

| September/October - 2018 |

# vegetables

australia



| JAKE SHADBOLT - YOUNG GROWER PROFILE | FOOD SAFETY - HOW SAFE ARE YOUR SOILS? |  
| VEGNET - MEET TWO OF THE VEGETABLE INDUSTRY'S EXTENSION OFFICERS |



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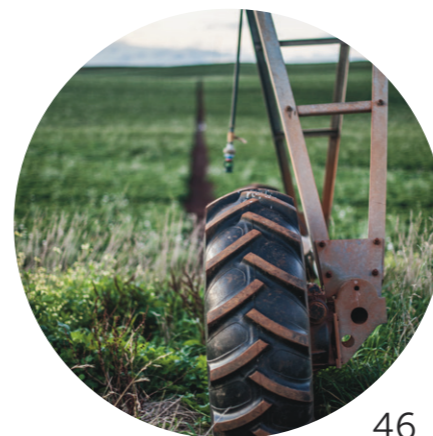
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## EDITORIAL

Given the limited capacity for Australia's vegetable industry to expand on a domestic scale, it is imperative to explore the opportunities to send our high-quality produce to international markets where consumer demand for Australian vegetables is burgeoning.

Our country is lucky in the sense that we have a range of free trade deals in place to increase market access, get quality Australian produce on international plates and ultimately strengthen our industry.

While Indonesia may be the destination of choice for many Aussie tourists, it is also climbing up the ladder of important export markets for Australian agriculture. In early September, Prime Minister Scott Morrison and Trade Minister Simon Birmingham announced the finalisation of the Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA) alongside Indonesian President Joko Widodo.

While the IA-CEPA improves market access for Australian agriculture, carrots and potatoes stand out as two vegetable commodities that will benefit from the freshly-inked deal, with both receiving immediate tariff cuts. Indonesia will increase its import quota of Australian carrots to 5,000 tonnes per year, growing to 10,000 tonnes per year after a decade. Meanwhile, the import quota of potatoes will increase to 10,000 tonnes per year, growing to 12,500 tonnes per year after five years.

This free trade deal reflects Indonesia's status as Australia's fourth most important agriculture market and our 13th largest trading partner overall. In the veggie space, Australian vegetable exports to Indonesia were valued at \$3.7 million in the 2017-18 financial year, with potatoes accounting for nearly half of this total.

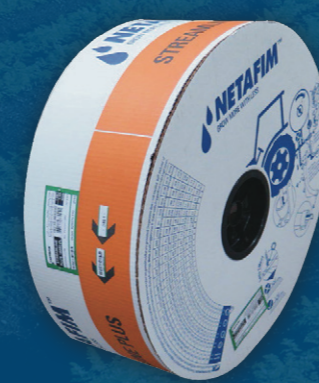
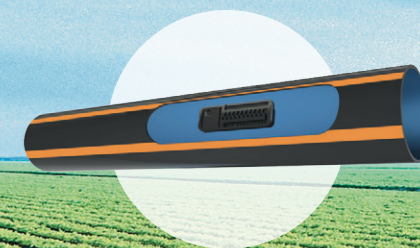
The finalisation of this deal is timely, given the vegetable industry's increased activities in market development and improving growers' export readiness. It will also undoubtedly play a role in helping to boost the value of Australian vegetable exports by 40 per cent to \$315 million per year by 2020.

As we were putting the finishing touches on this edition, a delegation of Australian vegetable growers were in the midst of showcasing their fresh produce at Asia Fruit Logistica in Hong Kong as part of Hort Innovation's Taste Australia initiative. This is just one of many opportunities that vegetable growers can take advantage of if they are interested in learning more about export and how it can play a lucrative role in diversifying their business.

Whether you just want to know more about the export process or are ready to take the next step to sending your produce overseas, there are plenty of practical resources and training opportunities that are tailor-made to assist vegetable growers looking to export. Please contact AUSVEG's national Export Development team at export@ausveg.com.au or 03 9882 0277 to find out more.

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There are many challenges that vegetable growers face on a daily basis: the threat of pests and diseases impacting their crops; sourcing workers; fluctuating returns on their produce; and more.

However, ask almost any grower about one of their most persistent challenges and they'll often say "the weather". This is particularly true at the moment with dry conditions all around Australia, and New South Wales declared to be 100 per cent in drought.

There is no doubt that drought takes a heavy emotional and economic toll on farmers and growers – it doesn't just hit their hip pocket; these tough climatic conditions have a physical and mental effect on those living on the land, with many forced to reduce their crop plantings or give up their stock due to lack of feed.

In my region of East Gippsland in Victoria, we have the added complexity of a 'green drought' where the land is tinged with green and may appear well-watered to the untrained eye. However, looks can be deceiving, and that is certainly not the case beneath the surface.

Despite these concerns, farmers and growers prove to be very resilient. Even though we are in a severe drought, the horticulture sector is continuing to produce high-quality produce for local and international markets. It will be a tough road ahead for all of us, but AUSVEG will continue to support any government initiatives, industry plans and R&D projects that provide the tools to assist farmers to manage the changing climatic conditions into the future.

As the peak industry body representing Australia's vegetable and potato growers, AUSVEG plays an important role in identifying key issues affecting growers and advocating on their behalf. This year, we set out to increase our advocacy activities with the appointment of Tyson Cattle to the role of AUSVEG National Manager – Public Affairs.

Tyson's focus has been on building strong, fact-based cases that AUSVEG can take to government and other stakeholders to advance the issues that are impeding the growth and prosperity of growers (see page 14 for more information).

Since his appointment, Tyson has hit the ground running by visiting growers around the country and listening to their concerns, particularly in the labour space, as well as meeting with key stakeholders to address the issues affecting our industry. Labour continues to be a key priority in horticulture, and we are working with the National Farmers' Federation (NFF) Horticulture Council to address the issue. I encourage any growers to get in touch with Tyson on 03 9882 0277 if you have any concerns or issues that AUSVEG could help with.



Bill Bulmer

Bill Bulmer  
Chairman  
AUSVEG



James Whiteside

James Whiteside  
CEO  
AUSVEG

For those readers who may not know, the AUSVEG team is now operating out of a new location as we work to support the Australian vegetable and potato industries.

Our phone and fax numbers remain the same, however our postal address has changed to 3 Glenarm Road, Glen Iris VIC 3146, which is the same as our street address. If you haven't already, please update your address books to reflect this change.

To celebrate our move, AUSVEG held its official office opening on Monday 17 September, and it was a great turnout as we welcomed the vegetable and potato industries to our new home. We were particularly pleased to have our Vegetable Strategic Investment Advisory Panel (SIAP) members in attendance following a joint SIAP meeting in Melbourne on the same day. I thank everyone for their attendance, and look forward to watching our business progress from this new location.

In other news, I had the privilege of attending Asia Fruit Logistica in Hong Kong earlier this month. AUSVEG led a delegation of export-ready vegetable growers to this event, where they had the opportunity to showcase their premium Australian produce to the world as part of Hort Innovation's Taste Australia stand. With over 13,000 attendees from around 80 countries, this trade show was the perfect opportunity for our growers to connect with all facets of the international vegetable supply chain, including buyers from across Asia.

Asia Fruit Logistica also marked the first anniversary of the Taste Australia initiative, which has been a huge success for Hort Innovation and our horticulture industry with strong branding resulting in greater demand for Australian-grown produce. AUSVEG will continue to support this initiative and help our sector boost the value of vegetable exports to \$315 million (an increase of 40 per cent) by 2020 as outlined in the *Vegetable Industry Export Strategy*.

Finally, AUSVEG has welcomed the appointment of Matt Brand to the role of Hort Innovation Chief Executive Officer. Matt is well-regarded in the horticulture industry, particularly in New South Wales where he served as CEO of NSW Farmers for almost eight years.

Matt formally took over the role earlier this month, and I had the pleasure of meeting him at the Taste Australia networking event at Asia Fruit Logistica on 5 September. This event was also used as the platform to officially launch Hort Connections 2019, which will be hosted by AUSVEG and the Produce Marketing Association Australia-New Zealand (PMA A-NZ) from 24-26 June at the Melbourne Convention and Exhibition Centre.

I congratulate Matt on his appointment, and look forward to working closely with Hort Innovation to continue delivering positive, long-term outcomes for Australia's vegetable and potato industries.

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# BROCCOLI

## FACTS & DATA



**1** Harvest to Home reports that shoppers give high importance to Australian-grown broccoli (all) over variety/type/kind and packaging range, with an average survey score of 8.4 compared to 4.8 and 3.4 respectively.

**2** According to Veggycation®, the word 'broccoli' translates to 'little sprouts' in Italian. Its alternative name is Calabrese.

**3** Project VG14062 *Process improvements for preserving peak freshness in broccoli (Stage 2)* tested the effects of adding sanitiser, a carbohydrate source, or an artificial plant cytokinin to water to optimise cooling and packing processes of broccoli. It was found that none of the sanitisers tested reduced postharvest development of rots in broccoli, however, adding the artificial plant cytokinin to hydrocooling water increased the time broccoli remained green. The most promising results were delivered by using a synthetic plant growth regulator marketed as 'SmartFresh'.

**4** Project Harvest Wave 42 revealed that the key motivations for consumers purchasing broccoli are health and ease of preparation. The main barriers to purchase are not wanting to waste any produce and already consuming enough.

**5** For the year ending June 2017, the value of broccoli/baby broccoli production was \$228.6 million while the wholesale value of the fresh supply was \$252.7 million. *Source: Australian Horticulture Statistics Handbook 2016/17.*

**6** With funding from vegetable growers through Hort Innovation, CSIRO has developed a broccoli powder that could help pack extra serves of veggies into consumer diets. The powder is made from whole broccoli and produced using a combination of selected pre-treatment and drying processes to retain the natural colour, flavour and nutrient composition of fresh broccoli. *Source: blog.csiro.au/broccoli-better-latte-than-never.*

**7** The Better Health Channel states that broccoli is very high in vitamin C. Eating 100 grams of cooked broccoli provides 30 milligrams of vitamin C, which is well over your daily requirement. It is also a good source of dietary fibre, potassium, vitamin E, folate and beta-carotene (a compound that the body converts to vitamin A).

**8** One serve of broccoli provides 25 per cent of the Recommended Dietary Intake of vitamin K, which helps blood stick together (coagulate) and is important for growth and the development of healthy bones. *Source: Veggycation®*

**9** Project Harvest Wave 38 recommended that in the long-term, strategies need to be considered to inspire and encourage greater consumption of broccoli, including pairing it with adjacent categories such as dairy, nuts and ancient grains e.g. pre-prepared broccoli and feta packs, broccoli and quinoa, or a broccoli mornay meal kit.



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## AMBITION BREEDS SUCCESS FOR JAKE SHADBOLT



**NAME:** Jake Shadbolt  
**AGE:** 23  
**LOCATION:** Beverford, VIC  
**WORKS:** Scotties Point Farm  
**GROWS:** Beetroot, broccoli, pumpkin, onions

### HOW DID YOU FIRST BECOME INVOLVED IN THE VEGETABLE INDUSTRY?

I have been involved in the vegetable industry since I was a six-month-old baby. I spent my early years in the tractor cabin rugged up in blankets while my Grandpa drove the tractor and Mum and Dad picked broccoli. I look back upon photos of me as a child covered in mud, out in the paddock having the time of my life. Right from a very young age, I was always involved in the day-to-day life on the farm. After school, weekends and school holidays I found myself either on a tractor, in the packing shed or checking crops with Dad.

### WHAT DOES YOUR ROLE IN THE BUSINESS INVOLVE, AND WHAT ARE YOUR RESPONSIBILITIES?

My role in the business now is currently quite broad. I'm involved right throughout the crop production process doing jobs such as ground preparation, planting, irrigation, spraying, fertilising and harvesting. I also have found myself managing the packing shed for our beetroot in winter and onions in summer over the last three years.

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

There are so many incredible dimensions to the industry, but what I love most about it is that each day never repeats itself. There are always new challenges, new creative ideas and new solutions. I find myself regularly doing different trades in order to get the jobs done and I love that!

I really maintain my enthusiasm by making sure I get a good work life balance. I was always raised with the family motto of 'work hard, play harder'. We put in the labour when it's required, but when we get the chance to play we really go for it.

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

The biggest challenge currently facing our business is having good quality staff that have something of value to offer the business. Luckily, we have these people and they are like gold. They work incredibly efficiently and understand the work culture. We have spent a lot of time training, educating and fixing their stuff along the way. But the key to keeping these people on board is to really value them and their input into the business, and make them part of the family.

### WHERE DO YOU RECEIVE YOUR ON-FARM PRACTICE ADVICE AND INFORMATION FROM?

All my training and knowledge has been passed down from my father, Peter. I was first put on a tractor to drive myself when I

was eight years old and haven't stopped since. From him I've really benefited from learning so many skills across varying trades including installing irrigation; mechanical repairs; welding steel; wiring machinery; and especially how to drive straight. I've also been asking our agronomist a lot more questions recently about soil and plant health to help understand more about the growing side.

### YOU ATTENDED THE YOUNG GROWER INDUSTRY LEADERSHIP AND DEVELOPMENT MISSION IN APRIL THIS YEAR. WHAT WERE THE HIGHLIGHTS OF THIS MISSION?

I had a great time in New Zealand and California; there were so many highlights. The biggest highlight for me was visiting Wilcox Farms in Pukekohe, New Zealand. As a team we had a great tour around their packing shed which was in full operation managing carrots, potatoes and onions. Seeing their shed operations and also hearing their story about their focus on marketing their product was very valuable. They are such a transparent company and were more than happy to tell us about their successes.

### YOU'RE CURRENTLY INVOLVED IN GROWING LEADERS 2018. WHAT HAVE YOU LEARNT SO FAR, AND WHY IS THIS PROGRAM IMPORTANT TO THE VEGETABLE INDUSTRY?

Growing Leaders has been incredibly beneficial. I can't stress it enough that if you're someone involved in the industry and wanting to grow in your skills as a leader, then this is for you. For me it's really helped me knuckle down and lead teams efficiently, not chaotically. The industry needs fresh ideas all the time, and this space has been brilliant.

### WHERE CAN YOU BE FOUND WHEN NOT WORKING ON THE FARM?

When I'm not farming, you'll find me either racing motocross, waterskiing, snowboarding or jet setting to the other side of the world. I've also got a big passion for helping young boys who grow up with no purpose or identity. I coordinate a local youth group in town and volunteer my time at the local high

school and am involved in a fantastic program targeting at-risk teenage boys, taking them through a six-month outdoor-based mentor program.

### WHERE DO YOU SEE YOURSELF IN FIVE YEARS?

In five years' time I hope to be married with some baby farmers kicking around, living the dream. I aim to have taken over the family business, and have it flourishing with nice and efficient systems in place. By then I will have won the Young Grower of the Year award for my contribution to the industry and really kicking some goals to see Australian vegetables in every supermarket across the world.

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

I think there needs to be a lot more exposure to the greater community of just how exciting this industry is. I have so many people who love it every time I put up photos of my job on social media. There are so many people who lack understanding of this industry, and they can only be engaged by being exposed through tours, videos, education and connections. Starting right at the basics in primary school through vegetable gardens, right up to school-based traineeships and university studies targeted to the farms.

### YOU WERE NOMINATED FOR THE YOUNG GROWER OF THE YEAR AWARD AT HORT CONNECTIONS 2018. WHAT DOES THIS RECOGNITION MEAN TO YOU?

I was incredibly humbled to be nominated this year. It's always been an award I've thought about winning and I was quite shocked when it happened so early into my career. I believe it's extremely important, and I think even more important than any other award as this is the future of the industry. More young people should be involved; the average age of farmers needs to drop. It's the young people who have the fresh ideas – combine that with the experience of the older generation and that's where some magic will happen.



Photography by Studio RED.



Celia van Sprang counts and measures lettuce in the Lockyer Valley, Queensland.

## OPTIMISING YIELD PREDICTION IN VEGETABLE CROPS

In early 2017, a project was established to support the vegetable industry in adopting precision agriculture technologies. Since then, the project has held trials on case study farms in each state for research and extension – including training events, field days and the development of resources to showcase the potential applications of relevant precision agriculture technologies. Julie O’Halloran and Celia van Sprang from the Queensland Department of Agriculture and Fisheries report.

Adoption of precision systems technologies in vegetable production (VG16009) is a strategic levy investment under the Hort Innovation Vegetable Fund. The project has a central focus around adoption of precision agriculture technologies by demonstrating how commercially-available technology can be used and optimised in vegetable production systems.

The project is led by the Queensland Department of Agriculture and Fisheries and has a number of collaborators including the University of New England, Tasmanian Institute of Agriculture, Harvest Moon, Department of Primary Industries and Regions South Australia, vegetablesWA and the Society of Precision Agriculture Australia. Project collaborators are members of the reference group, with grower representation from the demonstration sites. The reference group regularly reviews project progress and advises on future project activities.

### PROJECT OBJECTIVES

The project aims to support the adoption of precision agriculture technologies by demonstrating their potential application and benefits in vegetable systems. The key questions that drive the focus of the project and demonstration site work are:

- Is there field variability?
- Is the observed/quantified variation having an economic impact?
- Can this variability be understood and managed?
- Are current management practices/equipment suitable for addressing any variation?
- Will a precision approach elicit a yield/quality response?
- What is the return on investment?

The technologies that are being trialled and demonstrated in Australia include: crop sensing platforms (satellite and Unmanned Aerial Vehicle – UAV) and their application to vegetable systems; yield monitors; yield prediction from crop sensing imagery; EM38 soil mapping; precision drainage technologies; and variable rate applications.

### CROP SENSING IMAGERY

Crop sensing imagery is one tool used in the project to assess spatial variability in crop performance. From this, project staff are able to ground truth imagery and identify potential causes of variability and quantify any impact on yield. Understanding the

impact and cause of variability assists growers in making informed management decisions and whether improving underperforming areas is necessary or likely to be cost-effective.

The project is also looking at the potential to use high-resolution satellite imagery to predict yield in carrots and sweet corn from crop reflectance data. If yield prediction is possible from early season crop imagery, this would provide valuable information for yield and market forecasting as well as harvest labour and logistics.

With the increasing level of interest in UAV technologies, the project is also evaluating the application of UAV imagery to vegetable systems. This includes assessing spatial variability and crop performance, as well as yield estimates in crops that are currently without yield monitoring technologies, such as broccoli and lettuce.

FIGURE 1: VG16009 NATIONAL DEMONSTRATION SITES



### YIELD MONITORING

Of all cropping systems, horticulture harvesting equipment lacks Original Equipment Manufacturer yield monitoring solutions. However, after-market load-cell based, georeferenced options are commercially available (e.g. Greentronics all-terrain vehicle) and can be retrofitted to a range of existing vegetable harvesting equipment such as those for potato, sweetpotato and carrot crops. Load-cell based is a type of measuring system that measures weight rather than product numbers.

The project has retrofitted three load-cell based yield monitors on carrot harvesters in Western Australia, South Australia and Tasmania. This yield data allows growers to determine spatial variability at harvest, which can inform the development of profit loss maps. Logging of yield data from crops in the future will also allow growers to determine whether any management options to improve underperforming areas had been successful and/or how crop yields perform over time.

### SOIL MAPPING

Electromagnetic induction (commonly referred to as EM) detects soil electrical conductivity (EC). It is a cost-effective option for detecting spatial differences in moisture, clay content and salt levels in soil. It is being used within the project to define soil type or textural boundaries and possible constraints associated with salt levels. The resulting maps are calibrated or ground truthed to understand the actual differences between zones by conducting a series of *strategic or zonal soil sampling* for electrical conductivity, soil moisture and soil texture. This technology has been used in the project to understand:

- Soil constraints impacting on productivity.
- Spatial soil type variation to inform earthworks and field development.
- Soil textural differences to inform potential variable rate irrigation zones.

### COMMUNICATION AND EXTENSION

The project has been running for just over 18 months and the demonstration sites have generated sufficient data to commence case study development. The project is engaging with the National Vegetable Extension Network (VegNET) to promote project results and collaborate on extension and communication activities. This includes grower updates and forums; workshops; and distribution of case studies and fact sheets.

Currently, project officers are developing the following communication products: EM38 soil mapping in vegetables; apps in vegetable precision agriculture; calibrating yield monitors in vegetables; ground truthing remote sensing in carrots; and precision agriculture glossary.

