA trading as AUSVEG VIC

RIZOLEX[®] FUNGICIDE

IN FURRO



Give *Rhizoctonia* a blast from the past

Proven performance you can still count on
Group 14 fungicide for resistance management
Convenient easy to use liquid formulation

 **SUMITOMO CHEMICAL**
AgroSolutions Division

www.sumitomo-chem.com.au

© Registered trademark of Sumitomo Chemical Co Limited, Japan.



Image 1. A potato plant infected with PSTVd (middle) next to two healthy plants. Typical aboveground plant material symptoms of PSTVd infection. Image courtesy of R.P. Singh, Bugwood.org.

Disease profile: Potato Spindle Tuber Viroid

The potato spindle tuber viroid has a wide crop and weed host range, is easily transmitted between plants, and can infect plants mildly or more severely, making it difficult to detect symptoms. This disease is a serious risk to Australian potato production and stands as a reminder of the importance of good farm hygiene.

In this issue of *Potatoes Australia*, AUSVEG discusses disease spread and biology and the importance of remaining vigilant and practicing good farm biosecurity.

Potato spindle tuber viroid (PSTVd) is caused by a small infectious 'virus-like' pathogen that takes over the plant cell machinery.

Plant hosts

PSTVd has a significant host range, with the main concerning crop hosts being potato, tomato, capsicum and eggplant, as well as a variety of solanaceous ornamentals (e.g. chrysanthemum, petunia). Some weeds are also hosts. Symptom-less infections are common in ornamentals and weeds, but this has also been observed in avocado and sweet potato.

International distribution

PSTVd was first detected in potatoes in North America in 1925 and since then the disease has been reported in Asia, Africa, North America, South America, Europe, New Zealand and Australia.

Outbreaks of PSTVd first occurred in Australia in 1908 in potato germplasm collections from New South Wales, Victoria and South Australia, but were successfully eradicated. Since the 1990's, the disease has been detected in chilli and tomato crops in South Australia, Queensland, New South Wales and Victoria. It is also present in Carnarvon, but not in other parts of Western

Australia. All other Australian states have implemented successful eradication programs and are considered free from the disease.

Symptoms

PSTVd can be difficult to detect in potato crops as the disease can present a range of mild or severe symptoms, which are further influenced by host species and plant stage of development. Nonetheless, PSTVd can reduce potato yields by 10 to 60 per cent, depending on the severity of the symptoms.

In **severe cases**, aboveground parts of plants show disease symptoms. These symptoms include upright stems as opposed to healthy plants with horizontal stems (see Image 1), increased stem distance between leaves (internode length), and thinner stems. Leaflets are smaller in size, with leaf surfaces twisting or wrinkling. In severe cases, tubers are often smaller, elongated with pointed ends (spindle-shaped), have cracked surfaces and some eyes may develop knobs that develop into small tubers (see Images 2 and 3).

In **mild cases**, the aboveground parts of the plant appear similar to plants with nutrient imbalances, spray damage, insect damage or other diseases (e.g. true viruses such as Potato virus Y). Tubers are not obviously elongated or small.

Disease severity and symptoms can



Image 2. PSTVd symptoms on potato tubers. An uninfected tuber (left) and two spindle-like PSTVd infected tubers (right).
 Courtesy of National Plant Protection Organization, the Netherlands, Bugwood.org.



Image 3. PSTVd tuber symptoms – reduced size and yield of infected potato tubers (left) compared to healthy tubers (right).

worsen in warm and high light conditions and will increase with each generation.

Domestic trade impacts

PSTVd is a notifiable plant disease and controlled movement of seed potatoes is used to mitigate the risks of spreading the disease further. Victoria, New South Wales and South Australia have adopted practices of controlled movement of potato propagative material into seed potato protected areas. Only plant material either under a certification scheme or grown in an area of freedom from PSTVd can be moved into these seed potato protected areas.

Disease spread

PSTVd is highly contagious. It is mainly spread via:

1. Contact with infected plant material.
2. Infected tubers and other vegetatively propagated material, true botanical seeds or pollen.
3. Aphids (though this is rare).
 Infected plant material, as well as equipment, tools, people, clothing and shoes that have come in contact with infected plant material can act as permanent sources of disease.

This is the most likely method of transmission in Australia.

Low rates of transmission through aphids have been observed. In New Zealand, the aphid species *Myzus persicae* can carry PSTVd to new plants only when the original plant is also infected with potato leafroll virus (PLRV).

Australia’s biosecurity continuum

Australia has strict pre- and post-border import conditions for nursery stock to limit introducing harmful plant pests and diseases (including PSTVd) to Australia. However, everyone – from importers and growers to the general public – has a role to play in Australia’s biosecurity system. It is important to remain vigilant and practice good farm hygiene to reduce the risk of introducing this disease to your property.

Disease management:

Practicing good farm hygiene is the most effective management against PSTVd. There are several biosecurity practices that you can implement to reduce the likelihood of introducing PSTVd onto your property:

- Ensure you are buying seed potatoes from reputable suppliers that are certified free of PSTVd.
- Ensure there is traceability on any seed supplies purchased and used.
- Regularly clean and sanitise equipment, tools, clothes, and boots, especially if cutting seed.
- Control insects, especially aphids and chewing insects.
- Inspect and remove diseased plants.
- Monitor your crop carefully and regularly.

Find out more R&D

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

For further information, please contact the AUSVEG Extension & Engagement Team on 03 9882 0277 or email science@ausveg.com.au. The Farm Biosecurity Program is funded by the Plant Health Levy.



Nicole Stevens.

Nicole Stevens: A rising potato industry star

Nicole Stevens travelled to Australia from the United Kingdom after completing her science and tourism management studies. Her career pathway has now diverted in horticulture, where she has risen through the ranks to become the South Australian Potato Company's Farm Manager at its Parilla operation. Sophie Burge and Michelle De'Lisle report.

The South Australian Potato Company is a family-owned enterprise that has three farms spanning across the Mallee region and north of Adelaide in Virginia. The operation has a team of 120 passionate staff that grow, pack and market approximately 60,000 tonnes of fresh potatoes farm every year for Australian and international consumers.

At the coalface of the Parilla operation is Nicole Stevens – who, at just 28 years of age, is the Farm Manager. Nicole's work is varied: she manages the farm's irrigation system and oversees a team of 10 staff, and their collective duties include spraying, planting, harvesting, fertiliser spraying and maintenance.

Nicole's journey into horticulture hasn't been straightforward. A few years ago, she was working in hospitality, having studied a Bachelor of Science with Honours in Tourism Management at Sheffield Hallam University in the United Kingdom.

Nicole then decided to come to Australia and travel around, like a lot of young British backpackers in their early 20s. She arrived in Pinnaroo to complete

88 days of farm work in order to earn an extra year on her Australian Working Holiday Visa.

"I was on a farm near the South Australian Potato Company in Pinnaroo, grading on the back of a potato harvester. I then went on to learn how to drive tractors and various other machinery," Nicole explains.

"When I came to the South Australian Potato Company, I started off as the Planter Operator. From then on, I started taking on further irrigation duties and maintenance and then that's when I became an Assistant Manager. After six months, I naturally progressed into becoming the Farm Manager of the Parilla farm."

Nicole certainly isn't moving back to the UK anytime soon. In May this year, she was granted her Australian Permanent Residency and has settled in Pinnaroo, a 15-minute drive from the Parilla farm.

"I have fallen in love with the whole industry, and now I don't want to leave. I wake up every morning and I can't wait to go to work. Every day is different and a

challenge, but it's what you make it. If you want to progress and perform, it's a great industry to do it in," Nicole says.

"I also enjoy the growing and learning about plants and their different needs. Every potato requires different growing practices. There's a lot more to growing potatoes than what people think."

Tackling on-farm issues

Like all horticultural growers, the weather is a major focus for Nicole and her team at the South Australian Potato Company.

"Potatoes don't cope well with the heat and the wind, which plays a big factor in how we can grow them," Nicole says.

"We have to make sure that we are watering the pivots sufficiently enough to tackle these challenges."

Another issue is on-farm labour, and finding workers who want to come to the country and learn new skills.

"Although we offer on-site training, some people are not used to it and feel like they are too isolated. Unfortunately, with everything being so competitive



right due to the COVID-19 restrictions, everyone's in the same boat," Nicole says.

"We are all struggling to find workers available to come out here. But we take the challenge as it is, and we've now gone through training people that we currently have to do those different roles, such as grading. Utilising the people who we already have helps to overcome the challenge."

Keeping abreast of potato R&D is also helpful in combating pest and disease challenges.

"As the South Australian Potato Company, we're always looking to make sure we keep up-to-date with any new pests and diseases that might be coming or are already in the area," Nicole says.

"It's important that we use our agronomist once a week to keep on top of these."