### INFO R&D

For more information, please contact Queensland Department of Agriculture and Fisheries Senior Development Horticulturist Julie O’Halloran on 0409 054 263 or Development Horticulturist Celia van Sprang on 0459 862 266.

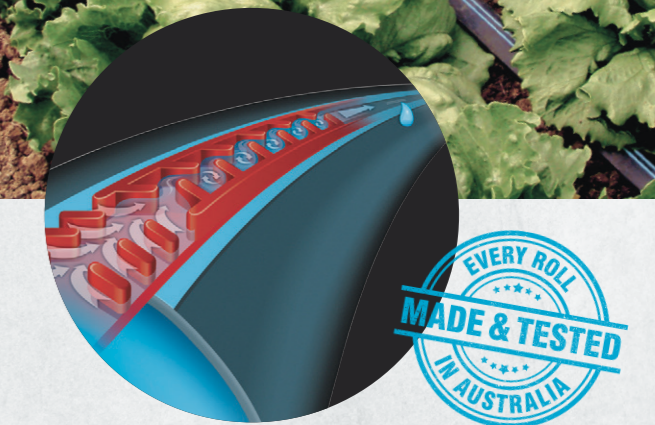
This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG16009



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AUSVEG National Manager – Public Affairs Tyson Cattle.

## REPRESENTING VEGETABLE AND POTATO GROWERS AT THE NATIONAL LEVEL

In 2018, AUSVEG made a dedicated investment in its advocacy activities with the appointment of Tyson Cattle to the role of National Manager – Public Affairs. Tyson's role focuses on building strong, evidence-based cases that AUSVEG can take to Federal Government and other stakeholders to advocate for growers on the issues that are impeding their growth and prosperity. He spoke to *Vegetables Australia* about his role and vision for the future.

A passion for agripolitics and a desire to return to the front line of advocacy lured Tyson Cattle out of Fairfax Media's Victorian agricultural publications and into the role of National Manager – Public Affairs at AUSVEG, the peak industry body for Australia's potato and vegetable industries.

Previously the editor of *Stock and Land* and manager of *Australian Dairy Farmer* and *Turf Craft* magazines, Tyson brings a great appreciation for the value of Australia's rural and regional industries. Hailing from a sheep and cropping background, Tyson grew up on a broad acre property in Lake King, 450 kilometres south-east of Perth, and has a deep understanding of the hard work and commitment that growers and all farmers put into feeding Australia.

### GROWER ADVOCACY

As National Manager – Public Affairs, Tyson's role primarily focuses on AUSVEG's advocacy activities. As the industry continues to grow in value and importance to the Australian economy, this work is vital.

"My role really is to try and raise the profile of horticulture and the potato and vegetable industries in general. Certainly, to make sure that when policies are formed or governments are making

### CURRENT ISSUES ON AUSVEG'S AGRIPOLITICAL AGENDA

- Horticulture Award – draft determination from the Fair Work Commission on overtime for casuals released (submission being drafted at the time of writing).
- Biosecurity – advocating for a coordinated industry response to outbreaks and management of fruit fly.
- Regional visa – continuing to work with horticulture and agriculture groups.
- Food and Grocery Code of Conduct – working with the Australian Competition and Consumer Commission.
- Working with state members and growers on Harmonised Agvet Chemical Control of Use.
- Developing the agenda for the upcoming Federal Election.

their decisions, that they take into account the impact it has on vegetable growers," Tyson says.

"It's important that I have relationships through Canberra, but it's crucial I have good relationships with growers and understand their business so I can effectively advocate on their behalf."

Since joining AUSVEG in February, Tyson has been on a self-described "introductory tour" of growing regions from as far as Mareeba in north Queensland, to Tasmania, as well as Gingin in Western Australia to better understand the horticulture industry.

"I've been trying to do as many on-farm tours as possible and touch base with growers directly. Growers start to open up more when they're at their most comfortable and that is on their own property and in their own business," he says.

"It's good for them to open up and tell me what sort of situations are going on in their business, and how we can help."

### CURRENT PRIORITIES

While Tyson's role is to advocate on behalf of growers, he is looking forward to learning more about the potato and vegetable industries and working with industry members to deliver tangible results.

"I'd like to not only campaign but also be able to see some sort of light at the end of the tunnel – particularly for growers and their businesses. With labour in particular, it has been clear across the country that it is probably the number one issue that is impacting farm businesses at the moment," Tyson says.

Additionally, AUSVEG joined the National Farmers' Federation's newly-formed Horticulture Council, representing a renewed investment in AUSVEG's role in representing the interests of Australia's vegetable and potato growers and the broader industry. This has already proved to be beneficial for both parties, as Tyson explains.

"We've been working very closely through the Horticulture Council and the National Farmers' Federation around the development of a regional visa, and we are making some sound progress on that," he says.

"That's really exciting for industry; not only for horticulture but agriculture generally."

Vegetable and potato growers across Australia are encouraged to get in contact with Tyson to discuss any issues affecting them and their growing operation. As he is new to the industries, Tyson is willing to learn and assist where possible.

"The best way for me to learn is directly from growers, so I'd encourage them to get in touch. We can catch up, sit down and work together in trying to improve the industry."

### INFO

For more information, please contact Tyson Cattle on 03 9882 0277 or at [tyson.cattle@ausveg.com.au](mailto:tyson.cattle@ausveg.com.au).

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Images courtesy of V. Brunton.

## HOW SAFE ARE MY SOILS?

Manures have many benefits for vegetable-growing soils but they can also carry serious risks for human health. Recent foodborne illness outbreaks demonstrate the importance of keeping food free of human pathogens. A new strategic levy investment is examining risks from manures and contaminated water and will provide guidelines validated for Australian conditions to local vegetable growers.

Mankind has been growing crops (including vegetables) for more than 10,000 years. Growing crops is what has made civilisation possible and has eventually led to cities, smartphones and even social media.

It seems likely that farmers soon realised that crops grow better if the soil is well-nourished. Manure is the oldest fertiliser known to man. Returning livestock manures to the soil adds nutrients and organic matter, and can increase the activity of the soil's microbial population.

While an active and varied population of microbes is generally good for soil, plant and human health, some microbes cause problems. Human pathogens such as *Listeria monocytogenes*, *Salmonella* spp. and some strains of *Escherichia coli* (*E. coli*) bacteria can cause illness and death.

Human pathogenic bacteria and viruses spread in faeces, and water contaminated by faeces. Manure is therefore a *potential* – but not inevitable – source of such pathogens.

Many farmers still use manure in some form to fertilise crops. It is, after all, both sustainable and inexpensive. However, using manures on products which may be eaten uncooked and which are grown in, close to, or picked up from the soil can potentially introduce very real risks to human health.

A current project, *Pathogen Persistence from Paddock to Plate* (VG16042) is examining what happens to microbes in Australian soils and irrigation water, and where the main risks of contaminating produce occur. The plan is to find out what types of soil amendments Australian vegetable farmers are using, and what levels of pathogens can potentially end up on produce. This project is a strategic levy investment under the Hort Innovation Vegetable Fund.

### ENCOURAGING FINDINGS

The first stage has involved a survey of the pathogens present on Australian vegetables. More than 8,700 tests for *E. coli*, *Listeria* spp., *Listeria monocytogenes* and *Salmonella* spp. have been collated.

The good news is that only 1.5 per cent of tests recorded any positive detection for any of these organisms.

*E. coli* was the organism most frequently detected during testing. Of 3,490 tests, 106 returned a positive result, representing three per cent of samples. However, in most cases the number of individual bacteria (cfu) was very low; 78 per cent of positive tests returned <100 cfu/g.

Less than 100 cfu/g is not regarded as causing any food safety concerns, although ready-to-eat products usually aim to achieve <10 cfu/g.

According to project team member Dr Jenny Ekman from Applied Horticultural Research, it is important to remember that most types of *E. coli* are harmless.

"There are only a few strains (shiga toxin-producing *E. coli*) that cause illness in humans. *E. coli* is just an indicator, so positive results just indicate that the product may have potentially been contaminated, not that it has been.

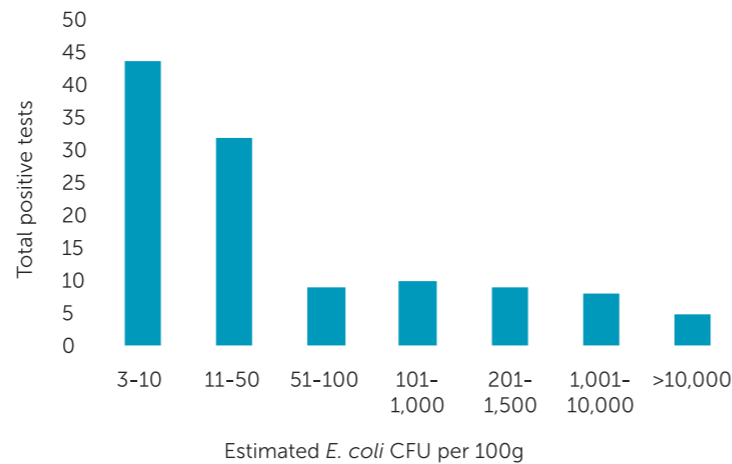


Figure 1: Total number of positive tests for *E. coli* from 3,490 conducted, grouped by the population of microbes detected. For most fresh produce, <100 cfu/g is considered acceptable.

"There was a trend to fewer positive results on fruiting vegetables such as eggplant and zucchini, compared to leafy vegetables like silverbeet and lettuce. However, as products are tested by weight, this is likely to be mainly due to the latter's large surface area compared to volume," Dr Ekman said.

As with many bacteria, different species of *Listeria* are relatively common in the environment and the majority (16 out of 17) are completely harmless. Just one species – *L. monocytogenes* – can make people sick. Even then, a large dose has to be eaten before the bacteria becomes dangerous. It has been estimated that if a highly susceptible person (very ill or elderly) consumed 15,000,000 *Listeria* bacteria in a serving of food, the probability of developing listeriosis is still <0.3 per cent.

Of 2,295 tests for *Listeria* spp., only around one per cent registered any detection at all.

"This again demonstrates that Australian vegetables have been managed well, ensuring they are safe to eat, as species of *Listeria* are relatively common in the environment," Dr Ekman said.

The most interesting result was for *Salmonella* spp. Despite 2,962 individual tests, there were zero *Salmonella* spp. detections on vegetables.

"*Salmonella* spp. are relatively common in poultry litter, which may be incorporated into soil or added to compost. These results confirm that if vegetable growers are using poultry products, the vast majority are doing so responsibly," Dr Ekman said.

Even though the level of detections is extremely low, the ramifications of contamination can be severe.

University of Sydney microbiologist Dr Mark Bradbury is also involved in the project.

"The 2018 outbreaks of listeriosis attributed to contaminated rockmelons and *Salmonella* Havana carried on alfalfa sprouts, as well as previous outbreaks of foodborne illness attributed to fresh cut vegetables, rockmelons and frozen berries, demonstrate just how easily human pathogens can be spread in modern supply chains," Dr Bradbury said.

### NEXT STEPS

The next stage of the project will involve trials examining what happens when contaminated manures are added to soil. The trials will be conducted using different soil types and growing conditions. Both the soil, and the vegetables produced, will be tested to determine pathogen survival from the time of application up until vegetables are harvested.

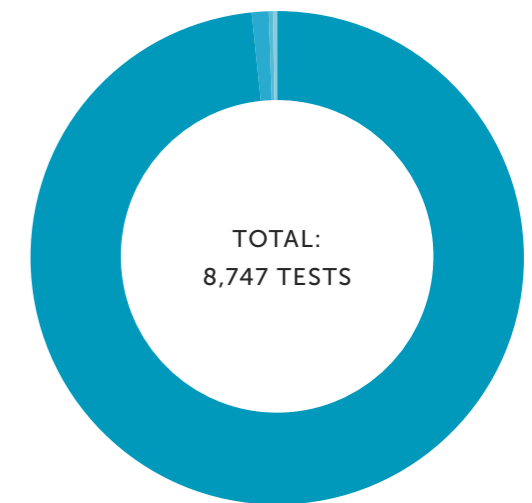
According to Freshcare General Manager – Industry Development Clare Hamilton-Bate, it's vital to understand when growers can safely

use organic materials that contain manure, and when there is the potential to introduce an unacceptable risk.

"We want to find out what products people are using, and how they are using them. That way we can make sure the trials reflect commercial reality and are applicable on Australian farms," Ms Hamilton-Bate said.

"All the critical limits within the Freshcare standard are based on science. This project is so important to help industry understand and manage risk in our own Australian conditions."

Existing research has shown that human pathogens survive longer in loamy soils than sandy ones, and in cold rather than hot conditions. However, such relationships have rarely been quantified under Australian conditions.



Legend for Figure 2:  
 ■ No detection  
 ■ *E. coli* <100cfu/g  
 ■ *Listeria* spp.  
 ■ *Salmonella*  
 ■ *E. coli* >100cfu/g

Figure 2: Results of 8,747 microbial tests of fresh vegetables. Less than one per cent of tests recorded a positive result and most of these related to low levels (<100 cfu/g) of *E. coli*, which is generally considered acceptable on fresh vegetables. No *Salmonella* spp. were detected.

### INFO R&D

For more information, please contact Dr Jenny Ekman from Applied Horticultural Research at jenny.ekman@ahr.com.au or 0407 384 285.

This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government.

Project Number: VG16042





Participants during a tour of Barendse-DC in the Netherlands, the world's largest greenhouse with orange peppers.



Lettuce on a hydroponic system in Belgium.



Primeale, a key vegetable brand of the Agrial Agricultural Cooperative in France.



Crops under LED lighting at Urban Crop Solutions in Belgium.

## EXPERIENCING EUROPE'S VEG INDUSTRY: AUSTRALIAN LADIES LEAD THE WAY

In April this year, a group of nine Australian female vegetable levy-payers and industry members travelled to France, Belgium and the Netherlands, where they visited farms, universities, agribusinesses and seed companies. They gained an insight into European horticulture as well as the issues growers and producers face, being on a much smaller scale of land compared to Australia. Carol Knight reports on some of the highlights from the tour.

Nine female vegetable industry members embarked on the trip of a lifetime when they travelled to Europe on the 2018 Women's Industry Leadership and Development Mission from 21 April to 4 May 2018.

The 13-day tour, led by AUSVEG, allowed these women the opportunity to experience farms, machinery and precision agriculture firms, a leading agriculture university and meet with prominent horticulture groups who provided an insight into vegetable growing operations and the issues European growers face on a daily basis.

The primary objective of the mission was to provide female industry leaders with insights into European vegetable trade and growing operations and enable them to gain an in-depth understanding of the processes, procedures and issues faced within the region.

The mission was part of *Women's and Young Grower Industry Leadership and Development Missions (VG15703)*, a strategic levy investment under the Hort Innovation Vegetable Fund.

### A FRENCH PERSPECTIVE

The mission began with a visit to the Mont Saint Michel area in western France where the group stopped by Primeale, a key vegetable brand of the Agrial agricultural cooperative that operates throughout the country.

Participants were shown a presentation by Guileame Hugues from Agrial – Service Production that detailed the regions where vegetables are grown in northern France. The group consists of more than 14,000 growers and employs 21,000 staff.

The following day, the group headed out to view the different types of supermarkets and fresh produce markets within and around Paris. The presentation of fresh produce in these supermarkets amazed the group, however it also consisted of lots of plastic and bamboo baskets.

The Rungis International Market was next on the list. It is the world's largest fresh produce market spanning 234 hectares, located on the outskirts of Paris. This market mainly supplies to

the French markets and five major supermarkets in Asia. A point of interest was that there were no long-term purchasing agreements in place; this was replaced with daily purchases. There were also no requirements for Quality Assurance systems to supply the market. The group noted that the quality of the produce was good, and there were many vegetable products and varieties available that are not found in Australia.

Next up was a visit to a chicory farm in the north of France, which was part of the BUFL group – a fresh farming cooperative model. The group was shown how the chicory was processed after it is harvested; it was quite an old mechanism but very efficient. While the farm's main crop is chicory, it also has a diverse business model that includes grain and cattle, plus a reticulated water sanitiser recycling system.

### BELGIAN INSIGHT

On day six, the group crossed into Belgium to tour Urban Crop Solutions, a business that has created a fully automated indoor farming system using LED Lighting that is both efficient and effective under any given climatic condition.

The group was presented with a tour from Urban Crop Solutions' Brecht Stubbe and Nicolas Tsurukawa, who showed the group the company's technologies and the potential for vertical farming to revolutionise the future of global horticulture. Growers noted that the speed and change of technology in the industry is so advanced that the equipment could quickly become obsolete, so it is important to be informed of the latest technologies that are on offer to growers and the wider supply chain. Nicolas also travelled to Australia in June to present on vertical farming technologies at the 2018 Global Innovations in Horticulture Seminar.

While in Belgium, participants were fortunate to visit Bert Depoorter, a hydroponic lettuce grower who showed the group around his facility. His system is fully automated and only requires four staff to operate the business.

Later, the group had a great opportunity to visit Colruyt, a hard discount supermarket which stocks all major brands. But

with the fresh produce stored in a refrigerated area, you were walking in the cold to visit this section!

### DUTCH EXPERIENCE

Upon arrival in Amsterdam, the group met its local guide Paul Van Gemst, who led the way to a market that sourced locally-grown food, Land Markt. The group then joined Paul and Gertjan Wubelling at their home for a traditional Dutch meal featuring plenty of locally-grown vegetables (see box-out for further details).

The next stop was Barendse-DC, the world's largest orange pepper cultivator with 20 hectares of sweet peppers and 10 hectares of baby tomatoes. Barendse-DC has implemented a sustainable method of producing its capsicums, using geothermal energy and cogeneration systems that consume natural gas to produce heat, carbon dioxide and electricity. The heat is stored during summer and ultimately used to heat the greenhouses in winter, while the carbon dioxide is purified and later used in the greenhouse as fertiliser.

In the afternoon the group visited a Syngenta demonstration field. Ivar Zwaan provided a tour of the facilities, and participants were very impressed with the technology and processes on display as well as the interactive board that displayed over 100 seeds. Guests were invited to test their knowledge and guess which seeds were listed. All the seeds were contained behind a vaulted door, and Ivar advised that those seeds were worth more than the Royal Bank of the Netherlands.

The following day, the group visited Bird Control Group where a presentation was given by Area Sales Manager Gijis Groen about how the company has developed an automatic laser system to reduce pest bird presence in a sustainable way, making businesses more profitable by protecting crops and eliminating health and safety hazards. Participants were also shown a demonstration about how the laser works in an open field.

In the afternoon the group visited Koppert Cress, a microgreens growing operation that has built a brand and marketing campaign to set it apart as a premium producer. It sells to high-end Michelin star chefs and has initiated a significant marketing campaign to provide a 'Cressperience' to anyone who visits the operation.

One of the world's leading research institutions for agricultural technology and innovation, Wageningen University and Research Centre, was the second-last stop of the tour. The group was extremely impressed by the advancement in biosecurity systems and the researchers' use of gene modification to breed plants with desirable traits.

The mission finished with a visit to vegetable breeding company Rijk Zwaan. Group Manager – Communication and Public Affairs Anneke van de Kamp presented to the participants, who were highly impressed that 30 per cent of the company's profit goes back into research and development. Interestingly, seeds grown

in Australia are also tested in Holland before returning to Australia for planting.

After the presentation, the group was shown through the facility by Evelien van der Meer – Specialist Sales Support before they travelled to Rotterdam for an industry dinner with Jolanda van Kralingen – Specialist Communication. All participants engaged in fulfilling conversation, especially regarding school programs that focus on increasing vegetable consumption.

### FORGING CONNECTIONS

After a fortnight of exposure to influential contacts from leading international businesses and witnessing the latest in global horticulture trends, the group returned to Australia armed with fresh ideas, greater insights and international contacts which will be important for the growth of their businesses as well as the wider Australian vegetable industry.

Participants are encouraged to share the knowledge and networks gained on the mission with other growers through their local networks to help improve the overall viability of the national vegetable industry into the future.