Championing education

Nicole says the South Australian Potato Company has been very supportive of the training opportunities that have been provided to her.

"I obtained a business management degree and have undertaken an agronomy course, which has been key component moving forward with a vertically integrated agriculture business," she says.

"The company put me through an intense mentoring program that provided me with a high level of learning and professional guidance to become a

successful grower within the potato industry.

"Although I studied at university, I didn't need any specific qualifications or degrees to for this role – training was provided on-the-job as well as extra courses such as chemical certificates, forklift licence and truck licences."

"We're a big advocate for making sure everyone has the right licences and training to truly undertake the job role safely.

Nicole wants to erase any common misconceptions about the horticulture industry.

"Some people want to come out and work on farms but don't because they think it's bad pay or poor labour. Fortunately, that's not the case here in this area," Nicole says.

"Everyone who comes here is treated well."

Generation next

Attracting school-leavers and young adults into the horticulture industry can be difficult, but Nicole shares the positives of working on a potato farm.

"Although being a farm manager is a high-pressure role, you have a lot of flexibility and a good work-life balance. We're in a nice community around here and everyone socialises; it's not just work and living on the farm 24/7," she says.

"Our seasons are very different. In the summer, we could be working a lot harder

and then come winter we have a bit more of a break, and we take that time back. We take the time to catch up on little things and the pressure is not as high.

"The advice I'd give to the younger generation would be: if you're looking at getting into the industry, contact local farms or industries or packing sheds and see whether you can pick up some extra work to gain that experience, even if you just want weekend or after-school work. If you want to pursue a career later in life, at least you have a little bit of experience, and it also helps to find out what it is you're interested in within the industry."

Looking ahead

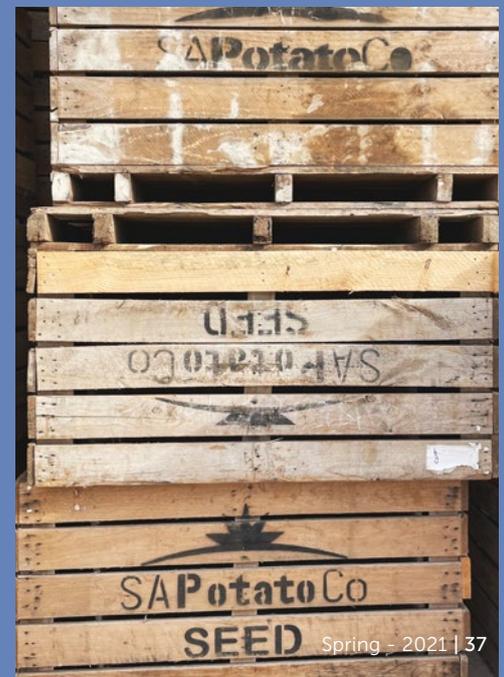
Nicole is proud of her journey so far and the position she finds herself in today. Her contribution to the industry was acknowledged at the 2021 National Awards of Excellence, where she was nominated for the Boomaroo Women in Horticulture awards.

"I'm proud of the year and the growing season that I've had. I've overcome challenges and have managed to learn how to one day become one of the best in my field," Nicole says.

"Hopefully in the next five to 10 years, I've taken that next step forward in my career by becoming a Farm Operations Manager."

Acknowledgements

Nicole Stevens has been interviewed by AUSVEG for a video as part of its *Harvest Trail Industry Service Collaboration* project.





New humic acid product has the potential to kick start your soil health

As potato growing expenses increase it is important to maximise the efficiency of applied fertiliser and reduce potential tie-ups. One way to do this is to use a humic acid.

Nutrient availability is important for healthy plant growth in potato production. Nutrient imbalance – either too much or too little – prevents the plants reaching their full productive potential and can lead to crops being more susceptible to disease. The solution is to use soil testing to understand the soil's nutrient reserves. With this information, fertiliser programs can be adjusted to better match fertiliser supply to crop demand.

Using humic acids

Humic acids are a concentrated mixture of organic materials, millions of years in the making. Humic acids can have beneficial effects on soil functions such as improved biological activity, nutrient activity, cation exchange capacity, pH buffering, carbon sequestration, water infiltration and plant biomass. This in turn improves soil health.

Introducing Trigger

When selecting a humic, it is critical to understand its source and any other additives. Trigger™ is specifically selected to contain a peak concentration of humic acids available from high-quality ore sources.