### LOCAL HOSPITALITY DELIGHTS MISSION PARTICIPANTS

Day nine was a special day for tour leader Carol Knight, who was reunited with her Amsterdam-based brother and local guide Paul Van Gemst. Paul met the group and took them through the streets of the city to Land Markt, a fresh produce market in northern Amsterdam where most of the produce is grown locally. It also has a restaurant with this produce featuring on the menu.

That evening, Paul and his partner Gertjan Wubelling hosted the entire group for a three-course dinner which consisted of traditional Dutch fare. This sparked a lot of conversation around how different cultures enjoy their fresh produce, and the ways in which they use it in everyday meals. The participants enjoyed this unique experience and thanked the couple for their generous hospitality.

### INFO

AUSVEG would like to thank those who gave their valuable time to meet with the delegation, particularly Primeale, Rungis International Market, BUFL Co-op, Urban Crop Solutions, REO Auction House, Paul Van Gemst, Barendse-DC, Syngenta, Rijk Zwaan, Bird Control Group, Koppert Cress, Bert Depoorter and Wageningen University and Research Centre.

The final report for this project will be made available on the InfoVeg database at [ausveg.com.au/infoveg](http://ausveg.com.au/infoveg).

This project has been funded by Hort Innovation using the vegetable research and development levy, contributions from Australian vegetable growing businesses and contributions from the Australian Government.

Project Number: VG15703

**Hort Innovation**  
Strategic levy investment

**VEGETABLE FUND**



## ADDRESSING DECLINING BACKPACKER NUMBERS WITH SOLOMON ISLANDS WORKERS

Due to a decline in the number of backpackers working on Australian farms, growers and farmers are turning to employing seasonal workers from the Solomon Islands to provide them with six months of a skilled, returning workforce. The Australian Government's Seasonal Worker Programme is now in its fifth year, and it provides these Pacific Islands workers with a life-changing opportunity.

Many Australian growers and farmers rely on backpackers to provide a source of labour during busy periods. However, ongoing reductions in backpacker numbers have farmers concerned that there won't be enough labour in the future to harvest their crops. The Australian Government's Seasonal Worker Programme (SWP) offers employers access to a skilled Pacific Islands workforce when there is not enough local labour or backpackers to meet seasonal demands.

Now in its sixth year, the SWP is receiving increasing interest from farmers. In November 2017 the Department of Home Affairs reported a 25 per cent growth in SWP visas for the financial year. However, while the number of Pacific workers is increasing, many farmers are still not aware of the Programme and its benefits.

### GROWER CASE STUDIES

Nutrano Produce Group Farm Manager Andy Hancock employed workers from Solomon Islands under the SWP for the first time in 2017.

"Because we are in an isolated area (50 kilometres south of Mildura), it is hard to get people out here consistently and keep them interested in staying on for four to five months to get the job done," Andy said.

"Having the 40 workers here is a massive bonus and a major boost to our system. They are all very willing to work and adapt well. With them, we can better manage our workforce and have the flexibility we need."

Andy said that the attitude of the workers has been "first class". "They have embraced the opportunity and have done themselves and their families proud, that's for sure," he said.

"When it comes to harvesting and hand-picking fruit, the pride they take in their work is very impressive. Quality is never an issue because they did what they were asked. They embraced the task and they reached their targets. They were fantastic. The program has definitely improved our day-to-day operations on the farm."

Andy suggested that another advantage of SWP workers is that their presence has motivated the company's regular staff.

"Being so positive about their work and what they do has rubbed off on not just our other staff but across the company," he said.

Ubaldo Tiva is a SWP worker at Sunwest, Nutrano's farm in Mildura.

"We pick oranges and mandarins to fill the order from the packing shed. If there's an order for 192 bins, then we work seven

or eight hours to complete it. We meet the targets," he said.

"(The managers) are good to us and we like them. The environment here is very good. We have facilities here like we have at home... everything is in there, the accommodation here is really good."

Kerry McCarthy from Gracekate Farms said that the benefits of SWP workers far outweigh the disadvantages.

"We estimate that one of our Solomon Islands workers does the workload of nearly two regular workers," she said.

"The Seasonal Worker Programme is a win-win for all. I, the farmer, get what I want – a productive season and a viable business with a future. Our workers get cash – money to take home and better the lives of their families, their villages and their communities.

"They not only get income, they go home with a sense of self-worth; a sense of accomplishment; hope for a brighter future; and ideas to invest in their future."

Seasonal workers on average take home AUD\$8,000. For Pacific Islanders and their communities, this is a life-changing opportunity.

### BECOMING AN APPROVED EMPLOYER

The SWP is a unique collaboration between governments from both sides of the Pacific. The Programme has a strong monitoring and compliance framework to ensure ethical treatment and suitable conditions are available for workers from participating countries. To be eligible to employ Pacific Islands and Timorese seasonal workers, employers must apply for Approved Employer status from the Australian Government via the Department of Jobs and Small Business.

### INFO

For more information about Solomon Islands workers, please contact Solomon Islands Ministry of Foreign Affairs and External Trade, Labour Sending Unit at [lm@mfat.gov.sb](mailto:lm@mfat.gov.sb) or +677 21250.

For more information about the Solomon Islands Ministry of Foreign Affairs and External Trade visit [mfat.gov.sb](http://mfat.gov.sb). Details about the Solomon Islands Seasonal Workforce can be found at [heretoworksolomons.com](http://heretoworksolomons.com).

For more information on the Seasonal Worker Programme, visit the Department of Jobs and Small Business website: [jobs.gov.au/seasonal-worker-programme](http://jobs.gov.au/seasonal-worker-programme).

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## INDUSTRY IN THE MEDIA

The ongoing effects of drought in rural Australia, particularly its impact on farmers, featured heavily in rural, regional and metropolitan media in recent weeks. AUSVEG CEO James Whiteside spoke to print and online media about the topic and noted that AUSVEG supports the role of government in providing the tools to help farmers better manage the risk of a changing climate. He added that despite being in the midst of a severe drought, the Australian horticulture industry was resilient and continuing to produce high-quality produce for local and international markets.

Mr Whiteside also appeared in print, radio, television and online media discussing the recall of several lines of imported frozen vegetables due to concerns about possible *Listeria* contamination. He said that Australia has some of the most stringent food safety

regulations in the world, and that recent country of origin labelling reforms have made it easier for consumers to support local growers and buy Australian. Mr Whiteside added that all recalled lines had been imported, and that Australian consumers had a right to ask how supermarkets ensure that overseas growers are meeting food safety standards.

Young Grower of the Year nominee and Beverford vegetable farmer Jake Shadbolt also appeared in Victoria's *Herald Sun* publication in a special feature profiling 25 Victorians aged 25 and under, who are leading the way in their respective careers. Jake spoke about his love of farming and increasing involvement within the industry, including his participation on the 2018 Young Grower Industry Leadership and Development Mission to New Zealand and the United States. To read our profile on Jake, turn to page 10. 



## MODERN SLAVERY LAWS DRIVE TRANSPARENCY PUSH IN FRESH PRODUCE CHAINS

For most people, the idea of slavery sounds like something from another century.

Yet insidious forms of slavery, bonded labour and worker exploitation still exist in many sectors of the contemporary economy, and concern for worker welfare is driving a push to improve supply chain transparency.

Big players in the fruit and vegetable industry, such as Perfection Fresh, Costas and the Fresh Produce Group, are large enough to be impacted by modern slavery legislation in New South Wales. This law requires entities with an annual turnover of \$50 million or more to prepare and publish a Modern Slavery Statement and take actions to address risks of slavery or worker exploitation occurring within their company and their supply chains.

Companies who fail to meet these requirements (or who provide false or misleading information in their statement) face penalties of up to \$1.1 million.

In June, a Modern Slavery Bill was introduced into Federal Parliament. If passed, it will require entities with an annual turnover of \$100 million to prepare a Modern Slavery Statement each year to be posted on an online public register. Currently, federal legislation does not contain penalties for failure to comply; however, the major food retailers have indicated that they will participate. Both Coles and Woolworths have also adopted responsible or ethical sourcing policies.

### MAINTAINING VIGILANCE

The implication is that retailers and the larger fresh produce companies must have mechanisms in place to verify that their suppliers employ workers correctly and have appropriate policies, procedures and record-keeping systems in place. In the short-term, direct suppliers are being requested to demonstrate their employment practices; however, in time, second and third tier suppliers will also face greater scrutiny.

These trends also reinforce that it is essential that all growers are vigilant around checking that workers provided through labour hire companies receive the right pay and conditions and have the correct visas if they are from overseas.

Growcom continues to work closely with all segments of the supply chain towards the development of a Fair Farms training program and certification scheme with the aim of helping growers to meet these emerging requirements for verification and transparency.

### INFO

Further information regarding your obligations as an employer is available at [fairwork.gov.au](http://fairwork.gov.au) and [growcom.com.au](http://growcom.com.au).

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



Corteva Agriscience Marketing Lead (Horticulture and Insecticides) Nicholas Koch.

## INTEGRATING IPM PRACTICES IN VEGETABLE CROPS

There are two new Integrated Pest Management-friendly products available to Australian vegetable growers, which aim to minimise the damage to beneficial insects while managing pest and disease risks to crops.

Integrated Pest Management (IPM) is a broad term used to describe a combination of practices to manage insect pests, including cultural; physical; biological; chemical; genetic; and biosecurity.

**Cultural practices** include those that serve to damage the pests' breeding, over-wintering, shelter or food sources via changing the location, time of planting, crop rotation sequence and cultivation practices. This may also involve keeping adjacent areas weed-free and ensuring the removal of crop residue after harvest.

Cultural practices are closely aligned to **biological practices** that encourage predation of the pest by other insects, parasites or microbial pathogens. This may involve companion planting to encourage proliferation of beneficial insects as well as conscious planning of activities to avoid upsetting beneficial populations.

**Physical practices** include investing in greenhouses, glasshouses, netting or trapping insects (such as Queensland fruit fly). This is a similar approach to **biosecurity (or quarantine) practices** that seek to prevent an influx of pests to the crop via decontamination of vehicles, people and livestock onto the farm, as well as strict boundary controls.

Using **genetic practices** means growing varieties that are resistant or not attractive to the prevalent insect population. There are currently limited opportunities for genetic practices in Australia.

**Chemical practices** may at first seem at odds with an IPM program but are an essential tool, particularly when conditions result in epidemic populations. The recommended approach is to start with the 'softest' chemistry first, rotate chemical mode of action groups with each application and only revert to 'harder' chemistry if required. The terms 'hard' and 'soft' refer to the impact of the chemical on beneficial populations. Having a good understanding of the economic pests with the greatest potential damage to a crop, and their predators, will allow a review of available chemistry and their relative impacts on these predators. Also, keep in mind the impact on pollinators if they are required by your crop.

### MANAGING YOUR APPROACH

Many crops have area wide management strategies or guides developed by the local department of agriculture. Quick internet searches can reveal best practice as recommended by independent advisers. Another great source of information

is chemical company websites, which host detailed product information, advice on how to get the best results from applications (including ideal timing), and, often, the product's impact on beneficial insects.

Recently-launched chemistry tends to be 'softer' than 'older' chemistry. New chemistry is generally more selective to specific pests, rather than the old broad-spectrum products; tends to have lower use rates in the crop; and has better worker health and safety, as well as environmental toxicology profiles, ensuring lower risk to people and the environment.

Two such examples of new IPM-friendly insecticides are Transform™ insecticide with Isoclast™ active and Success™ NEO insecticide. Both products are well-suited for use in IPM programs as they limit disruption to beneficial insects, therefore reducing the occurrence of secondary pest flares. Both products have unique modes of action, meaning that they are suitable in rotation with other products from different chemical groups as an effective insecticide resistance strategy.

The products also have favourable ecotoxicology profiles and are not persistent in the environment, which helps to promote a healthier, more sustainable production system. Choosing 'soft' products, such as Transform and Success NEO doesn't mean compromising control as these products have been rigorously tested under Australian field conditions to ensure strong pest control.

Essential to an effective IPM approach is forward planning, vigilant monitoring and making timely decisions before pests get out of control. This will ensure the highest potential crop yield, least damage and highest potential bottom line, while considering the environment and the future potential of the land.

### INFO

For more information, please visit [corteva.com.au](http://corteva.com.au).



## NEW AIRFREIGHT SECURITY SCREENING REQUIREMENTS

The Federal Government is set to introduce 100 per cent piece-level examination for all outbound international air cargo from 1 March 2019, regardless of the destination. As fresh fruit and vegetables represent 15 per cent (approximately 87,000 tonnes) of all air cargo exports originating from Australia, these changes will affect vegetable exporters. *Vegetables Australia* outlines what this means for exporting vegetable growers, and the options available.

The Commonwealth Department of Home Affairs is strengthening its aviation security arrangements in response to the changing security environment, which may lead to increased costs for the export of fresh produce by airfreight.

The Department has announced its intention to introduce new enhanced security procedures for air cargo, with a 100 per cent piece-level examination of all outbound international air cargo set to apply from 1 March 2019.

In addition, 100 per cent piece-level screening of domestic air cargo has been proposed to be phased in, with the highest priority being Australia's major airports.

The Department will work with industry to optimise the approach, and will consult widely to ensure proposed measures are commensurate with risk and mindful of the impacts to industry and communities.

Grower-exporters will need to make a commercial decision to either be certified as a 'Known Consignor' or utilise their existing Freight Forwarder to undertake the security screening of all shipments.

### OPTION 1: BECOMING A KNOWN CONSIGNOR

The key benefit of becoming a Known Consignor is that cargo that originates from a Known Consignor and is securely transported to the Container Terminal Operator/Regulated Air Cargo Agent, is considered to be piece-level examined and will not need to be examined again prior to being uplifted for export. This will reduce the cost and potential delays of each shipment being examined by a Freight Forwarder.

Exporters with robust security processes may be well placed to become Known Consignors. Known Consignors must demonstrate that they have security measures and procedures in place and can secure their export air cargo from where it originates, until it is handed to another regulated business. The Known Consignor Scheme is based on a framework of six pillars:

- Facility security.
- Personnel security.
- Training.
- Screening.
- Chain of custody.
- Oversight and compliance.

The security measures required under the Known Consignor scheme will depend on each individual business and are outcome-focused. The application process for the Known Consignor scheme commences with an online expression of interest. The

application process may include recognition of existing measures and procedures within your business.

Security measures include: physical access controls and facility security measures; information security measures; secure packing, handling and storage of air cargo; secure transportation of air cargo; and security awareness training.

It also includes background checking of employees to ensure they are of suitable character, including a requirement for staff in key roles to hold an Aviation Security Identification Card (ASIC). ASICs are not required for all staff, but staff without an ASIC must remain under direct supervision of those that hold an ASIC. Quality control procedures to monitor and manage compliance and incident response and reporting procedures are also required security measures.

It currently takes 60-90 days to assess an application from a business seeking to register as a Known Consignor. There is no application fee to become a Known Consignor; however, there may be costs associated with upgrading your security measures to meet the scheme's requirements.

Further information on the requirements and application process to become a Known Consignor can be accessed at [homeaffairs.gov.au/about/transport-security/air-cargo-security/known-consignor-scheme](http://homeaffairs.gov.au/about/transport-security/air-cargo-security/known-consignor-scheme).

### OPTION 2: USE A FREIGHT FORWARDER

All cargo not originating from a Known Consignor will need to be security screened and for most grower-exporters, the

logical facility for this to occur is at the Freight Forwarder, in addition to undertaking phytosanitary inspections and preparing export documentation.

Each Freight Forwarder may manage the new security screening requirements differently, with differing screening costs and impact on the timeliness of processing shipments. It is currently unclear exactly how much will be charged for screening, and it is assumed that individual Freight Forwarders will set their own charges for this service.

Exporting growers should speak to their Freight Forwarder to determine how they intend to undertake the piece-level security screening to understand how they will deal with perishable cargo and any time-critical shipments.

### NEXT STEPS

Additional information and further official advice from the Department of Home Affairs will be provided over the coming weeks and months. AUSVEG will continue to provide updated information as it becomes available.

In the meantime, grower-exporters should review the options above and consider which option suits your business.

### INFO

For more information regarding the new security screening requirements, please contact AUSVEG National Manager – Export Development Michael Coote on 03 9882 0277 or at [michael.coote@ausveg.com.au](mailto:michael.coote@ausveg.com.au).



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## ANDREW BRAHAM: SETTING THE PACE FOR INDUSTRY INNOVATION

Nearly 17 years ago, Andrew Braham left the transport industry and established Braham Produce in the South Australian town of Virginia. Originally growing cucumbers and tomatoes, he switched to growing capsicums in greenhouses in 2006 and has since built up a strong reputation for producing quality fresh produce. Andrew spoke to Michelle De'Lisle about Braham Produce and how the business stays at the forefront of innovation.



Andrew Braham is always striving to improve as a grower and his business, Braham Produce, is testament to this.

Situated in Virginia, 30 kilometres north of Adelaide, the growing operation produces 40,000 premium capsicum (bell pepper) plants in greenhouses for major market agents from the end of November until July. Andrew and his wife Zurriyet oversee the business, which has undergone many changes since it was established at the end of 2001.

Andrew's main focus includes experimenting with different ways of adding on-farm value and implementing systems that will benefit the entire growing operation.

"I enjoy trying new things and seeing something that's come from a little plant, growing from six inches tall to eight foot tall. They're like little babies – you're nurturing them all the way, and it's rewarding to see that occur," he says.

### A BIOLOGICAL APPROACH

The most successful change to the business occurred around six years ago, when Braham Produce switched to an Integrated Pest Management (IPM) approach to ease the pest pressure affecting the crops. IPM is a farm management strategy that brings together different practices and control methods (such as the use of beneficial insects) to minimise chemical use and fight weeds, pests and diseases.

Working with Biological Services, Braham Produce was one of the first businesses in the Virginia region to not only convert sections of the farm to IPM but the entire growing operation – and Andrew hasn't looked back.

"We've got no withholding periods so when the fruit is ready to harvest, we can harvest," Andrew explains.

"The plant's less stressed because you're not spraying chemicals on it and upsetting it. It's better for the fruit. You can see on the fruit that it's shinier and much healthier; and it's better for us as workers too. We're not going into a chemical environment – it's a clean, fresh air environment.

"We're always trying new varieties to see which ones would have more resistance. We're looking to improve things in a more biological way rather than chemical."

Andrew believes that undertaking beneficial bug research is important to the vegetable industry as a whole. As pests

can develop resistance to crop protection products, there are benefits to growers exploring other avenues such as IPM.

"We need to be able to combat these pests because they cause a significant amount of damage. They can cripple your business overnight if you're not careful," Andrew says.

"We also need to know about what we can do to maintain our soils and make them healthier, using less inputs and becoming environmentally friendly so we can be more sustainable and viable."

In addition to changing the way crops are protected from pests, Andrew has implemented many new features into the greenhouses. These include greenhouse structures and lighting, and watering systems.

Irrigation practices have also undergone a transformation. Andrew was the first to trial new software associated with an irrigation machine, and this technology assists in feeding the plants the correct amount of water and nutrients as well as monitoring the frequency of which this occurs. This has taken out the need for guesswork and allows Andrew to monitor the plants more closely.

Andrew says that it is important for growers to embrace on-farm technology as the industry evolves.

"Everything's changing – every minute, every day; it's fast. Twenty years ago, the return (on produce) used to be really good – you could probably do one crop a year and you'd survive for that year. Now because of the competitiveness that's coming into the industry, especially from overseas, you need to be more competitive now than ever.

"If you make one mistake or lose one thing, you can lose your business. You've got to be really conscious about money and what you do. We're after as much yield as we can get because that's the difference between surviving and not surviving."

### FUTURE IN FOCUS

At this stage, there are no plans for Braham Produce to branch out into any other crop; the focus is firmly on advancing the technology and varietal lines of capsicums to enhance the crop quality.

"We want to keep growing while asking seed and equipment companies to improve on things," Andrew says.

"One per cent improvement on one thing can lead to a big improvement all the way down the line."

Andrew says his business is in the lucky position where there is high demand for the quality fruit that it grows. The relationships between Braham Produce and its three major customers stem back since the beginning and have blossomed over that time.

Quality is key, he says.

"If you've got the quality, and you're consistent in your quality – that's what people want."

Andrew believes that the Australian vegetable industry can open its communication lines and collaborate to achieve results. He pointed to Europe as an example.