One of the most highly functional sources of humic acids on the market

can be found in the product exclusive to Incitec Pivot Fertiliser. It is an engineered humic granule containing a high concentration of potent humic acids and consists of plant-active biostimulatory compounds that have a positive impact on both soil and plant health.

The active ingredients have been proven in the field for over 30 years, providing growers with potential improvements in return-on-investment.

Trigger is designed to provide the agronomic benefits of humic acids when combined with the fast-acting characteristics of applied fertilisers. It dissolves in-concert with applied fertilisers and may prevent phosphate tie-up with ions such as calcium, aluminium, or magnesium.

Its uniform size and shape, combined with its engineered low-dust attributes, make it a perfect blending partner for fertiliser blends. The tight 2.4-2.6 millimetre specification and consistent spherical shape integrate well, allowing for consistent coverage in both broadcast or in-furrow applications.

Trigger's low-dust formulation virtually eliminates caking or bridging that can lead to application issues in the field. Its engineered aspects allow it to go where no dry humic products have been able to go before. Whether it is broadcast from

an aeroplane or ground equipment, or precision applied through an airseeder, its high-strength, low-dust formulation can withstand the rigors of modern application equipment, allowing growers to focus on the crop, and not the clean up.

In a comprehensive three-year potato experiment in Idaho, results presented increased petiole P uptake and tuber size. Early commercial trials of the granule product have delivered similar results in Australia.

Incitec Pivot Fertilisers' Trigger is the ideal solution to improve soil health, drive nutrient availability and assimilation and deliver the highest quality and yield in potatoes.

However, not all humates are the same. To understand the difference, please speak to your local Incitec Pivot Fertilisers representative. You can also arrange soil testing today through the Nutrient Advantage® laboratory for a complete picture of nutrients available to your crop and the balance of these nutrients.

Find out more

Please visit ipfhorticulture.com.au.

What AUSVEG does for the potato industry

AUSVEG is the peak industry body for Australia's potato growers. Since COVID-19 emerged in 2020, just as growers have laboured to ensure Australian families are fed and healthy during the pandemic, AUSVEG has worked tirelessly behind the scenes to advocate to all levels of government and deliver services to benefit potato growers around Australia. AUSVEG National Manager – Communications Shaun Lindhe details the work that AUSVEG does for potato growers and what this has delivered to potato growers during the pandemic.

Advocacy, government relations & public affairs

Speaking up for growers and the wider industry

AUSVEG has strong ties to Federal Government ministers and advisors and relevant department officials in Foreign Affairs, Agriculture, Trade, Immigration, Jobs and Employment, as well as labour hire providers and key industry stakeholders.

The most important of these issues currently is the cost and availability of labour, which AUSVEG's dedicated public affairs team is addressing in three ways:

- 1. Increasing labour supply:** AUSVEG works with the Federal Government to modify visa settings to improve access to international labour, and portraying a positive image of the work and career opportunities that exist in horticulture.
- 2. Ensuring ethical employment practices:** AUSVEG promotes programs such as Fair Farms to ensure employees have positive, safe, fulfilling experiences working in horticulture.
- 3. Ensuring the supply chain applies appropriate ethical sourcing standards:** so that the growers who do the right thing are not undercut by those that do not.

Recent outcomes for potato growers?

- Held direct meetings with numerous politicians to advocate for potato growers, including Deputy Prime Minister Barnaby Joyce MP, Agriculture Minister David Littleproud MP, Michael

McCormack MP, Darren Chester MP, Scott Buchholz MP, Nola Marino MP, Senator Michaelia Cash, Alan Tudge MP, Damian Drum MP, Anne Webster MP, Senator Raff Ciccone, Senator Susan McDonald.

- Strongly advocated for the Agriculture Visa and the Horticulture Industry Labour Agreement to ensure businesses have access to skilled, semi-skilled and unskilled workers.
- Ensure potato growers' interests are included by the National Farmers' Federation through its Horticulture Council, which is managed by AUSVEG National Manager – Public Affairs Tyson Cattle.
- Liaised with the Department of Foreign Affairs and Trade, the World Trade Organization and potato processors to warn of potential flooding of potato imports from Europe during 2020.
- Working with local Ballarat growers, State Member AUSVEG VIC and the Victorian Farmers Federation to advocate for further planning of alternative options for the Western Victoria Transmission Network Project, which would impact pristine potato growing land.
- Liaising with State Members and potato industry members on upcoming Federal Election policy platform to ensure potato growers' issues are included.