"We're very different in Australia, everyone is a closed shop; whereas if you go to Europe, everyone's more willing to help each other. Here, it's a bit more like everyone's trying to compete with each other – and what we should be doing is trying to help each other because if we do, we end up with a better result," he says.

"What we should do is look at being less chemical and more biological. We need to do that sort of stuff over here too, which will benefit everybody."



Photography by Andrew Beveridge.



Zurriyet and Andrew Braham.



Participants at the Soil First Tasmania cover crop field day.

## COVER CROP SPECIAL EDITION: MANAGING RESIDUES AND DEMONSTRATION SITE UPDATES

The Soil Wealth and Integrated Crop Protection (ICP) projects work with growers nationally to put soil management and plant health research into practice. This edition provides an update from the Cowra, New South Wales demonstration site and practical tips and tools on managing cover crop residues into the next cash crop. There's also the opportunity to get involved in further grower-led demonstrations.

### MANAGING COVER CROP TRANSITION AT COWRA

Cover crops are great for soil management. Their benefits can include improving soil structure and health; reducing erosion and weeds; adding nitrogen; and contributing to weed and disease control.

Managing the transition from cover crop to cash crop is a key factor in determining the successful integration of cover crops into your farm. With cover crops able to produce more than 100 tonnes of fresh plant material per hectare, the transition needs to be well managed to prevent problems in the following cash crop.

At the Cowra, New South Wales demonstration site, we will be looking at the use of a roller crimper (with and without herbicide) to go from a cereal rye cover crop to a pumpkin crop. Keep an eye on progress at the Facebook site, and hopefully some rain!

### MANAGING COVER CROP RESIDUES IN VEG PRODUCTION

It's important to determine your cover crop goals. Be clear on the purpose of your cover crop and how it fits into your production system. This will help determine the right cover crop, and the timing and method of termination to manage the cover crop residues.

Managing the transition from cover to cash crop successfully requires the integration of the following aspects:

1. Cover crop chemistry (carbon to nitrogen ratio).
2. How it is terminated.
3. Tillage.

Potential cover crop residue issues to look out for include:

- Cover crop residue contamination of cash crops such as baby leaf.

- Crop establishment issues due to high cover crop residues.
- Disease carry over, for example sclerotinia surviving on decaying cover crop residues.
- Cover crop residues providing food and shelter for crop pests such as snails and slugs.
- Nutrient draw down resulting in nitrogen deficiencies in the cash crop.

### GROWER-LED COVER CROP DEMONSTRATIONS

Inspired by Soil First Tasmania, the parent cover crop project is looking to support other grower-led cover crop demonstrations across Australia's main vegetable growing regions. If you are interested in having a look at a range of different cover crops and mixes, then we would like to help. The information from these demonstration sites will help to develop regional cover crop guides for the vegetable industry.

If you're interested in hosting a demonstration planting, please contact Kelvin Montagu at [kelvin.montagu@gmail.com](mailto:kelvin.montagu@gmail.com).

### INFO

You can access all the resources in this article, as well as news and events from around the country at [soilwealth.com.au](http://soilwealth.com.au). For more information, please contact project leaders Dr Gordon Rogers on 02 8627 1040 or [gordon@ahr.com.au](mailto:gordon@ahr.com.au) and Dr Anne-Maree Boland on 03 9882 2670 or [anne-mareeb@rmcg.com.au](mailto:anne-mareeb@rmcg.com.au).

*Soil Wealth and Integrated Crop Protection - Phase 2* is a strategic levy investment under the Hort Innovation Vegetable Fund. This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG16078



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For Earth, For Life  




The Yield has developed a free grower-focused app for irrigated crops. Image courtesy of The Yield.

## ASSISTING GROWERS TO OPTIMISE THEIR ON-FARM WATER USE

The use of sensing and digital technologies to improve irrigation decision-making for vegetable producers is the focus of a three-year project being undertaken by Hort Innovation in collaboration with The Yield and the Queensland University of Technology. *Vegetables Australia* provides an update on the research.

Identifying new ways to optimise irrigation is key to the ongoing success and sustainability of irrigated farming in Australia.

The rise of agricultural technology is seeing tailored farming solutions that marry microclimate sensors with data intelligence to provide accurate insight into the crop and soil water balance. By providing real-time information about what is happening in each crop, these emerging technologies can help growers make faster, more accurate irrigation decisions by backing up gut feel with hard evidence.

### EVAPOTRANSPIRATION FOR IRRIGATION

One of the biggest factors influencing irrigation requirements is evapotranspiration, a measurement that estimates combined water loss through plants (transpiration) and soil (evaporation).

The rate and level of evapotranspiration depends on the type of crop, its management, growth stage and the weather. New digital technologies make it possible to incorporate dynamic models that automatically adjust for growth stages and biomass production to gain an accurate view of evapotranspiration, now and several days in advance.

Recognising this opportunity, Hort Innovation commissioned a project entitled *Data analytics and app technology to guide on-farm irrigation* (VG15054), a strategic levy investment under the Hort Innovation Vegetable Fund. This project evaluated different modelling approaches using four key crops: cauliflower, spinach, carrots and lettuce.

It has leveraged the research capabilities of the Queensland University of Technology (QUT) and the commercial expertise of The Yield, an Australian ag-tech company providing a microclimate sensing solution.

### THE RESEARCH

For the past two years, Hort Innovation, The Yield and QUT have been developing enhanced models that calculate crop water

requirements and dynamically adjust to specific crops, growth stages and locations.

"We hope these models can be incorporated into sensor and digital technology to improve accuracy of water deficit predictions and create a scalable way of forecasting irrigation requirements," The Yield Founder and Managing Director Ros Harvey said.

With models for the four crops now developed and field trials conducted throughout the current growing season, the research project has reached ground truth stage. Researchers at QUT are verifying models by applying local field trial data, with the project due to finish in October.

### DELIVERING IMMEDIATE VALUE TO GROWERS

As part of the project, The Yield has developed a free grower-focused app designed for irrigated crops, which is available in the App Store and Google Play. This app provides seven-day prediction of evapotranspiration, together with rainfall, wind and relative humidity.

"With industry, commercial organisations and researchers working together, we're providing a rapid pathway to market," Ms Harvey said.

#### INFO

For more information, please contact [info@theyield.com](mailto:info@theyield.com).

This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG15054



Capsicum harvesting at Wiltshire & Co in Stanthorpe, Queensland. Image courtesy of FMC.

## MINIMISING PEST DAMAGE KEY TO QUALITY PRODUCE

Heliiothis is a serious pest that affects southern Queensland vegetable crops including lettuce, Chinese cabbage and cabbage. However, growers along the Granite Belt are seeing promising results from an insecticide developed to assist in the battle against this damaging pest.

Achieving high-quality fruit and vegetables that will travel well to market is the major goal for southern Queensland agronomist Peter Biddulph of Wiltshire & Co. in Stanthorpe, Queensland.

Mr Biddulph said a wide range of produce was grown in the area, with a summer season ranging from September to April. As the nearest major market is three hours away in Brisbane and much of the produce is also sent to southern markets, quality is key.

"The quality is what sells your product. You've got to be pretty well on the money with a good quality product in the box that's hitting that market."

### A DESTRUCTIVE PEST

One of the major factors determining quality is controlling key insects such as Heliiothis, which can do major damage to vegetable crops.

"Last season was a high insect pressure year, particularly early in that October/November period. Heliiothis was probably the biggest problem," Mr Biddulph said.

He said the major product used to control Heliiothis and other chewing pests was Coragen® insecticide, which has been used successfully for many seasons.

"We've used it since it was first released. It's one of those products that you pick your timing in your crop's life. Small grubs as they're hatching out is the ideal time to get them because as soon as they ingest this product, they stop feeding."

Mr Biddulph said with fruiting-type vegetables, the target window is the early flowering to late fruit set stage.

"Heliiothis is the main worry in your fruiting vegetables. It will just hatch out and make its way under the calyx and quite comfortably chew its way into the fruit," he said.

"You don't see too much of the caterpillar until the fruit is getting closer to harvest and then it will pop out. The worst thing is not only that the fruit has been damaged, it can then chew into the fruit next door. If you get some wet weather, where you can't get back in and spray, the rot can set in. That is why it is important to get that early caterpillar control."

Mr Biddulph said Heliiothis control was also particularly important in leafy vegetables such as lettuce, Chinese cabbage and cabbage that wrap early in their development. He added that usually, two Coragen sprays in a row are applied before rotating to another insecticide with a different mode of action/chemical group.

"We don't want resistance coming in so we look at that extensively when working out spray programs for different crops, and can comfortably recommend products without that fear of crossing over and spraying too many of the one group. We look at how many sprays we can do for each specific insecticide and where the best timing is for it; and relate it back to the crop that we are looking after."

### POSITIVE OUTCOMES

As well as being used to control grubs at key stages of the crop's development, the insecticide has further benefits for vegetable growers.

"The other good thing working with this product is the fact that it has a good beneficial insect profile," Mr Biddulph said.

"We have seen over the last few years that ladybeetle, red and blue beetles, and wasp numbers are going up. It has been a win-win. While you are not spraying, those little fellas are out there doing it for you 24/7. If we can preserve them, we are getting some really good results."

He said workplace health and safety was also a major consideration when selecting products.

"It is something that more growers have become aware of with their duty of care. Products such as Coragen® have a really good fit for that because of the nil re-entry periods.

"We do have challenges with spray days so if you can use a spray such as this one, it is one less worry – getting people back into sprayed blocks and keeping them safe."

#### INFO

For more information, please visit [fmc.crop.com.au](http://fmc.crop.com.au).





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Advertorial

## Experience, innovation and INFINITO® helping to tackle production challenges



Joe DeRuvo and Bayer's Darren Alexander take a closer look at cos lettuce development on the DeRuvo's Waterloo Corner property.

### Lettuce growing has been a family affair for the DeRuvos on Adelaide's northern outskirts since the 1970s and this has meant plenty of experience when it comes to managing production challenges.

Brothers Joe and Lorry DeRuvo took over the enterprise started by their father at Waterloo Corner. Today they grow iceberg and cos single leaf lettuce for McDonalds and a wholesaler, while they also grow wheat over about 200 hectares.

Lorry's son, Domenic, handles deliveries and he has a daughter, Jacqueline, while Joe's daughter, Amelia, has also worked part-time on the property.

The property comprises predominantly red loam soils with some sandy parts and they grow lettuce in rotation after five years of wheat cover crop.

Using Marksman and Balboa iceberg varieties and Goblin cos variety, they plant lettuce every week for 10 months before a break from pre-Christmas to mid-January.

Seedlings are received from Boomaroo Nurseries near Geelong in Victoria and are planted after deep ripping, composting, pre-emergent fertiliser application and a rotary hoe.

Crops are harvested after about eight weeks in summer and 12-14 weeks during winter.

Joe said tip burn was an issue of increasing concern. He said it can result in processors rejecting produce, which could then go to waste.

Market fluctuations are a continuous challenge for growers, although Joe and Lorry had fixed pricing with processors, based on weight.

Joe said they had to manage a range of diseases and insects, including downy mildew, sclerotinia and anthracnose, as well as western flower thrip and Rutherglen bug.

Maldison® and Dominex insecticides are used, Rovral® fungicide targets the sclerotinia, Octave® has been applied for anthracnose and Ridomil® Gold MZ has traditionally been used to combat downy mildew. However, the DeRuvos have also recently applied the new generation fungicide, Infito, against downy mildew following a recommendation from local CRT Agronomist Paul Pezzaniti.

Infito, from Bayer, is active against all key stages in the downy mildew life cycle in a range of crops and also helps protect against late blight in potatoes.

It combines two new active ingredients, propamocarb hydrochloride and fluopicolide, effectively providing an in-built resistance management solution for growers.

Infito penetrates plant tissue within minutes and is highly systemic, moving quickly into leaves and stems,

inhibiting disease development.

Compatible with most commonly used insecticides and fungicides, it is equally effective under all weather conditions and is quickly rainfast, providing long lasting protection.

Joe said with about 40 resistant strains of downy mildew, they look at variety selection as well as spray applications to manage the disease.

"We might have to spray every week if we are not on top of it, but recently we have sprayed twice with Infito and also used Ridomil," he said.

"We had been using Ridomil and it (the disease) had been getting out of hand.

"Marksman is prone to mildew and we had the right conditions for it.

"Paul had seen good results with Infito, so we applied it twice, seven days apart, and it stopped it. Then we went with a resistant variety.

"Infito just gives us an option. We are now not hitting the disease week after week with the same chemical."

More information on Infito can be found at [crop.bayer.com.au/infito](http://crop.bayer.com.au/infito)



Tony Panetta from Gawler River Produce with a checkweigher and metal detector system. Image courtesy of A&D Australasia.

## INSPECTION AND WEIGHING SYSTEMS DEVELOPED TO MEET RETAILER DEMANDS

The rise in growers supplying fresh produce for Australia's major supermarket brands has led to stricter quality control on-farm. Growers who supply products (including fresh produce) that are packaged under a retailer's brand require the correct weighing and inspection equipment as well as reporting and data capture solutions.

Many of Australia's vegetable growers supply produce that is packaged under major supermarket brands, including Aldi, Coles, Costco, Metcash and Woolworths. To meet the retailers' requirements for quality control, all fresh produce must be accurately weighed and inspected before being sold to consumers under the retailer's brand.

The increase in supermarkets producing their own privately-labelled products has led to growing operations needing the latest technology in weighing and inspection, according to A&D Australasia National Sales and Marketing Manager Julian Horsley.

A&D Australasia provides weighing and measurement equipment, including end-of-line inspection which automatically weighs packaging to ensure it isn't underweight or overweight. In addition, the company supplies metal detectors and x-ray machines that alleviate the risk of potential product contamination.

"If I own a potato growing company and we're packaging for Woolworths and putting their name on the produce, then it's the retailer that dictates what you must do in your process to make sure everything is compliant," Mr Horsley said.

"To pack Woolworths' branded potatoes, the retailer needs to make sure the potato company has all the boxes ticked and the latest technology to make sure there are no underweight packs and that there is no metal contamination risk in their products, because it's the retailer that's going to have their named dragged through the mud if there's a problem.

"The supermarkets have made it mandatory for a company to have this sort of technology if they want to supply under that contract."

A&D equipment for fresh produce growers and packers is manufactured to suit the specifications of Australia's biggest retailers and the company can also provide local service and support.

### INDUSTRY BENEFITS

The company's main horticultural focus is innovation in manual packing sheds, where produce is more delicate and expensive to produce.

"For example, strawberries or raspberries have to be packed

manually, and where there's a lot of labour, it gets very expensive," Mr Horsley said.

"Anything that involves manual packing or manual sorting, we offer automated traffic light systems so the operators don't have to think about getting their bags to the right weight. A green light comes on when it's right, and this has a two-fold benefit: it makes sure that it's not underweight and the customer doesn't get upset; secondly, for the producer, it makes sure that the product is not overweight and they're not giving away too much produce for free.

"Using these traffic light systems, they're faster from a packing point of view and they also reduce the giveaway factors."

The company's weighing and inspection systems cover the entire growing process – it can assist growers in the field to weigh produce as it's harvested through to laboratory analysis and quality assurance.

"The wine industry is a good example of where there's a lot of laboratory analysis to make sure there is no bacterial contamination – we manufacture very fine weighing instruments for the laboratory as well, right down to micrograms (a millionth of a gram)," Mr Horsley said.

While A&D Australasia also operates in health care and the automotive sector, it is focused on the quality of the weighing and inspection systems in Australia.

"It's natural that we're aligned with that as a sector because it is a very active sector in Australia. Not just for our domestic consumption but as everyone knows, our dairy, produce and seafood is respected for its quality and health, and it's exported to south-east Asia and beyond," Mr Horsley said.

"A lot of our customers are exporting products so this is not just for local demand. Everything is measured and inspected, and we do well in that space."

### INFO

For more information, please visit [andweighing.com.au](http://andweighing.com.au).



## ARE YOU READY TO JUMP INTO ACTION?

It is important for vegetable growers to adequately plan to protect their crops from weed, disease and insect pressures ahead of the peak spring growing season. Syngenta Solutions Development – Technical Lead Scott Mathew outlines what growers need to know prior to spraying their crops.

By now, planting operations for many spring-grown vegetable crops are coming to an end and it's time to turn to another important field operation: spraying.

Weed, disease or insect pressure can really hammer crops when they are small. Crop recovery can be slow after attack and every grower knows that timing for every task in spring can be tight. When you run into inclement weather, or have a major breakdown, you can feel the pressure rising.

The reality is that weeds and bugs are happy to make the most of any opportunity. Time invested now in preparing your sprayer will ensure you are ready and the pests don't get a jump on you.

The following checklist is a good starting point, but first consider your own safety. Do you have a good supply of safety gloves, glasses, chemical masks and protective clothing?

### THE CHECKLIST

- Start by familiarising yourself with the operator manual. This contains a lot of information from the manufacturer.
- Inspect hoses, clamps and fittings for wear, cracks or leaks. Repair or replace as needed.
- Check fluid levels and look for any leaks before starting the sprayer.
- If the sprayer has been stored for a while, make sure to run plenty of fresh water through it.
- Clean all filters and nozzles and flush. Check the flow rate for each nozzle against the manufacturer's specifications. Replace any that have 10 per cent or more variation from new nozzle flow rate. Output must be uniform across the boom. If two or more nozzles fail the flow rate test, it's probably time to replace the whole set.
- Thoroughly inspect the structural components of the sprayer. Look for any metal cracks or breaks and make sure these are repaired. Check for rusted areas. Clean and touch-up any such areas with fresh paint to prolong the life of the sprayer.
- Examine the wiring and the electrical system and make sure all components, switches and lights work.
- Inspect boom suspension and overall mechanical condition. Repair as needed. Automated boom height control can't perform well if boom mechanicals are worn.

- Inspect the flow meter. Clean, test or replace as needed.
- Make sure to check the tyres are properly inflated.

### SPRAY CALIBRATION

Correct application starts with calibration. Too much product can lead to crop damage or harm the environment and, at the very least, waste money. Too little product can also cost because it will fail to give the desired level of control and under-dosing can potentially lead to resistance.

It's always a good idea to calibrate your spraying equipment (e.g. speed test) under field conditions. Don't forget to check the calibration of any wheel or radar speed sensors. A minor change in the angle or position of the radar unit can significantly impact on application rates.

### OTHER CONSIDERATIONS

A rugged, compact storage case mounted on the sprayer or tractor is an ideal place to store extra nozzles, nozzle bodies, spray nozzle air blaster, pressure gauge, cleaner brush and safety equipment.

And a final word on night spraying opportunities. Night application often increases spraying efficiency because droplet evaporation is reduced and there is less wind to cause off-target spray movement. Plants are also often less stressed at night, which can help with chemical uptake. There are all sorts of high intensity LED lights available now that provide a bright clear white light to illuminate the paddock. LED kits are also available so that the spray pattern from each nozzle is easily visible from the cab. Look into these very useful additions to the spray rig.

### INFO

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

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



vegetablesWA Vegetable Industry Development Officer Sam Grubiša with an eggplant crop at Kuzmicich Farm in Carnarvon, WA.

## MEET THE VEGETABLE INDUSTRY'S EXTENSION OFFICERS: SOUTH-EASTERN VICTORIA AND WA

This is the first in a series of profiles of Vegetable Industry Development Officers, who have the job of effectively extending R&D and relevant information to growers through 10 regionally-based extension projects that are part of the National Vegetable Extension Network (VegNET). VegNET is a strategic levy investment under the Hort Innovation Vegetable Fund.



VegNET South-Eastern Victoria Field Officer Carl Larsen.

### MEET CARL LARSEN, FIELD OFFICER – SOUTH-EASTERN VICTORIA

Science communication and sustainable agriculture are my two passions. Coming from a rural background in western Victoria, I've always been involved in agriculture in some way. This has allowed me to work in research positions and more recently consultancy to understand the practical implications of policy and science on communities and agriculture.

My involvement in the horticulture sector has spanned vegetables, apples and pears, stone fruit, strawberries, citrus and wine grapes, working on a wide variety of research, development and extension topics over almost 10 years. This has predominately related to farm productivity, resource management, strategic planning, evaluation and business case development for government agencies, industry groups, Research and Development Corporations and individual farmers.

Working with people to solve problems and putting research into practice are some of the key highlights of the current VegNET project that RM Consulting Group (RMCG) is delivering. I've really enjoyed working with growers and other industry representatives on the sheer breadth of issues this dynamic industry faces – ranging from productivity, resource use, business management, markets and consumers, as well as technology. There's a real drive for innovative technologies with the growers we work with, such as precision agriculture and IoT (internet of things), as well as adapting some practices from other industries and the past, for example cover cropping and organic amendments.

The main opportunities VegNET provides growers and the Victorian industry is connection to the latest research information, advice and practical know-how. We're doing this by:

- Meeting the needs of the growers in each region: there are always differences in what growers need, when and how, and we're tailoring our approach in the north, west and south-east to suit these differences.
- Offering practical training and events: workshops, grower groups, webinars, one-on-one farm visits.
- Keeping you informed through fact sheets, technical notes, case studies and communications such as e-newsletters, the AUSVEG VIC website, social media, local newspapers and SMS alerts.

One of the great achievements of our VegNET project is not only connecting levy payers to research that has been completed, but research that is currently underway. The process of linking growers

with researchers delivers great benefits for the industry – more informed research, delivering on the biggest pain points and gain points of growers.

Want to be involved in VegNET in your region or find out more about how the program can benefit you? Get in touch with me at carll@rmcg.com.au.

### INTRODUCING WA'S SAM GRUBIŠA

For 10 years previous to my appointment as the Western Australia Vegetable Industry Development Officer, I worked on the family farm. I tried my hand in other areas such as pathology, however when growing is in your blood, the pull of the land is too strong to ignore.

As the first daughter in three generations to pass through the farm gates, I was treated no different to the sons who came before me. I was thrown into all areas of the farm. This ranged from ground prep, planting, harvesting and packing, through to being the delivery truck driver and the face-to-face contact with our traders. My days often started in the dark and finished when the sun was setting. It wasn't easy, but I loved it.

As my passion for the land grew so did my network of contacts, interest in the larger industry and the factors that influenced it. This led to me becoming a vegetablesWA Committee of Management member. When the position of Industry Development Officer became available, I thought, "I can do that and make an impact!" The vegetablesWA CEO and Committee of Management President agreed and 18 months on, I have made the position my own. With my grower background, I am able to appropriately match growers with the R&D and information relevant to their crop and

innovation objectives. Also, being able to convey the perspective and priorities of growers during my interactions with colleagues from vegetablesWA, the VegNET project and other industry bodies allows me to express the complexity and depth of knowledge those on the land possess. This in turn aids in providing a more targeted and tangible approach from industry to grower.

Covering an area from Broome to Albany and crops from artichoke to zucchini, my curiosity is never dulled. There is always a new farm to visit, crop to understand, opinion to consider or experience to share. The extensive network of skill and knowledge that is VegNET means there is never a shortage of research and information, and as I live in the biggest state in the country I doubt I'll run out of people to engage with.

The opportunities to learn from my colleagues within vegetablesWA combined with the support and R&D offered through the VegNET project will hopefully allow me to continue engaging with, supporting and reinforcing the innovation and hard work of the WA grower.

For more grower perspective, you can contact me at sam.grubisa@vegetableswa.com.au or 08 9486 7515.

### INFO

For more information on the National Vegetable Extension Network and upcoming events, please contact Adam Goldwater on 02 8627 1040 or adam.goldwater@ahr.com.au.

Regional capacity building to grow vegetable businesses – national coordination and linkage project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG15049



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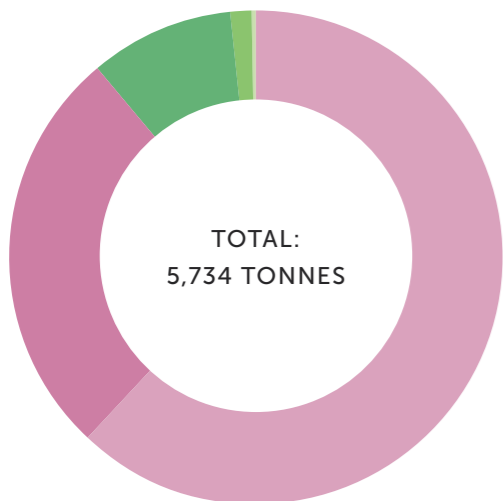
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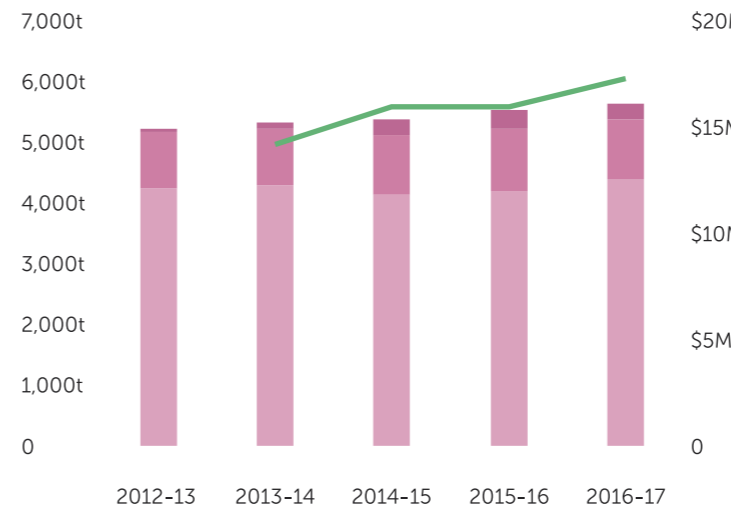
# VEGGIE STATS: BRUSSELS SPROUTS



## PRODUCTION BY STATE 2015-16

- Australian Brussels sprout production was worth over \$17.5 million in 2016-17, up from \$14.5 million in 2013-14.
- More than half of all Australian Brussels sprout production takes place in South Australia, with the majority coming from the Adelaide Hills. Coldstream in Victoria is the other major growing region in Australia.

Source: Australian Horticulture Statistics Handbook - Vegetables, Hort Innovation, various years.



## BRUSSELS SPROUT PRODUCTION

- Australian Brussels sprout production has remained steady over recent years, with a total volume of around 5,700 tonnes produced in 2016-17.
- Total production has grown by around 1-2 per cent year-on-year since 2012-13.

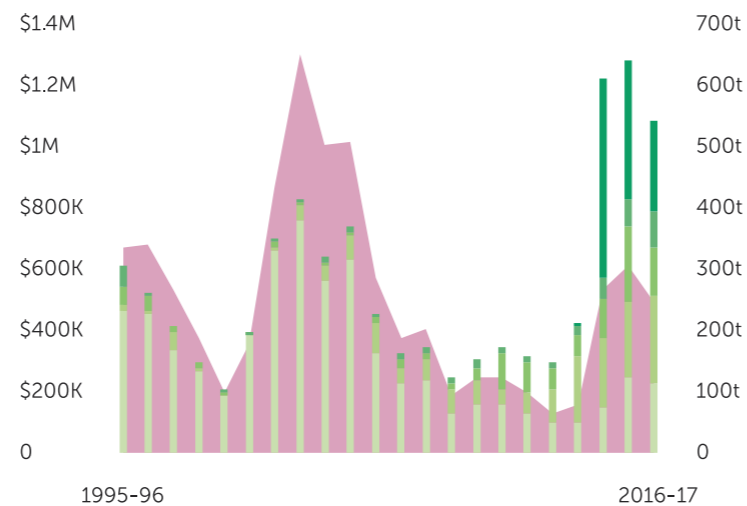
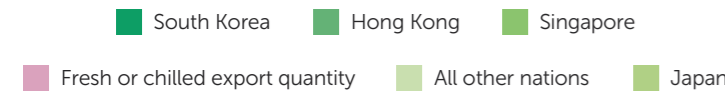
Source: Australian Horticulture Statistics Handbook - Vegetables, Hort Innovation, various years



## EXPORTS OF AUSTRALIAN BRUSSELS SPROUTS

- Brussels sprouts have enjoyed recent export success in premium markets, with value growth outstripping volume growth thanks to key markets like Japan and Singapore.
- In particular, Australia's free trade agreement with South Korea commencing December 2014 coincided with a huge increase in Brussels sprouts' export value, generating nearly \$1.5 million in exports from 2014-15 to 2016-17.

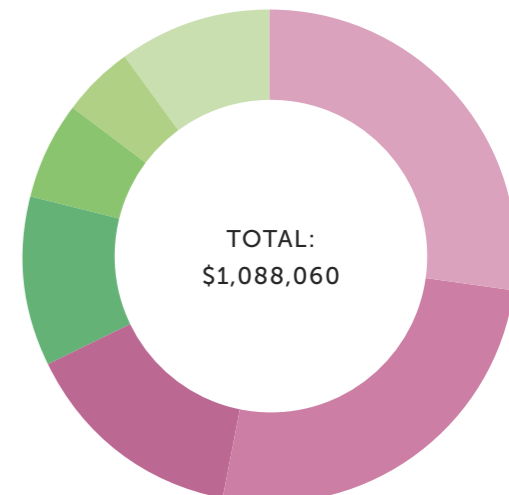
Source: Global Trade Atlas, accessed September 2018



## KEY EXPORT MARKETS IN 2016-17

- Exports of Brussels sprouts have earned over \$1 million each year since 2014-15, their best performance since the early 2000s, even though total exports are currently half the volume shipped during that period.

Source: Global Trade Atlas, accessed September 2018



In 2014, British man Stuart Kettell spent four days pushing a Brussels sprout up a mountain - using only his nose.

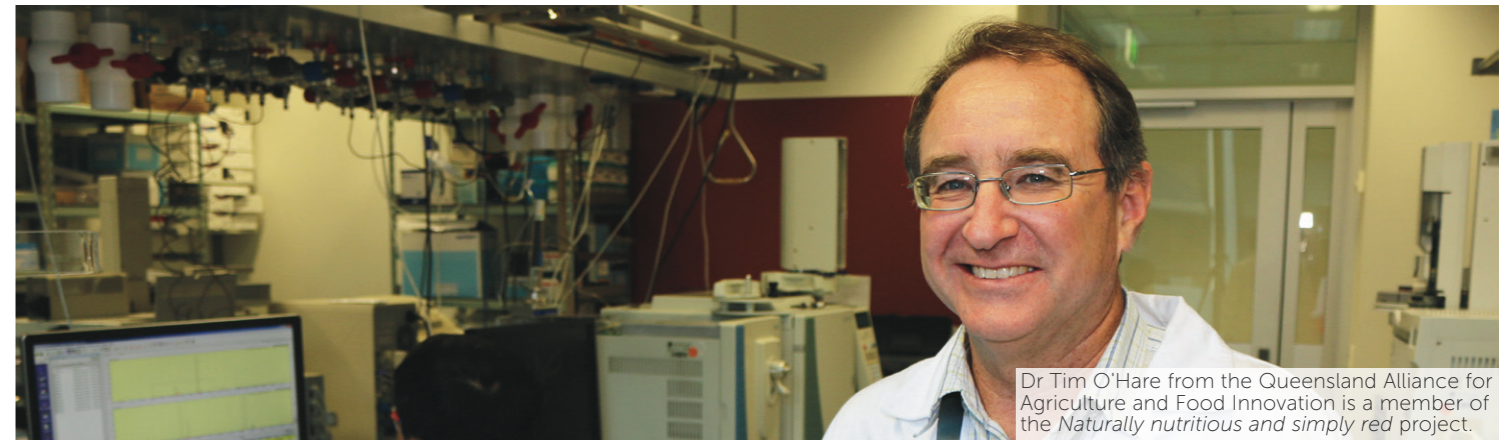
Veggie Stats data provides a broad indication of the performance of the profiled commodity and should be interpreted carefully. The data is presented at the national level and therefore does not account for differences among jurisdictions and individual growing operations. This communication has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government. Project Number: VG15027



Purple sweet corn is one vegetable being used in the *Naturally nutritious and simply red* project.



Lead researcher of the *Innovative cold plasma for horticultural industries* project, Dr Sukhvinder Pal Singh.



Dr Tim O'Hare from the Queensland Alliance for Agriculture and Food Innovation is a member of the *Naturally nutritious and simply red* project.

## BUILDING CONSUMER CONFIDENCE AMONG AUSTRALIANS

The Health, Nutrition and Food Safety Fund is one of seven funds developed by Hort Innovation to facilitate collaborative cross-industry research to secure the future of the horticulture industry. *Vegetables Australia* spoke to Hort Innovation Business Development Manager Sharyn Casey about the importance of delivering safe, nutritional and healthy products to Australian consumers.

Hort Innovation developed the Hort Frontiers initiative to support research that will address major challenges facing the horticulture industry, which are typically out of scope of levy investments and matching Federal Government funds.

The projects within the Hort Frontiers initiative are relevant across the horticulture industry, long-term investments and likely to attract additional public and private funding as co-investment. The vegetable industry, like all commodities, is set to benefit from the investments made under Hort Frontiers as the diversity of investors includes organisations from along the value chain, including non-horticulture commercial industries; universities; public and private research institutes; and state government agencies and international co-investors.

There are currently seven strategic funds in Hort Frontiers: Advanced Production Systems; Asian Markets; Fruit Fly; Green Cities; Health, Nutrition and Food Safety; Leadership; and Pollination.

### IDENTIFYING HORTICULTURAL GAPS

In 2012, Hort Innovation initiated an extensive industry consultation process to seek feedback on future priority research areas that have the potential to grow the horticulture sector. Sixteen priority research areas were identified.

"The Board then went through the process of identifying which of the 16 priority areas would be highly attractive to co-investors with sufficient momentum to be fully operational by the end of 2015," Hort Innovation Business Development Manager Sharyn Casey said.

"The five foundation funds included the Health, Nutrition and Food Safety Fund. We then undertook an independent economic impact assessment of the remaining priority areas which led to the establishment of a sixth fund (Pollination).

"As part of our commitment to continuous improvement, we have just completed a further stakeholder consultation process to seek feedback on the strategic direction of each of the Frontier

Funds, including the Health, Nutrition and Food Safety Fund."

Ms Casey said the overarching aim of the fund is to grow the horticulture industry by increasing consumption of fresh, safe and nutritious fruit, vegetables and nuts.

"Food safety and nutrition is a priority for both consumers and growers. Good food safety and nutrition promotes consumer confidence and industry growth for the vegetable sector and wider horticultural industry," she said.

"The fund is targeted at partners who, like Hort Innovation, share a vested interest in achieving this aim. This includes everyone from growers to researchers to commercial businesses working across the horticultural value chain."

### INCREASING INVESTMENT

There are four key investments in the fund at present, with a total investment value of \$19.6 million. Two of these key projects are running over six years and are of particular interest to the vegetable sector, including *Innovative cold plasma for horticultural industries* (HN15000) led by the New South Wales Department of Primary Industries.

"This project is focusing on the development of a new tool to reduce food safety risks to both consumers and industry," Ms Casey said.

"The first phase of the project will assess the use of 'Supercharged Air' technology (using cold plasma) to decontaminate fresh horticultural produce and nuts to mitigate the risk of food safety incidents and boost consumer confidence."

Another project that could benefit the vegetable industry is led by the University of Queensland, entitled *Naturally nutritious and simply red* (HN15001).

"One of the main objectives of the *Naturally nutritious* project is to provide initial research into innovative and appealing products that are nutrient-dense, can be differentiated in the marketplace, and are visually attractive and flavoursome," Ms Casey said.

*Naturally Nutritious* addresses key investment themes within the fund including the development of value-added nutritional foods and consumer preference for Australian fresh produce. This project currently involves strawberries, macadamias and purple sweet corn.

Two other projects under this fund have included *Consumer insights into nuts* (HN16001) and *Nuts for Life – educating health professionals* (HN17002).

### INNOVATION IN FOCUS

These projects are all cross-sectoral, with Hort Innovation providing regular updates to industry on its Hort Frontier investments. Ms Casey said it strives to drive alignment with current initiatives where possible.

Hort Innovation welcomes feedback from growers on any of its projects, including Hort Frontiers.

"To date, we have not received specific feedback from vegetable growers; however, we would welcome hearing from levy payers," Ms Casey said.

### INFO

For more information, please visit [hortfrontiers.com.au](http://hortfrontiers.com.au).

To submit an idea for a future project, visit Hort Innovation's Concept Proposal Form at [horticulture.com.au/about/investing-is-our-business/concept-proposal-form](http://horticulture.com.au/about/investing-is-our-business/concept-proposal-form). *Vegetables Australia* will profile each Hort Frontiers Fund in further detail in future editions of the magazine.

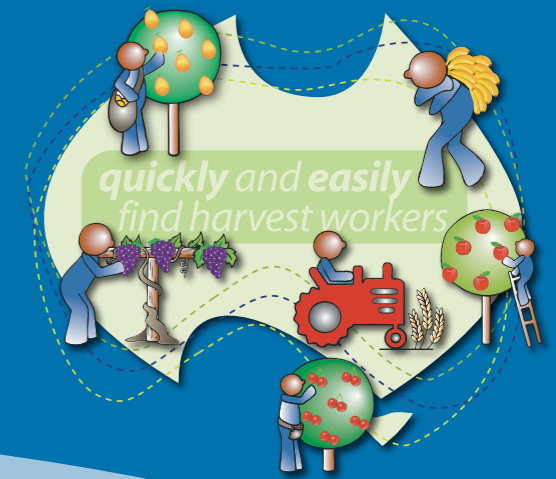
These projects have been funded by the Health, Nutrition and Food Safety Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with funding from a range of co-investors and contributions from the Australian Government.



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Jessica Page Researcher of the Year Jessica Page.  
Photography by Andrew Beveridge.

## JESSICA'S RESEARCH PROVES BENEFICIAL TO HORTICULTURE

A long and successful career as an entomologist for IPM Technologies has led Jessica Page all around the world, from Europe to south-east Asia and New Zealand, to work on Integrated Pest Management practices. Jessica's research and commitment to horticulture was celebrated at Hort Connections 2018 when she took home the Researcher of the Year award. *Vegetables Australia* reports.

As an entomologist with IPM Technologies, Jessica Page has spent over 20 years working closely with vegetable and potato growers to reduce their insecticide use and improve control of insect pests by using Integrated Pest Management (IPM) practices.

Entomologists specialise in insects and other invertebrates (animals that don't possess a skeleton of bone, either internal or external). Jessica's role is to give advice to clients such as growers and remind them that not all insects are bad for their crops.

Throughout her two decades with IPM Technologies, Jessica has worked with a wide variety of crops including potatoes, onions, shallots and other vegetables (celery, lettuce, brassicas); strawberries; flowers; broadacre crops (wheat, barley, canola); pasture; and tree crops. Her research has incorporated both field and extension activities.

Jessica's dedication to the horticulture industry and her enthusiasm for working with growers was recognised at the Hort Connections 2018 National Awards for Excellence Gala Dinner on 20 June, where she received the Researcher of the Year award sponsored by Bayer.

### INSECT FOCUS

Jessica's journey into the horticulture industry began when she joined the Victorian Department of Primary Industries (DPI) as a laboratory technician after completing university. This led to her working at an insectary, a place where insects are kept, exhibited and studied. In 1996, Dr Paul Horne (who was also working with Jessica at the DPI) established IPM Technologies and Jessica joined his team. And the rest, as they say, is history.

Fast forward to 2018, and Jessica has worked on various projects in both the potato and vegetable industries, and co-authored two books published by CSIRO Publishing – *Controlling invertebrate pests in agriculture* and *Integrated Pest Management for crops and pastures*.

There are three components to IPM: biological control, cultural control and chemical control. The program is focused on integrating the three approaches to create a strategy that is sustainable.

"All of our research is about helping growers control pests and developing IPM strategies. We apply the same approach to every crop type that we work in," Jessica says.

"Alongside that, we do a lot of pesticide testing on beneficial insects. We apply that research directly to the extension activities.

"For the vegetable industry, it's beneficial because it's a better control of pests, a reduction in insecticides and prepares growers for the arrival of new pests such as the tomato potato psyllid (TPP)."

Currently IPM Technologies is delivering a national potato and onion IPM extension project. This five-year program offers hands-on, practical training for potato and onion growers and agronomists in all major production regions around Australia.

An IPM extension program for the potato and onion industries (MT16009) is a strategic levy investment under the Hort Innovation Onion, Fresh Potato and Potato Processing Funds.