Industry representation & levy oversight

Making growers' voices heard and ensuring their levies are invested well

AUSVEG provides policy advice and oversight of levies expenditure via representation at key decision-making forums.

Recent outcomes for potato growers?

Over the last 18 months, AUSVEG has been involved in recent meetings of the following:

- Hort Innovation Potato Strategic Investment Advisory Panels, that direct the investment of levies based on industry priorities.
- EPPRD's National Management Group and Consultative Committees, which oversee and manage the country's response to new pest and disease incursions.
- The Standards Development Advisory Group of Food Safety Australia and New Zealand (FSANZ).
- Federal Government forums and committees, including the Healthy Food Partnership.
- Forums for government regulators, including the Australian Competition and Consumer Commission.
- Industry and government Trade Advisory Panels.
- Industry reference groups for key industry projects and investments.



Bringing the industry together

Delivering Hort Connections, the national industry event

AUSVEG is the co-host (with PMA A-NZ) of Hort Connections, the largest national horticulture industry event, which brings together growers, suppliers, marketers, buyers, researchers and government to network and address key industry opportunities.

Recent outcomes for potato growers?

- Hosted Hort Connections 2021, which attracted 2200 delegates in-person, despite then-Victorian lockdowns, and included a dedicated potato grower networking event.

Campaigns & communications

Speaking to growers and the community

AUSVEG has a long history of providing successful and effective communications, publishing magazines, directly engaging with journalists and sending industry-focused newsletters to update growers on the issues that are important to them.

Recent outcomes for potato growers?

- AUSVEG resumed publication of the *Potatoes Australia* magazine during 2021, which not only includes industry news and grower profiles, but facilitates the hard copy communication of *PotatoLink*, the levy-funded research communications project funded by Hort Innovation.
- Since March 2020, AUSVEG has distributed over 100 newsletter and advocacy updates directly to growers and industry.

Export development & trade advice

Building export capability and developing international markets

AUSVEG employs a team of international trade experts who provide tailored resources, practical advice on the exporting process for fresh produce and

market development strategies. The team works with exporters in Australia and in-market customers to provide businesses with the skills, know-how and networks to supply international markets with high-quality fresh produce.

AUSVEG's exporting expertise includes, but is not limited to:

- Export readiness training and capability development.
- Industry and business export development assistance.
- Market entry strategies and advice.
- Showcasing at international trade shows.
- Designing and delivering in-market knowledge sharing and networking tours for exporting businesses.
- International buyer engagement and supplier linkages.
- Trade barrier and technical market access advice.
- Market insights, data and analysis.
- Government engagement and industry representation.

Recent outcomes for potato growers?

- Advocated for potato growers in recent trade negotiations, including IA-CEPA.
- Advocated growers' concerns directly to Federal Trade Minister Dan Tehan, Austrade and the Department of Foreign Affairs and Trade on issues including sea- and air-freight costs, input costs and the impacts of COVID on international trade.
- Undertaken a leadership role to liaise directly with the International Freight Assistance Mechanism (IFAM) team to provide assistance for potato and vegetable growers during COVID.

Grower engagement & extension activities

Working with growers to improve productivity and profitability

AUSVEG has extensive experience in delivering practical, informative and contemporary activities to build knowledge and awareness of relevant and productive business practices, production methods and research to help improve business productivity and profitability.

Recent outcomes for potato growers?

- Delivered webinars on topics of importance to potato growers, including serpentine leafminer, the

international trade landscape and fall armyworm.

- Delivered on-the-ground extension for biosecurity preparedness for potato growers.
- Delivered agriculture industry-wide extension for the pest surveillance project iMapPESTS, which is working with potato growers to develop smart surveillance and cutting-edge diagnostic technologies.

Biosecurity awareness & preparedness

Protecting vegetable growing businesses from pests and diseases.

Biosecurity planning

AUSVEG has a dedicated team of industry-leading biosecurity experts who develop and help implement biosecurity plans for potato growing businesses to help protect their farms from the spread of damaging pests and diseases. AUSVEG is involved in many biosecurity projects that focus on increasing growers' capacity to adopt biosecurity best-practice on-farm.

Grower representation

AUSVEG represents the interests of growers on biosecurity matter as a signatory to the Emergency Plant Pest Response Deed (EPPRD). This is the agreement between governments and industry that defines how new pest incursions are managed and how the costs of treating such incursions will be shared. Without this agreement, the full impact of the arrival of new pests and diseases would land squarely on growers.

Recent outcomes for potato growers?