### COLLABORATION IS KEY

Jessica's work has enabled her to travel around the world with IPM Technologies. She has worked in Denmark, Sweden, Switzerland, south-east Asia and New Zealand to visit researchers and collaborate in the IPM space.

"I think collaboration is always very valuable but I think what we've learnt is that Australia is leading the way in many aspects of IPM," Jessica says.

"IPM in Australia is as well-developed as it is elsewhere. Also, the issues that farmers face here and their concerns about making practice changes are the same regardless of where they are in the world."

The TPP incursion in New Zealand and Western Australia is a strong example of how we can work with, and learn from, our overseas counterparts. In 2009, IPM Technologies visited New Zealand to help to develop an IPM strategy for growers following the detection of the psyllid. Now, the lessons learnt from our trans-Tasman neighbours using these practices can be applied to Western Australian growers who are currently managing TPP.

"When it comes to dealing with a specific pest or a pest that we don't have here, there is a lot we can learn. Working with researchers who are willing to share their knowledge is really important, and the researchers we met in Switzerland, Sweden, Denmark, south-east Asia and New Zealand were all very open."

Jessica says that her horticultural knowledge has developed from her experience working at IPM Technologies over the past 20 years, particularly in the field.

"We have always placed an emphasis on working collaboratively with growers and that's been really fundamental

to everything that we do. We learn as much from the growers that we work with as they do from us," she says.

There has been positive feedback from growers as a result of working with IPM Technologies – and the rewards are two-fold.

"Some of the most rewarding parts of the job are working with individuals and small farms, and helping them make changes on the small-scale projects that we do, not just the big national ones," Jessica says.

### WOMEN IN HORTICULTURE

As a female who has spent over two decades in the horticulture industry, Jessica says that women don't necessarily need to be encouraged to enter the sector.

"When I go to La Trobe University [in Victoria], it seems that half of the agriculture/science students are female. I think we need to encourage them to stay in the industry and I suppose a big part of that would be making sure that there are rewarding career opportunities, before and after they have children – so supporting them when they come back to work," Jessica says.

"I think it's also really important that there are more women in leadership roles, and that they're visible so that young women can see that there are long-term career options. It's also often hard for women to be visible."

Women have certainly shared the limelight at IPM Technologies, with Jessica's colleague Angelica Cameron receiving the Researcher of the Year award (sponsored by SA Water) at the 2018 AUSVEG SA and William Buck Vegetable Industry Awards for Excellence in April. Angelica was also nominated for the national award.

Jessica says winning these awards is a great endorsement for the company.

"It means that we're on the right track, and that what we've been doing is relevant and is being appreciated," she says.

"My proudest achievement is working for IPM Technologies and what our company as a whole has achieved. That's making practice change, helping growers and being able to reduce pesticide use.

"I'm really proud to have received the Researcher of the Year award. I'd also really like to mention as a company, we are proud that Angelica won the award in South Australia. She has a long and very successful career ahead of her."

The Researcher of the Year Award is sponsored by leading crop protection product developer Bayer. According to Peter Sullivan, Bayer Horticulture Marketing Manager, the company's sponsorship of the award reflects the importance of investing in research to advance the Australian horticulture industry.

"Bayer has supported the Researcher of the Year award for many years and we recognise the crucial role that researchers play in contributing key findings and extension work to support Australia's vegetable and potato growers," Peter said.

"Jessica and the team from IPM Technologies have helped many growers achieve sustainable and effective protection of their crops through Integrated Pest Management practices and this would not have been possible without their tireless research behind-the-scenes. Jessica is a very deserving recipient of this award and we congratulate her on her achievements."

## GATHERING VEG INDUSTRY AGRICHEMICAL NEEDS AND PRIORITIES

A strategic levy investment that aims to capture grower needs in the agrichemical space is currently underway. Coordinated by AUSVEG's Patrick Arratia, it has so far identified issues in specific crops, and all vegetable growers are invited to participate in a survey to assist the project as it progresses.

AUSVEG is coordinating *Vegetable Agrichemical Pest Management Needs and Priorities* (VG16060), a strategic levy investment under the Hort Innovation Vegetable Fund.

The project's objective is to coordinate the vegetable industry's agrichemical needs by identifying and prioritising pest, disease and weed issues, and identifying potential gaps through the implementation of an effective prioritisation process.

Growers of some vegetable crops suffer from a lack of legal access to crop protection products. Diseases, pests or weeds may be regional, occasional or may not be of sufficient size to make agchem companies bear the initial high cost of registering suitable pesticides.

The aim of this project is to establish direct grower interaction via industry consultation (regional workshops and an online crop-specific survey) and ensure that the agrichemical needs of the vegetable sector are accurately recorded and understood through the project. This will result in vegetable industry members adopting and participating in an effective agrichemical prioritisation process and in turn, directing R&D funding for crop protection purposes that will translate into better agchem access for vegetable growers and for priority issues identified during industry consultation.

### HAVE YOUR SAY IN THE NATIONAL PEST SURVEY

AUSVEG is asking vegetable growers and agronomists to participate and contribute to this project by taking the time to fill in crop-specific surveys. This online, national pest survey is an extremely important tool to gather pest, disease and weed information from vegetable growers across Australia. The survey can be found at [ausveg.com.au/vg16060](http://ausveg.com.au/vg16060).

Keep an eye out for AUSVEG Project Coordinator – Agrichemical Pest Management Needs and Priorities Patrick Arratia as he visits key vegetable growing regions and stay tuned for upcoming project consultation workshops.

### INFO R&D

For more information, please contact Patrick Arratia on 03 9882 0277 or at [patrick.arratia@ausveg.com.au](mailto:patrick.arratia@ausveg.com.au).

This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG16060

**Hort Innovation**  
Strategic levy investment

**VEGETABLE FUND**



Capsicum leaf severely affected by bacterial leaf spot.



Tomato fruit also severely affected by bacterial leaf spot. Images courtesy of Dr Cherie Gambley.

## EXPLORING BACTERIAL LEAF SPOT IN CAPSICUM AND CHILLI CROPS

A strategic levy investment investigating the causes of bacterial leaf spot in chilli and capsicum crops has recently concluded. Queensland Department of Agriculture and Fisheries Plant Pathologist Dr Cherie Gambley shares the key outcomes and recommendations from the project.

The vegetable industry is now better equipped to develop integrated disease management programs for bacterial leaf spot (BLS) of capsicum and chilli field crops through the completion of the project *Management and detection of bacterial leaf spot in capsicum and chilli crops* (VG14010), a strategic levy investment under the Hort Innovation Vegetable Fund. As tomato is considered an alternative host for the BLS pathogens, investigation of the causal agents of the disease in tomato was also included in the study.

This project was also aligned to the Plant Biosecurity Cooperative Research Centre (PB CRC) Project PBCRC2002 entitled *New approaches for diagnosing bacterial pathogens*. The work in this Hort Innovation project supported and extended existing research within the PB CRC program by providing complementary research. PhD student Rebecca Roach was co-supervised by La Trobe University; the Department of Environment, Land, Water and Planning, Victoria; and the Queensland Department of Agriculture and Fisheries (QDAF).

### PRELIMINARY FINDINGS

Previously it was assumed that the bacterium *X. campestris* pv. *vesicatoria* (now known as *X. vesicatoria*), was causing BLS in all solanaceous crops in Australia. The results of this project clearly indicate this is not the case; instead there are four different *Xanthomonas* species associated with the disease. Furthermore the species are largely host-specific, whereby *X. euvesicatoria* infects capsicum, chilli and tomato, and *X. vesicatoria* and *X. perforans* infect only tomato. The fourth species, *X. arboricola*, was found in association with BLS symptoms and able to weakly infect tomato only. Given this weak pathogenicity, its ability to cause BLS disease is questionable and as such the bacterium is unlikely to need control.

Furthermore, race-typing of *X. euvesicatoria* isolates identified races 1 and 7 in Australia. There are currently several commercial capsicum lines in Australia with resistance to race 1 and until recently, there were very few readily available with resistance to race 7. Importantly, the diversity of *X. euvesicatoria* races and other *Xanthomonas* detected in Australia is very low; however, as there is no regulation for these bacterial pathogens it is possible new races and species could be introduced with seed. New capsicum varieties released recently in Australia or soon-to-be-released will provide resistance to all known races from overseas, thus providing some mitigation for this risk.

Copper tolerance testing of the different *Xanthomonas* species revealed all were tolerant to highly tolerant. Although the minimum amount of copper used in the tests is well below the amount of copper routinely applied in the field, disease control is ineffective. This highlights that copper tolerance in bacterial populations is not the complete answer as to why copper is ineffective for disease control. Copper may still have some role in the management of BLS; however, alternative methods are needed to address the ineffectiveness of using copper alone. To this end, essential oils showed promise as preliminary testing indicated they have a strong antibacterial effect against *X. vesicatoria* and *X. euvesicatoria*, both as a volatile gas and through direct contact.

The literature review on survival of BLS pathogens between cropping cycles highlighted the importance of using disease-free planting material. Survival of the bacterial pathogens in the environment is quite low and disease outbreaks are more likely initiated from primary introduction of the pathogen each season – rather than transfer of the bacterium from sources within the environment.

### FUTURE ISSUES

Ongoing international trade in seed, together with the high seed-transmissibility of *Xanthomonas*, increases the risk of the arrival of new races or species into Australia. New varieties with broader

disease resistance packages will assist in mitigating risk against known exotic races of *X. euvesicatoria* but not against other species or newly-emerging races.

Overuse of a single management strategy such as a resistance gene or a single chemical can provide strong evolutionary pressure on the bacterial pathogen, leading to mutation and the local emergence of resistance-breaking races or chemically-tolerant populations. A multifaceted approach to disease management is recommended, starting with clean seed to prevent primary disease introduction into crops and then other strategies to control introduction of the bacterium from environmental reservoirs where this does occur.

The newly contracted Hort Innovation strategic levy investment *Area wide management of vegetable diseases: viruses and bacteria* (VG16086), a nationally focused project led by QDAF will follow-up on these future research activities.

### INFO R&D

For more information, please contact Dr Cherie Gambley on 07 4681 6130 or at [cherie.gambley@daf.qld.gov.au](mailto:cherie.gambley@daf.qld.gov.au).

This project has been funded by Hort Innovation using the vegetable research and development levy, in-kind contributions from the Queensland Department of Agriculture and Fisheries and contributions from the Australian Government.

Project Number: VG14010



### MAJOR RECOMMENDATIONS FOR THE MANAGEMENT OF BACTERIAL LEAF SPOT (BLS)

- Consult with your seed supplier about assurances on the health status of the seed.
- Heat treatment of seed can prevent primary introduction of the BLS bacteria into crops. This will also mitigate the risk of the introduction of new bacterial races which may circumvent existing plant host resistance genes and the risk of other potential exotic and endemic disease threats.
- Use resistant capsicum lines where possible.
- Combine copper with manganese-zinc ethylene bisdithiocarbamate (EBDC) (e.g. mancozeb) early in the crop cycle to improve availability of bactericidal forms of copper and thus early infections. Later applications are not practical due to withholding periods of the EBDC.
- Alternative, non-copper products for control of the BLS bacteria are under development by major chemical companies, with one product recently released. Please check the Australian Pesticides and Veterinary Medicines Authority (APVMA) for a list of currently registered products for use in your crop.

### FURTHER RESEARCH ACTIVITIES

- Development of a fast diagnostic test to race-type bacterial pathogens. This will allow informed varietal selection for growers.
- Further evaluation of essential oils through investigation of spray application methods and timings.
- Continued investigation of other alternatives to copper.
- Further investigations of seed treatment strategies.

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## INVESTMENT IN SURVEILLANCE UNDERPINS INDUSTRY GROWTH

As Australian vegetable growers work to increase their export market share, they can look to benefits flowing from the Australian Government's investment in strengthening biosecurity surveillance through the Agricultural Competitiveness White Paper, with AUSVEG and other industry bodies working with the Federal Government to protect farm health and boost exports.

Australia's geographic isolation, combined with more than a century of strong biosecurity measures, has kept us free of many pests and diseases found elsewhere in the world.

But an increasing number of cargo and passengers, changes to our climate and an increasing global spread of plant pests are putting this freedom at risk. Our trading partners are also demanding stronger evidence of our pest and disease freedom (it is no longer enough to say something just isn't here).

To meet these challenges, the Federal Government is investing \$200 million over four years through the Agricultural Competitiveness White Paper (2015-2019) to improve biosecurity surveillance and analysis, and better target critical biosecurity risks.

A crucial part of the investment is the building of a new, improved national surveillance system; one being developed in partnership between government, peak industry bodies, researchers, environmental groups, growers and the general community.

### REMAINING VIGILANT

AUSVEG Biosecurity Coordinator Callum Fletcher is a member of the Federal Department of Agriculture and Water Resources' Plant Health Surveillance Consultative Committee, joining representatives from Growcom, Hort Innovation and the Grains Research and Development Corporation in providing an industry view on the White Paper investment in surveillance.

The committee also includes state government and research organisation representatives, as well as staff from Plant Health Australia and the Department of Agriculture and Water Resources' Biosecurity Plant Division.

"As the vegetable industry looks to reach a target of \$315 million in exports by 2020, the role of strong surveillance cannot be understated," Mr Fletcher said.

"Being able to collect and analyse surveillance data is critical to maintaining and expanding domestic and export markets, as we need to be able to give other states and countries scientific evidence to prove our freedom from pests and diseases.

"We need to be able to guard against exotic pests entering Australia, and find, eradicate or contain any pest or disease outbreak as quickly as possible.

"Keeping our vegetable industry free of pests means lower production costs, higher yields, cleaner products and better access to domestic and export markets. Whether we call it crop monitoring, checking plants for signs of pests and diseases, or surveillance, it's just good sense to keep watch."

Dr Susie Collins, Director of the Department of Agriculture and Water Resources' Plant Health Surveillance and Diagnostics Programs, said economic and social research was an important

first step in building a new, improved national surveillance system.

"We know that Australia's pest-free 'clean and green' image is a strong selling point in overseas markets, but we had never tried to put an economic value on the benefits for industry in investing in plant health surveillance," Dr Collins said.

"We also wanted to know how we could work with growers and the general community to help them better understand their roles and responsibilities in regard to biosecurity."

### FUNDING BENEFITS

Dr Collins said White Paper funding allowed economic research to be conducted by Deloitte Access Economics. Industry case studies were used to measure the benefits of surveillance, with an assessment made of the potential damage that could be done to horticultural exports if a National Priority Plant Pest from the Department of Agriculture's 'Top 40 exotic and unwanted' list were to become established in Australia.

The analysis looked at the grains industry and Khapra beetle and Karnal bunt; the pome fruit industry and rosy apple aphid and fire blight; and the nursery and garden industry and the giant African snail and sudden oak death.

The research found that there is a financial benefit to growers from surveillance practices, particularly in regard to recognition from Australia's trading partners of our freedom from unwanted plant pests and disease.

### USEFUL LINKS

Find out more about the Agricultural Competitiveness White Paper at [agriculture.gov.au/whitepaperbiosecurity](http://agriculture.gov.au/whitepaperbiosecurity).

Learn more about the top 40 unwanted and exotic plant pests at [agriculture.gov.au/pests-diseases-weeds/plant](http://agriculture.gov.au/pests-diseases-weeds/plant).

Report anything suspect to the Exotic Plant Pest Hotline 1800 084 881 or visit the Plant Health Australia website at [phau.com.au](http://phau.com.au).

Watch the 'Don't be a Jeff' Biosecurity Matters campaign at [agriculture.gov.au/dontbeajeff](http://agriculture.gov.au/dontbeajeff).

Dr Collins said another important step in improving surveillance in Australia was undertaking research into understanding social attitudes to biosecurity among growers and the wider community.

"Our social attitudes research found that both growers and the general public are keen to protect Australia's environment and our agricultural industries from unwanted plant pests and diseases, but are unsure what to look for, or how to find information," she said.

"People can also be keen to report something suspicious, but may not know who to talk to.

"For growers particularly, we also know that it's important to make surveillance practices relevant to their livelihoods, with a focus on improving their productivity and protecting the health of their farm business."

### RAISING BIOSECURITY AWARENESS

The Department of Agriculture and Water Resources recently used these findings to develop the Biosecurity Matters 'Don't be a Jeff' social media campaign. Launched in March 2018, the animated videos show a hapless character named Jeff risking Australia's biosecurity in a range of scenarios involving fishing, farm and garden biosecurity, and travelling.

This follows the release of the 'Top 40 exotic and unwanted' campaign in 2016, with videos, photographs and other information available from the department's website to help growers and the general public identify National Priority Plant Pests.

Dr Collins said working with industry to better target the 'Top 40' and improve surveillance practices is a key focus of the White Paper investment.

"Other White Paper initiatives include developing automated 'smart traps' for fruit fly to working with CSIRO to identify ways that we can encourage grower-led surveillance across all plant industries.

"Our focus is on collaboration and capacity building, to ensure the lasting legacy of the White Paper investment in surveillance will be one that brings benefits to growers and the wider Australian community."

### INFO

For more information, please contact Annette Healy, Department of Agriculture and Water Resources, on 02 6271 6449 or at [annette.healy@agriculture.gov.au](mailto:annette.healy@agriculture.gov.au). This initiative is part of the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.

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Lucinda Hancock, CEO Nutrition Australia. Image courtesy of Bayer.



Anthony Staatz, Koala Farms. Image courtesy of Bayer.

## TRY FOR 5 PANEL AIMS TO BOOST AUSSIES' VEGETABLE INTAKE

National obesity costs Australia around \$58 billion annually, with only 10 per cent of Australians eating enough vegetables. At Hort Connections 2018, the *Boost Vegetable Consumption Now!* panel presented four practical ideas to address this health issue.

The critical link between vegetable consumption and public nutrition was on the table at Hort Connections 2018 in Brisbane, when the Crop Science division of Bayer and the *Try for 5* Campaign brought together four of Australia's leading experts for a panel discussion.

The *Boost Vegetable Consumption Now!* panel saw speakers pitch ideas on how to boost vegetable consumption across Australia and achieve better health and farmer outcomes. An innovative in-school education program was judged to be the winner by the audience among the four great ideas presented.

Bayer is a principle partner in the *Try for 5* campaign, developed by Nutrition Australia, to encourage Australians to increase their vegetable consumption to the recommended five serves per day.

Statistics show a serious problem and complex answers, and Nutrition Australia CEO Lucinda Hancock outlined the major nutritional challenge facing Australia.

"One in two Australians is suffering from a chronic condition, which contributes to approximately 85 per cent of healthcare costs. Obesity alone costs Australia \$58 billion per year. Much of this disease burden can be linked to modifiable risk factors, including correct eating of fruit and vegetables," Ms Hancock said.

"A recent study however showed that if Australians ate 10 per cent more vegetables per day [which is] just 20 grams, all levels of government could reap \$100 million per year in health savings, and vegetable growers could generate significant additional profit."

Bayer Head of Public and Government Affairs Richard Dickmann said that while the evidence is clear, the industry is failing to get this message through to the community.

"It's important to try to understand the real barriers to increasing consumption, and work on solutions," he said.

"The *Boost Vegetable Consumption Now!* panel was created to address directly these points and propose real, actionable solutions for the industry."

### HIGHLIGHTING SUSTAINABILITY CREDENTIALS

Anthony Staatz from Koala Farms in southern Queensland represented a grower's perspective on the panel by outlining how Australia has one of the most challenging environments for vegetable production in the world. When combined with high labour costs, prices for fresh vegetables are driven up, impacting consumption.

Anthony's idea was to create, validate and promote natural vegetable production stories, linked with real farmers to enhance trust and increase vegetable consumption.

"My pitch was to promote what Australian growers do well around all those things that impose cost upon us like high standards of quality assurance; ethical sourcing; better soil management; and high nutrition in our produce," Anthony explained.

"Our farmers are very good at what they do, and I think if we can validate that and communicate that well with our customers, they'll really value what Australian growers do."

### PROMOTING VEGETABLES IN-STORE AND MORE

Moving further along the supply chain, Coles Brand Manager for Responsible Sourcing Fiona Baxter spoke to the audience about promoting home cooking through Coles supermarkets.

"I believe we can increase vegetable consumption by inspiring home cooking in the retail setting and supporting that push with marketing material so that customers coming into our stores through the fresh produce area can be inspired on what they're going to cook for dinner," Ms Baxter said.

"We can support that with recipe ideas either at the point of sale, in the Coles magazine, in the catalogue and even on TV through sponsorship of MasterChef and those sorts of programs so that people can be inspired to cook for themselves at home."

Ms Hancock also focused on media promotion.

"My pitch was to have a mass media campaign in order to increase vegetable consumption across Australia," she said.

"We know we need to increase the consumption of vegetables in Australia, which is at an all-time low. By having a mass marketing campaign, we'll be able to leverage off all the interventions and programs that Nutrition Australia does to improve the health of Australians."

### BACK TO SCHOOL

The final speaker was Tony Worsley, Professor of Behavioural Nutrition at the Institute of Physical Activity and Nutrition Sciences at Deakin University in Melbourne. Professor Worsley spoke about using food education in secondary schools to teach children how to cook.

"People might think that's out-of-date but we know that if people are going to eat a nutritious diet they need to be able to make meals," Professor Worsley explained.

"Vegetables, unlike fruit, seem to be very difficult for many people to make into meals, so we need to start the education at school, with trained teachers who can help the kids. The nation's 280,000 full-time teachers and 3,000 home economics specialists provide an excellent resource to drive real change. At the same time, our teachers are not well supported with materials or basic training."

Professor Worsley's pitch was to develop a specialised cooking competition open to secondary school children on general cooking skills and specifically around getting more vegetables into meals.

"It could be any sort of competition; the evening meal with the most vegetables in it to best ethnic vegetable dish – whatever you want," Professor Worsley said.

"The aim is to get children involved to use their creative abilities, which they've got a lot of, and to help teachers by providing more learning resources and a professional development program."

### JUST THE START

In an informal audience vote, Tony's idea was successful in winning the most votes. His idea, along with the others, will be communicated to Hort Innovation via its Consumer Outreach committee process.

Mr Dickmann said the well-attended *Boost Vegetable Consumption Now!* panel session was very successful in linking the on-farm production of healthy food directly to nutritional outcomes, but the momentum needs to continue.

"We had an important conversation at what was a fantastic panel session, and all of the ideas were indeed worthy," he said.

"Nutrition is a key issue facing Australian society, and agriculture is one of the key ways in which we can resolve that. Boosting vegetable consumption can not only help solve the nation's health budget challenges, but can drive demand, profitability and sustainability for Australia's vegetable industry.

"We at Bayer encourage all to continue this conversation, as we strive for better nutritional outcomes for the community and more recognition and returns, for the wonderful job our farmers do."



## VEGETABLE USE EXPANDING INTO NEW PRODUCTS AND MEAL OCCASIONS

Freshlogic is a food market analyst with deep expertise in consumer research and interpreting market and supply chain conditions. Managing Director Martin Kneebone analyses the consumer trends that are driving the expansion of vegetable ingredient usage into new products, categories and occasions.

Data from Freshlogic's Mealpulse™ food panel indicates that consumer purchasing behaviour is being impacted by the overarching influence of the demand for convenience and value together with a growing interest in food provenance; a desire to try new things; the elevation of health and wellness to a lifestyle; and an increasing aversion to waste. The natural attributes of vegetables – their versatility, convenience, nutrition and variety in form and colour – align well with many aspects of demand. This is supporting their expanded use into new products, categories and meal occasions.

The demand for convenience and value are overarching factors influencing consumer food purchasing behaviour. Despite almost 60 per cent of households reporting that they watch their food budget carefully, busy schedules mean that convenience is a priority for many. The demand for convenience can be seen with 40 per cent of households saying they regularly feel pressured for time, and one quarter reporting they are prepared to pay more for products that require less home preparation.

### BUILDING CONSUMER INTEREST

The provenance story behind food continues to resonate with consumers. As consumers demand more information and greater transparency from food producers, the components of provenance have expanded to include location, food origin, production methods and sustainability, as well as information about the people involved and their business values and traditions. Successful products thread a number of these elements into a 'well-told' story clearly communicated to consumers that serves to build

engagement and trust in the brand. Effective communication of provenance features allows consumers to quickly identify products that align with their own values and enables them to support causes by purchasing them, without requiring other significant changes in behaviour.

Despite a desire for value and convenience, today's consumers remain interested in trying new things, with just over half of all Mealpulse™ households saying they love to cook, and over 40 per cent stating that they try a new recipe or meal idea once a week or fortnight. This is extending to new food experiences, evidenced by the growth in experiential dining, pop-up restaurants and lifestyle dining including vegetarian/vegan and gluten-free options. In this mode, non-mainstream and niche options have appeal.

Undoubtedly food service operators have played an important role in stimulating consumer interest in food by revitalising their offering and improving the social experience of eating out by increasing small shared menus and tapas. Additionally, the uptake in ordering apps such as UberEats and Deliveroo, supported by improved home delivery, has made eating out a more convenient and accessible solution for tonight's meal for consumers.

The role of food service is important, as it is often a precursor to at-home usage. An estimated 13 per cent of households report that what they see in restaurants is a regular source of new food and meal ideas. Other popular sources include blogs, social media and TV cooking shows such as *MasterChef* and *My Kitchen Rules*. In these channels, new ideas and products are popular, particularly where they add to flavour, colour, texture and health. New uses or varieties of vegetables are often well-placed to add plate appeal and contribute to new food experiences.

### A SHIFTING FOCUS

The changing focus on health is also an important consumer trend supporting the expansion of vegetable ingredient usage. Wellness is now a priority and a lifestyle for many consumers. Freshlogic's Mealpulse™ consumer panel reveals around 70 per cent of households are making a change to their eating habits towards a healthier diet in the last year, with 'eating more fruit and vegetables' among the top changes reported.

Products that highlight specific health benefits and attributes will be welcomed by consumers. The trend is contributing to the use of vegetables into other categories, leveraging on their well-established reputation as being healthy – for example, into dairy products such as yoghurts and into processed snacks where consumers can feel good about their choices.

Today's consumers are also expressing a desire to minimise waste and support sustainability, which is influencing buyer behaviour. This includes a growing aversion to food and packaging waste, with around 70 per cent of Mealpulse™ respondents indicating a willingness to buy a smaller portion if it saves at-home food wastage, and a similar proportion indicating a preference for being able to recycle the packaging on their fresh food.

### VEG INNOVATION

Vegetables are well placed to benefit from these trends in consumer demand, with their natural attributes widely recognised as being healthy, versatile and convenient. Their variety in colour, texture and form are also positives.

A reinvention of old favourites, along with new uses and varieties, have been a popular way to introduce vegetable elements into new categories, flavour combinations or consumption occasions. Evidence of this can be seen in a range of fast-moving consumer goods categories that have been reinvigorated with the inclusion of vegetable ingredients, such as pumpkin and tomato porridge products, and vegetable chips. Vegetables are also being used to create new savoury flavour profiles, with vegetable yoghurt launched in the United Kingdom and kale used as a non-sweet breakfast topping. New consumption occasions are being explored too, with the introduction of mushroom and broccoli lattes.

In line with developing consumer interest in plant-based diets,

there are growing levels of vegetables being used as a substitute. For example, pasta substituted for spirals zucchini and carrot; rice substituted for pulsed cauliflower and broccoli; and finely chopped mushrooms substituted for meat. In another example, Air New Zealand has recently become the first airline in the world to serve a plant-based product that mimics beef – the Impossible Burger – into its business class service.

Furthermore, the versatility of vegetables has supported their use as a functional ingredient. Many food manufacturers have been revising recipes, and vegetable extracts have been a common substitute for artificial colours. Vegetables are also popular in the powders and supplement market, driven by their high nutrient content. They can be used directly in powder form for inclusion in health drinks, or as an ingredient in manufactured 'health' products such as bars and snacks. These products often obtain a premium, with consumers welcoming the convenience of a high vegetable 'serving' level without the need to consume high volumes.

### THE BOTTOM LINE

Vegetables are well placed to capitalise on consumer demands for convenience and value, positive provenance stories, a desire to try new food ideas combined with a healthy lifestyle and an aversion to waste, given their natural attributes of health, versatility and convenience, along with their ability to add to plate appeal through colour, texture and flavour.

These consumer trends, and a willingness to pay more for some of these product attributes, is impacting buying behaviour and is contributing to the expanding use of vegetables into new products and categories, and consumption occasions. Given their acknowledged health benefits, any new products will likely applaud the addition of a vegetable component. As such, R&D that supports form and attribute enhancements and expanded ingredient use provides an opportunity to continue to drive overall vegetable consumption and increase yields.

### INFO

For more information, please contact AUSVEG on 03 9882 0277 or [info@ausveg.com.au](mailto:info@ausveg.com.au).



## FOCUS ON PROTECTING AUSTRALIA'S BORDERS

At times, it can be challenging to maintain strict biosecurity systems and prevent unwanted pests from entering Australia. Despite this, it is possible to eradicate pests and successfully intercept others at our borders, as AUSVEG Biosecurity Adviser Dr Kevin Clayton-Greene explains.

With an ever-increasing volume of trade and tourism numbers, it can sometimes lead to a feeling of helplessness when it comes to maintaining best biosecurity practices.

However, it is not all doom and gloom and a number of successful interceptions and eradications point to the importance of continued vigilance and the effective operation of the system.

Of particular note is the successful eradication of brown marmorated stink bug (BMSB) at multiple locations in Australia. This pest, which more often than not arrives as a passenger on imported goods, has the potential to not only be a severe agricultural pest, but due to its habit of seeking refuge in buildings for overwinter hibernation, can literally invade homes in the thousands.

A recent article in *The New Yorker* magazine noted how owners of a house had left their door open one evening and upon entering the room later on, found it literally crawling with thousands of these pestiferous creatures (see box-out for more information).

Readers of *The Front Line* e-bulletin will also be aware of the fact that these pests are also noted to be destructive to a wide variety of fruit and vegetable crops and are difficult to control. Much of eastern Australia, south of the tropics and along the coastal/agricultural fringe provides a suitable habitat for the pest.

### INDUSTRY PREPAREDNESS

AUSVEG is seeking to have this pest formally categorised to determine funding allocations for future incursions. In order for this to occur, AUSVEG led the formation of a small multi-industry taskforce to collate the necessary evidence that forms the basis of categorisation.

This was not an insubstantial task. Taking over several months to develop, it has been completed and there will be a formal consideration of the document by all affected parties in the coming months. At this meeting, parties will be asked to consider the information provided in this package and reach agreement as to whether BMSB is a category 1, 2, 3 or 4 pest.

Appropriate funding splits are 100 per cent government funding for eradication costs under category 1; 80 per cent government and 20 per cent industry for category 2; 50:50 for category 3; and 20:80 for category 4.

Should parties fail to agree on a decision, then the matter is passed to the Board of Plant Health Australia for determination.

This process is an important part of the functions of the Emergency Plant Pest Response Deed, and has ramifications for all levy payers.

### BROWN MARMORATED STINK BUG: A DESTRUCTIVE AND INVASIVE PEST

In March this year, *The New Yorker* journalist Kathryn Schulz wrote an article entitled 'Home Invasion', investigating how the brown marmorated stink bug reached the United States and the effect that it has had on residents in infested towns as well as the country's agriculture and horticulture sectors.

She spoke to two South Carolina residents, Pam Stone and Paul Zimmerman, who discovered hundreds of stink bugs in their home. A few years earlier, a wildlife biologist in Maryland counted all the brown marmorated stink bugs he killed in his own home; he stopped the experiment after six months and 25,205 stink bugs.

The full report can be found on *The New Yorker* magazine website: [newyorker.com/magazine/2018/03/12/when-twenty-six-thousand-stinkbugs-invade-your-home](http://newyorker.com/magazine/2018/03/12/when-twenty-six-thousand-stinkbugs-invade-your-home).

### INFO R&D

For more information, contact AUSVEG on 03 9882 0277 or email [info@ausveg.com.au](mailto:info@ausveg.com.au).

The project *Consultancy Services for Strengthened Biosecurity of the Vegetable Industry – Phase 2* is a strategic levy investment under the Hort Innovation Vegetable Fund. This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG15023



## TRAINING SUCCESSFULLY DELIVERED TO VEG INDUSTRY MEMBERS

VegPRO, the vegetable industry's own education and training initiative, has delivered a range of workshops to industry members this year, with plenty more to come. Project Coordinator Sophie Lapsley provides an update, as well as details about how readers can get involved in future training and share their feedback on the program.

Over the last five months VegPRO has been busy delivering training across all states, covering topics like basic skills (chemical handling, irrigation), innovation (VegInnovations Roadshow) and personal skills (negotiating and influencing).

The year is not over yet so make sure you keep your eye out for a further 27 training events still to come. Upcoming events are listed on the VegPRO website ([vegpro.com.au](http://vegpro.com.au)), Hort Innovation and AUSVEG events calendars ([horticulture.com.au](http://horticulture.com.au) and [ausveg.com.au](http://ausveg.com.au)) and posted across all social media platforms.

Training requests for 2019 are also flowing in, with over 68 requests covering 17 different topics. New topics include biosecurity; spray application; rural first aid and mental health; Harmonised Australian Retailer Produce Scheme (HARPS); protected cropping; and process mapping to name just a few.

### SHARE YOUR THOUGHTS

It is important that training remains current and appropriate to industry needs and for this reason we are seeking industry feedback. Have you attended training and was it what you were looking for? Did it help you in your role or business? Was the location suitable? Was the delivery engaging? What was the quality of the trainers?

If you have comments on any of these or on what could be done to further improve the delivery of training to the vegetable industry, we would love to hear from you. There is a link to our

survey ([vegpro.typeform.com/to/jMv5N2](http://vegpro.typeform.com/to/jMv5N2)) on our website and this will also be available across all social media platforms.

It is important to remember that VegPRO is an industry-funded and industry-led project and that it is your requests, comments and feedback that formulate the VegPRO training that is delivered. For this reason, we are not only seeking feedback from those who have attended training but also from those who have not. We would like to know why have you not attended a VegPRO event: was the timing wrong? Had you not heard of the events or even VegPRO? Was the training content not what you were looking for? Was the training available not suited to you or your business' needs? VegPRO would love to hear your comments.

This is your chance to have your say on what training and resources you would like delivered and how you see training delivery for the industry moving into the future.

### INFO R&D

For more information or access to resources, please contact VegPRO Program Coordinator Sophie Lapsley on 0426 200 996 or [sophiel@rmcg.com.au](mailto:sophiel@rmcg.com.au) or visit [vegpro.com.au](http://vegpro.com.au). You can log a request at [vegpro.typeform.com/to/QosR2u](http://vegpro.typeform.com/to/QosR2u). You can also follow the project on Twitter, Facebook or LinkedIn.

Vegetable Industry Education and Training Initiative (VegPRO) is a strategic levy investment under the Hort Innovation Vegetable Fund. This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG15028



20  
TRAINING  
EVENTS DELIVERED



279  
ATTENDEES



27  
TRAINING  
EVENTS TO COME



68  
TRAINING  
REQUESTS



17  
TRAINING  
TOPIC REQUESTS



24  
ARTICLES/UPDATES/  
NEWSLETTERS



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## STATE BIOSECURITY UPDATE: NSW DEPARTMENT OF PRIMARY INDUSTRIES

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

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

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

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

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

### A TEAM EFFORT

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

- Surveillance.
- Plant pathology.

- Entomology (insects).
- Acarology (mites).

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

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

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

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

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

### BIOSECURITY: A SHARED RESPONSIBILITY

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

"The concept of shared responsibility is enshrined in legislation. Under the *Biosecurity Act 2015*, anyone who deals with biosecurity

matter is required to prevent, eliminate and minimise biosecurity risks," said Dr Gott.

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

Last summer, NSW DPI had responded to two separate outbreaks of brown marmorated stink bug (BMSB, *Halyomorpha halys*) in goods coming from Italy. BMSB is a high priority plant pest that affects a number of crops including vegetables. The adult insect is approximately 12-17mm long, has distinct brown and cream stripes, and is shield-shaped.

The first detection of this bug occurred in November 2017 in Glendenning, Western Sydney, where live and dead bugs were found in electrical equipment. Two months later, in January 2018, bugs were detected in shipping containers in Horsley Park, Western Sydney. Surveillance and trapping programs were implemented at both sites immediately after the bugs were detected, and official proof of freedom was announced by the National Management Group. Everyone is asked to be vigilant for BMSB in spring, summer and autumn and report anything suspect.

The Plant Health Committee has identified the top 40 high priority plant pests, of which the brown marmorated stink bug is one. Other top 40 pests, which affect vegetables, include the giant African snail, fruit flies, leafminer, zebra chip, potato late blight and potato cyst nematode.

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

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

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

### INFO

For more information on the NSW DPI, visit [dpi.nsw.gov.au](http://dpi.nsw.gov.au).

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

For further information, contact AUSVEG Biosecurity Officer Madeleine Quirk on 03 9882 0277 or [madeleine.quirk@ausveg.com.au](mailto:madeleine.quirk@ausveg.com.au). The Vegetable and Potato Biosecurity Program is funded by the Plant Health Levy.

### ABOUT THE BIOSECURITY ACT 2015

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

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

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

### GENERAL BIOSECURITY DUTY

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

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

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

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



## PSYLLID MONITORING IN FAR-NORTH QUEENSLAND

National Tomato Potato Psyllid (TPP) Coordinator Alan Nankivell has been travelling around Australia and recently, he met with growers in the Bowen Gumlu region of far-north Queensland to discuss TPP surveillance. Alan has provided *Vegetables Australia* with a report from his tour.

In August 2018, I visited the Bowen Gumlu growing region located in the Whitsunday region of north Queensland. This is Australia's largest winter vegetable growing region, which provides fruit and vegetables to both domestic and export markets with a farm gate value of about \$450 million per year. During the months of September and October the region produces 90 per cent of Australia's fresh tomatoes and capsicums. Other horticultural produce includes eggplants, melons, beans and corn. A full range of fruit and vegetable crops is available at [bowengumlogrowers.com.au](http://bowengumlogrowers.com.au).

During my time there I met with the local Bowen Gumlu Growers Association (BGGA) headed up by President Carl Walker, and learnt that a tomato-potato psyllid (TPP) surveillance program had been undertaken in the region.

The program was initiated by local agronomists Chris Monsour and Jessica Volker from Prospect Agriculture who, with funding provided by the BGGA, installed and maintained a network of 28 traps throughout the production districts of Bowen, Gumlu and the Burdekin. Traps were located on farms, in commercial seedling nurseries and at two retail plant nurseries in Bowen. The trapping was conducted in conjunction with the national TPP trapping project coordinated by the University of Tasmania, which supplied the traps and screened the collected traps for the presence of TPP.

*Surveillance of the tomato potato psyllid in the Eastern States and South Australia* (MT16016) was a strategic levy investment under the Hort Innovation Fresh Potato, Potato Processing and Vegetable Funds.

### TAKING THE LEAD

The Bowen Gumlu program was well-supported by local growers and businesses who recognised the importance of being proactive in relation to surveillance for biosecurity threats which could impact the region's horticultural production. All involved were happy to report that no TPP has been recorded to date.

The monitoring program was managed by Mr Monsour, who commenced setting traps in October 2017 at 26 locations across

the region. The traps were collected every fortnight and forwarded to the Tasmanian Institute of Agriculture (TIA), which was tasked with assessing the traps. With the program conducted by TIA ending on 30 June 2018, the local grower group committed its own funds for Mr Monsour to continue the monitoring until August 2018. Importantly, the monitoring program did not detect any TPP.

The primary purpose of my visit to the Bowen Gumlu region was to work with the Queensland Department of Agriculture and Fisheries research team led by Dr Cherie Gambley, who is the principle investigator undertaking a three-year project (VG16086) which is researching the spread of viruses in horticultural crops. The project will be setting up sticky traps as well as undertaking in-field assessments across several vegetable growing regions in Western Australia, Victoria, New South Wales and Queensland. They will assess different surveillance methodologies, including trap location, colour and the time during the growing season. While this particular project does not focus on TPP and potatoes specifically, the trapping data collected will be included in a national TPP monitoring project. The project covers several members of the solanaceous family including tomatoes, capsicum, eggplant and chillies, particularly where aphids are the vector for several viruses that affect crop yield and plant performance.