- Held 23 virtual and hybrid-model workshops on pests of importance to potato growers, including serpentine leafminer, fall armyworm, and American serpentine leafminer.
- Represented growers' interests on the Consultative Committee for Emergency Plant Pests on incursions of significant concern, including tomato-potato psyllid, serpentine leafminer, fall armyworm, and American serpentine leafminer.
- Promoted biosecurity best-practice to growers at workshops, via webinars and

- through one-on-one consultations.
- Liaised with Plant Health Australia and Hort Innovation to advise on biosecurity-related investments to protect Australia's potato growers from harmful pests and diseases.

Environmental awareness & stewardship

Helping vegetable growers protect the environment

AUSVEG employs experts in environmental stewardship and best-practice to provide vegetable growers with information about how they can improve their environmental management and increase the sustainability of their production businesses.

AUSVEG manages EnviroVeg, which is an industry-led environmental best-practice management program for vegetable production businesses that provides resources for sustainable growing techniques and represents vegetable businesses as responsible

stewards of land, water and biodiversity.

Recent outcome for potato growers?

- Potato producers, who also grow vegetables, are involved in EnviroVeg, delivered by AUSVEG and funded using the Hort Innovation Vegetable Fund.
- AUSVEG is in ongoing discussions with Hort Innovation around how to include more potato growers in the EnviroVeg program.

Pest & disease identification, management & control expertise

Keeping produce free from pests and diseases

AUSVEG has a detailed understanding of the pests and diseases that impact the potato industry, as well as the chemical and integrated pest management options to control any outbreaks.

AUSVEG works with growing businesses to develop and implement plans to prevent the spread of pests and diseases, as well as research organisations,

agronomists, chemical companies and others in the supply chain to increase the capacity of the vegetable industry to manage pests and diseases.

AUSVEG is involved in government and industry forums that ensure decisions around pest, disease and management options are informed with the 'on-the-ground' experiences of growers and that government and industry investment is directed in the most relevant areas.

Recent outcomes for potato growers?

- AUSVEG has been involved in recent EPPRD forums and committees on behalf of potato growers.
- AUSVEG has worked with industry organisations and commercial companies over the last 18 months to ensure that potato growers' concerns are addressed through the latest innovations, products and technologies.
- Provides ongoing feedback to government departments on matters relating to pest management and border protection, including recent pest incursions.



Trilogy 631

A UNIQUE BLEND OF THREE REFINED NATURAL SOIL & PLANT BENEFICIAL COMPOUNDS

OUR NEW 3 IN 1 DRUM!

Seasol Trilogy 631 is formulated to boost natural soil ecosystem and plant growth processes.

Trilogy is manufactured by combining three key natural extracts:

60% Seasol Liquid Seaweed extract

- Root growth
- Stress protection

30% Powerfish Liquid Fish extract

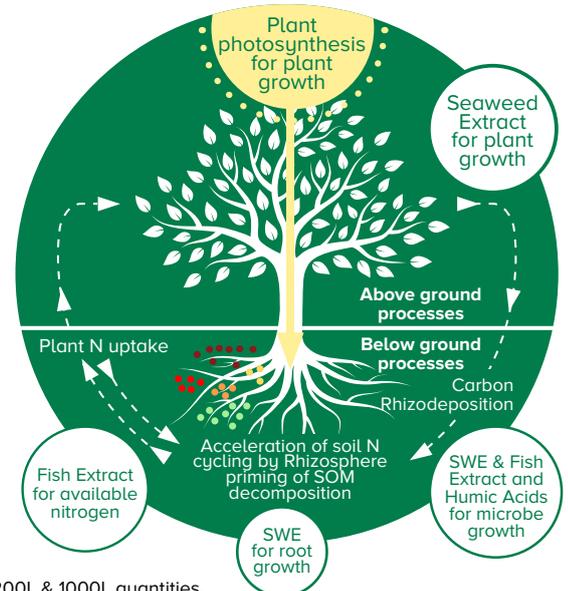
- Proteins, amino acids for soil & plant
- Natural source of nutrition

10% Liquid Organic Humate extract

- Microbial activity
- Water & nutrient holding



Seasol Trilogy 631 For priming the photosynthesis carbon pathway



Whatever your requirements, we now have sizes to suit your needs. Seasol Trilogy 631 is available in 20L, 200L & 1000L quantities.

John Hocking
National Sales Manager
0408 455 948
johnhocking@seasol.com.au



For more information, please go to www.seasol.com.au or call your local area sales manager on 1800 335 508