In October 2018, I had the opportunity to meet with sweetpotato growers in Bundaberg. Although sweetpotatoes are not a host for *Candidatus Liberibacter solanacearum* (CLso), they are a host for TPP, therefore it is important that sweetpotato growers are prepared and understand how they can contribute to the management of TPP in commercial crops.

### INFO

For more information, please contact National TPP Coordinator Alan Nankivell at [alan.nankivell@ausveg.com.au](mailto:alan.nankivell@ausveg.com.au).

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

Project Number: MT16018



PERMIT NUMBER	CROP	PESTICIDE GROUP	ACTIVE	PEST/ PLANT DISEASE/ TARGET WEED	DATE ISSUED	EXPIRY DATE	STATES
PER82460 VERSION 2	Selected vegetables. Please refer to the APVMA website for the full list.	Miticide	Etoxazole	Two spotted mite and tomato red spider mite	26-Jul-17	31-Jul-23	All states except Vic
PER86434	Rakkyo, daikon, garlic, ginger, burdock, shallot, yam, taro, galangal, turmeric, scallion and yam bean	Herbicide	Glyphosate	Grass and broadleaf weeds (shielded sprayer)	12-Jul-18	31-Jul-23	All states except Vic
PER80100 VERSION 3	Fruiting vegetables (field and protected, excluding cucurbits)	Insecticide	Clothianidin	Mediterranean fruit fly and Queensland fruit fly	10-Nov-15	30-Sep-23	All states
PER14127 VERSION 3	Brassica leafy vegetables and rocket	Herbicide	Pendimethalin	Various weeds (listed on Table D of product label)	31-Oct-13	31-Aug-23	All states except Vic
PER14186 VERSION 3	Eggplant/aubergine	Insecticide	Spinetoram	Melon thrips	03-Oct-13	30-Sep-21	All states except Vic
PER10938 VERSION 3	Snow peas and sugar snap peas	Insecticide	Imidacloprid	Greenhouse whitefly	01-Jul-15	31-Jan-20	All states except VIC
PER81136 VERSION 3	Lettuce	Fungicide	Cyprodinil and fludioxonil	Anthraco-nose	12-Oct-15	30-Sep-21	All states except VIC
PER14210 VERSION 3	Head and leafy lettuce (protected cropping only)	Miticide	Bifenazate	Two-spotted mite	17-Oct-13	30-Sep-21	Qld, SA and WA only

Syngenta has just received the registration for its new lepidopteran insecticide Proclaim Opti (44 g/kg emamectin benzoate). This product will look to replace Proclaim.

As part of the Syngenta submission, it sought to expand its label beyond the current approvals for Proclaim (grapes, brassica veg, tomatoes and capsicums, lettuce and sweet corn). Syngenta was successful in incorporating a number of minor use permits, as well as extending to crop groups.

The label for Proclaim Opti now covers in addition to the above: brassicas, cucurbits, fruiting veg, leafy veg and leafy brassicas, strawberries, legume veg (including beans, peas, sugar snap peas and snow peas) and root and tuber veg (excluding potatoes).

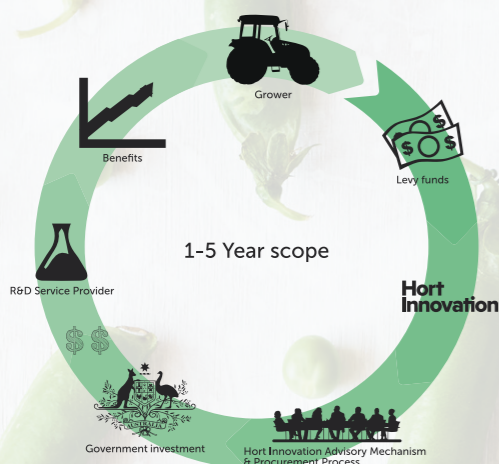
Permits below are now mostly covered by the Proclaim Opti label registration and will be modified accordingly.

PERMIT NUMBER	CROP	PESTICIDE GROUP	ACTIVE	PEST/ PLANT DISEASE/ TARGET WEED	DATE ISSUED	EXPIRY DATE	STATES
PER81914	Celery (field only), eggplant (field and protected crops), snow and sugar snap peas (field and protected)	Insecticide	Emamectin	Heliopsis, lightbrown apple moth and cluster caterpillar	19-Apr-17	31-Oct-19	All states and territories
PER14907 VERSION 2	Brassica leafy vegetables (field grown only), other leafy vegetables, root and tuber vegetables	Insecticide	Emamectin	Diamondback moth, heliopsis, cabbage white butterfly and vegetable looper	9-Dec-14	30-Nov-19	All states except Vic

Hort Innovation is the permit holder for all permits listed. All efforts have been made to provide the most current, complete and accurate information on these permits, however we recommend that you confirm the details of these permits at: [apvma.gov.au/permits/search.php](http://apvma.gov.au/permits/search.php). This communication has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government. Project Number: VG15027.

# THE VEGETABLE R&D LEVY AT WORK

## STRATEGIC LEVY INVESTMENT



## WHO PAYS THE VEGETABLE R&D LEVY?

The levy is paid by growers who produce and sell vegetables in Australia. The charge is set at half of one per cent at the first point of sale. The Federal Government also provides funding in addition to grower levy payments. Once paid, these funds are managed by Hort Innovation.

## HOW IS LEVY MONEY INVESTED?

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

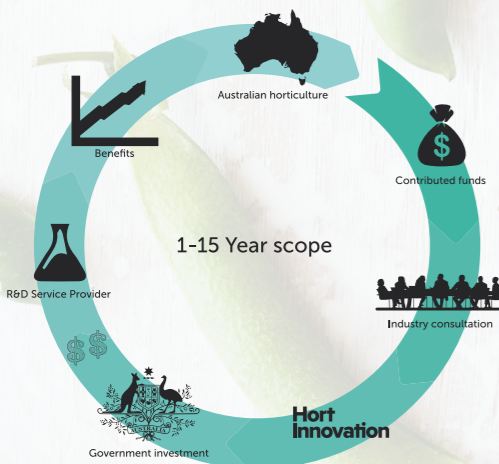
All investments through the Vegetable Fund are made with advice from the industry's Strategic Investment Advisory Panels (SIAPs) – skills-based panels made of panellists from across the vegetable industry, the majority of whom are levy-paying growers. Strategic levy investments have a one- to five-year scope and the R&D is designed to directly benefit growers in the vegetable industry. Project topics range from pest and disease management to biosecurity matters, with findings communicated through a variety of channels, including *Vegetables Australia*.

You can find information on all current strategic levy investments, and details of the SIAP, on Hort Innovation's Vegetable Fund page at [horticulture.com.au/grower-focus/vegetable](http://horticulture.com.au/grower-focus/vegetable).

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

You can read more about Hort Frontiers and the seven funds within it at [horticulture.com.au/hort-frontiers](http://horticulture.com.au/hort-frontiers).

## HORT FRONTIERS



## HOW CAN GROWERS GET INVOLVED?

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

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



This project has been funded by Hort Innovation using the vegetable research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit [horticulture.com.au](http://horticulture.com.au)

# AROUND THE STATES



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*Please note we have moved to a new address.*



VGA trading as AUSVEG VIC

Fruit fly has raised its head again as we are heading into another season where the pest will make an appearance in areas across Victoria. Growers of fruiting vegetables know the complications fruit fly will pose if it manages to get a foothold into the major growing districts of Victoria. AUSVEG VIC is advising all growers of fruiting vegetables to look into the Fruit Fly Management for Vegetable Growers research manual that can be found on the Hort Innovation website: [horticulture.com.au/resource/fruit-fly-management-for-vegetable-growers-videos](http://horticulture.com.au/resource/fruit-fly-management-for-vegetable-growers-videos). AUSVEG VIC has been working with industry bodies in the Sunraysia region to urge the Victorian Government to continue implementing the Sunraysia Fruit Fly Council after December, when it is due to be disbanded.

Over the past month, AUSVEG VIC and Hort Innovation's new Vegetable Relationship Manager Jane Wightman have visited growers throughout Victoria. Jane was interested in hearing about

the Integrated Pest Management programs that growers had in place, and listened to how farm productivity and extension work has been implemented on their growing operations.

The AUSVEG VIC Executive Committee is calling for all vegetable growers in Victoria to become members of AUSVEG VIC so they can have their say on how their state body should be representing them. The AUSVEG VIC Annual General Meeting (AGM) will be held on Friday 12 October with a location to be confirmed. Dinner will be held following the meeting. If you would like to become a member to attend the AGM and have your say on how your state body represents you, please contact the AUSVEG VIC State Manager.

Hort Connections 2019 will be hosted in Melbourne on 24-26 June 2019 and being in Victoria, it is an event not to be missed. Save the date now or contact AUSVEG VIC for more information.



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The Dry season is still going strong in the Top End with cool dry nights and warm days of low humidity. This is perfect for vegetable production and the 2018 Northern Territory vegetable season has seen good prices for cucumbers, our major vegetable crop – a rare combination of good demand and good prices for the region. The other vegetable crops are still ticking away with production going well into September and October this year.

NT Farmers hosted its third Northern Australia Food Futures Conference in July. Over 200 delegates met in Darwin to discuss current and potential developments in agriculture and horticulture across Northern Australia, from Broome in Western Australia and across the NT to Georgetown in north Queensland. The conference theme of innovation in the sector brought together a range of inspiring speakers and presentations. The conference was attended by Ministers and senior public servants from the three northern State and Territory Governments as well as the Federal Government; the Chairs and CEOs of the major plant Research and Development Corporations; peak bodies; researchers; resource managers;

and most importantly, farmers. NT Farmers would like to acknowledge the support of the members of the AUSVEG Board and staff that attended the conference.

This conference is a platform for the senior policy makers and funders to meet directly with northern farmers to learn exactly what it took for them to be successful in the north. The farmers got a great chance to tell their stories on the first afternoon's bus trips to successful northern agribusinesses, which ended at an informal barbecue in a mango packing shed for the 200 delegates. The underlying messages for all the Food Futures Conferences and roadshows are:

- Ask a local: Farming in the north is a very different thing.
  - Factor in the cost of learning to grow in the north.
  - Start small and grow big – mistakes made on a small scale can be learned from without destroying a development.
  - Have a diverse or alternate income stream to build resilience into the development.
- When you think about it, this is how most farming is developed in Australia.

## AROUND THE STATES



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The Growcom team was pleased to recently attend the Lockyer Valley Growers Gala Dinner in Gatton, presented by Terranova Seeds and Withcott Seedlings.

The annual dinner, which was attended by more than 420 guests, is an important social event for the region and a real credit to the organisation.

The grower association was formed after the devastating floods of 2011 and 2013, which highlighted a weakening of community bonds over time. There was a need for the horticulture industry to work together and support each other instead of viewing each other purely as competitors.

The success of the dinner and the spirit of camaraderie which infused the room last week suggests that mission has been accomplished.

The Lockyer Valley is a national treasure with the seventh-most fertile soil in the world, growing vegetables that are sent to markets in all major Australian cities. A unique combination of climatic attributes means that pest populations in the area are naturally low. It also has the important benefit of being only an hour from the key population centre of Brisbane.



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In July, the NSW Farmers Horticulture section held its Annual General Meeting in conjunction with the association's Annual Conference. Attendees heard from speakers representing Sydney Markets, the Department of Primary Industries, Holding Redlich and the Growcom Fair Farms Initiative.

Former Assistant Minister for Agriculture and Water Resources Senator the Hon. Anne Ruston was our special guest at dinner and provided an update on Federal Government priorities for the horticulture industry.

Attendees were particularly interested in the presentation from Sydney Markets about a potential relocation of the markets from their current premises in Flemington. Sydney Markets noted that it has been asking tenants about their future business needs and has focused on securing the future of the markets. Members highlighted the importance of adequate consultation with market participants.

A panel session focused on industrial relations issues in the horticulture sector and discussed working holiday makers, family-friendly provisions, superannuation and trends in court proceedings. NSW Farmers Industrial Relations staff noted that the most common questions

The region is not without its challenges however, and it is important that water management is conducted appropriately to ensure the Valley can continue to be a premier food-growing region into the future.

As an industry, agriculture is very good at singing to the choir rather than showcasing its key role in maintaining food security to the wider population.

Those of us working in agriculture have the ongoing task of promoting areas like the Lockyer Valley and highlighting their importance to the Queensland economy.

In attending the Gala Dinner, it was very gratifying to meet lots of young growers and female industry participants, overturning the cliché of the old man in the Akubra and riding boots.

Growcom would like to congratulate the organisers of the dinner along with the Lockyer Valley Growers Management Committee.

Growcom will continue to work with Lockyer Valley Growers through the Queensland Horticulture Council to ensure that government at all levels gets the policy settings right for Queensland horticulture.

they receive from members relate to award interpretations, investigations and terminations, inductions and agreement documentation.

At the forum, horticulture members passed motions on the following issues:

- Contracts – that a plain and simple model contract be developed for the horticulture industry by the Federal Government to cover the Horticultural Code requirements.
- Research – that NSW Farmers supports the establishment of a fund to research and develop new horticulture crops in Australia.
- Land use – that the New South Wales Government formulate and adopt a peri-urban policy to retain horticultural businesses in those areas.
- Horticulture Produce Agreements (HPAs) – that the Australian Competition and Consumer Commission significantly increase the monitoring and enforcement of HPAs.

The Horticulture Committee has identified competition policy; labour issues; the relocation of Sydney Markets; and increasing engagement with members in the Sydney Basin as key issues to monitor and progress over the next year. The Committee will meet face-to-face in September to determine its priorities for the year ahead.



**Wayne Johnston**  
Tasmanian Farmers and  
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To help protect Tasmanian farmers and communities from the spread of invasive pests and diseases, the Tasmanian Farmers and Graziers Association (TFGA) has embarked on a four-year project on farm biosecurity. The Farm Biosecurity Engagement Project is being undertaken with funding from the Tasmanian Government. The TFGA will work closely with Biosecurity Tasmania to raise awareness of the importance of farm biosecurity in protecting farms from the impact of pests and diseases.

The overarching message of the project is 'Prepare and Plan to Protect your Future'.

Over the course of the project the aim is to help farmers prepare for possible pest and disease incursions and have a biosecurity plan in place. The long-term goal is for farmers across Tasmania to be proactive and continue to maintain farm biosecurity practices to protect their farms.

Another goal of the project is to help others

understand the role they have to play in farm biosecurity, including regular on-farm visitors such as agents, contractors and utility workers.

A second component of the project is to gain a better understanding of what is being produced, and where, on Tasmanian farms. Understanding locations of farms is an important aspect in managing a pest or disease incursion in Tasmania. Being able to inform all farmers of an incursion or risk to their farm is another important factor in reducing the spread of pests and diseases.

Over the coming months the TFGA will be continuing to engage with stakeholders across Tasmania, including farmers, to determine current farm biosecurity practices and community understanding. From this, the project will be able to assist farmers in implementing farm biosecurity practices and help everyone understand the importance of farm biosecurity in preventing the spread of pests and diseases between farms.

## CALENDAR

### 10 OCTOBER 2018: FORTHSIDE OPEN DAY

**Where:** Forth, Tasmania

**What:** The Tasmanian Institute of Agriculture (TIA) Vegetable Research Facility in Forthside is once again throwing open its doors. The facility's annual open day is a great chance for growers and agronomists to see research and development in action, talk to researchers about their projects, and network with other industry members who are interested in agronomy.

**Further information:** [utas.edu.au/tia/news-events/news-items/2018-research-facility-field-day](http://utas.edu.au/tia/news-events/news-items/2018-research-facility-field-day)

### 13-16 NOVEMBER 2018: 2ND WOMEN IN AGRIBUSINESS & PRIMARY INDUSTRIES LEADERSHIP SUMMIT

**Where:** Melbourne, Victoria

**What:** Agribusiness and primary industries experts from a range of organisations have been invited to share their visions of success in the unique context of women's leadership. The summit will be brought to life through insightful case studies, interactive panels and expert commentaries that will empower women to accelerate their leadership careers and achieve their goals.

**Further information:** [eventbrite.com.au/e/2nd-women-in-agribusiness-primary-industries-leadership-summit-tickets-47291980587](http://eventbrite.com.au/e/2nd-women-in-agribusiness-primary-industries-leadership-summit-tickets-47291980587)

### 9-12 NOVEMBER 2018: AUSTRALIAN BIOLOGICAL FARMING CONFERENCE

**Where:** Southern Cross University, Gold Coast Campus, Queensland

**What:** This is an event for farmers and growers who are interested in improving soil health and farm productivity. The two-day conference will feature 25 speakers and breakout sessions (plus the conference dinner) as well as a Biological Farming Expo with up to 40 exhibitors. Conference tours and workshops will also be held before and after the event.

**Further information:** [australianbiologicalfarmingconference.org](http://australianbiologicalfarmingconference.org)

### 24-26 JUNE: HORT CONNECTIONS 2019

**Where:** Melbourne Convention and Exhibition Centre, Victoria

**What:** A joint initiative between AUSVEG and the Produce Marketing Association Australia-New Zealand, Hort Connections is set to deliver another world-class event to growers and the supply chain alongside a range of industry co-hosts. Hort Connections 2019 is the premier event for the horticulture industry, encompassing the vegetable, fruit, cut floral and nursery sectors.

**Further information:** [hortconnections.com.au](http://hortconnections.com.au)

## AROUND THE STATES



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AUSVEG SA is currently facilitating a group energy tender on behalf of South Australian growers. A similar process was recently run in the South Australian hotels industry and was able to achieve significant savings for businesses. The theory is that by combining the electricity purchasing power of a number of businesses, we can facilitate a tender process with the major retailers and obtain savings for SA growers. The more growers who sign up, the better the eventual deal will be. AUSVEG SA has engaged energy broker Choice Energy to run the tender. Interested growers can participate by contacting the AUSVEG SA office and obtaining an application form. The growers then submit this with a copy of their energy bill.

AUSVEG SA continues to work with the South Australian Government and has established strong relationships with relevant Ministers. In particular, we are working to either amend or repeal labour hire legislation which was

introduced last year under the previous government. Industry had a number of concerns about this legislation at the time and was concerned that enforcement provisions contained in the legislation could lead to prosecution of growers under the Act. We had concerns that growers would feel the brunt of enforcement in the event a labour hire company was found to do the wrong thing, and there was no limit of liability under the Act which meant that growers were potentially able to be held accountable for issues with a contracted labour firm.

AUSVEG SA's Export Facilitation Program continues to yield strong results for South Australian growers, with our association supporting growers to access millions of dollars of new exports across key markets. Our Export Development Manager is available to assist any interested growers who can contact the AUSVEG SA office for further information.



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vegetablesWA has launched its first annual benchmarking industry report which has generated a lot of interest from participants and others alike. The really interesting thing is that there are easy things that growers can do to significantly improve their performance. In what is an exceptional result, the top 25 per cent of participating growers averaged a 19 per cent Return on Capital. Contact us for a copy of the industry report.

Wanneroo has been the focus recently. I sit on the North Wanneroo Agriculture and Water Taskforce and our report was recently submitted to the Minister for Primary Industries and Regional Development. I will continue to demand all government departments do what they can together to support the industry given the situation we are facing in the future. We also held Freshcare training and Harmonised Australian Retailer Produce Scheme (HARPS) seminars for both English and Vietnamese growers in Wanneroo. These are always great workshops to attend, so get in touch if you'd like to register for our next round.

We were also really pleased to launch a

report into the current and potential value of horticultural production in the mid-west. The report found the value of horticulture in the Geraldton region could more than triple over the next decade and employ hundreds more people. Local growers were consulted as part of the process to gauge their interest in expansion and growth via mechanisms such as tunnel houses; seasonal access to water; access to export markets; and property purchases. You can read the full report on our website: [vegetableswa.com.au](http://vegetableswa.com.au). We will use this report to urge government to make further investments in irrigation at Geraldton and to seek further flexibility and transparency from the Water Corporation.

The team was in Carnarvon recently where we did work in the areas of biosecurity, quality assurance (QA) and benchmarking.

The other important issue I've been focused on is labour, both in terms of visa category improvements and providing better protection for both employees and growers for those involved with labour hire.

As always, please contact any of the team if you've got an issue you'd like some help with.



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