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Editorial

Hort Connections is almost upon us again – and we can't wait to welcome everyone back to Brisbane for what will be a more complete event following two COVIDaffected years.

It has been a challenging period for many vegetable growers. Since the end of 2019, weather events such as bushfires and floods have affected production regions, and we continue to experience the ongoing impact of the COVID-19 pandemic – from worker shortages to supply chain issues that have seen input costs rise to record levels.

AUSVEG has acknowledged the tough times that growers are experiencing by offering a reduced grower rate to attend Hort Connections in 2022. We believe that it is important for growers to reconnect with one another and reflect on their hard work, but also enjoy some down time by taking advantage of the many networking opportunities available over three days. Additionally, AUSVEG is hosting an exclusive vegetable and potato grower networking event at Southbank Beer Garden on Tuesday 7 June. This will follow the Trade Show Happy Hour, so we hope that you can venture down to Brisbane's waterfront for further refreshments.

Another not-to-be missed grower event is the Annual Vegetable Industry Seminar (AVIS), which will be held prior to the Hort Connections Welcome Reception. The AVIS is taking place on Monday 6 June from 12pm until 4pm at the Brisbane Convention and Exhibition and Centre, and lunch will be provided.

This year, the AVIS will focus on a broad variety of topics relevant to vegetable growers including developments in protected cropping, the latest findings from the Soil Wealth Integrated Crop Protection project, and resilience and mental health for farmers.

The keynote speaker for this year's

seminar is Warren Davies, who will provide the audience with take-home strategies developed from his business and life journey.

Warren has been a farmer who experienced the highs and lows and had to piece back together his life after experiencing mental health challenges. His keynote topics are centred on resilience, persistence, determination, leadership and wellbeing – and we hope growers can take some valuable learnings from this session.

It's vital to keep the mental health conversation going, and in this edition of *Vegetables Australia* we have compiled a list of resources that may help to navigate this sensitive space.

This is not just for those experiencing mental health issues, but for members of the industry who would like to help others or debrief following a threat of self-harm. Please turn to pages 88 and 89 for further details.

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Bill Bulmer Chair AUSVEG

Message from the Chair

Following another 12 months of significant disruptions due to COVID-19, AUSVEG is delighted to welcome the horticulture industry back to Hort Connections at the Brisbane Convention Centre in June.

AUSVEG recognises the difficulties that growers are facing with rising input costs, labour shortages and unprecedented weather events. We believe Hort Connections is a much-needed opportunity for the sector to get off-farm, come together, catch up with old friends and meet new growers and industry members.

Industry events such as Hort Connections are an important avenue to foster face-to-face interactions with growers and the wider industry to learn about the latest technologies and growing practices. They also provide essential networking opportunities that are vital to support the social networks within the industry that growers can rely on during tough times.

This year's event will explore the theme of 'Growing Together' to highlight the importance of every sector of the horticulture industry uniting to build a stronger more resilient food system to feed local and international consumers.

The Hort Connections 2022 conference will incorporate unparalleled networking opportunities for everyone in the horticulture supply chain, a trade show showcasing leading local and global businesses, and world-class speakers.

The National Awards for Excellence Gala Dinner, which will take place at Hort Connections on Wednesday 8 June, will be an opportunity for the industry to come together and recognise the outstanding accomplishments of our leading growers and industry members.

Meanwhile, the Hort Connections team has worked hard behind-the-scenes to improve the experience for those who want to attend the event. This includes the return of the Welcome Reception and the popular Diversity and Inclusion Session and Women in Horticulture Session, as well as a revamped Trade Show that will allow for greater networking.

AUSVEG is proud that Hort Connections has become such a huge event for the horticulture industry, and it wouldn't be such a resounding success without the support from growers and other delegates who are returning year after year.

The AUSVEG Board is looking forward to seeing a large number of growers and the wider industry come together at the event. There will be many opportunities to meet us and the AUSVEG team at the AUSVEG Trade Show stand and at the many other networking events for growers integrated throughout the program. I look forward to seeing you all in-person to speak about the issues that are important to you, your business and your industry.

In a boost of confidence for future Hort Connections conferences, AUSVEG welcomed a Federal Government announcement that will result in \$6 million to support growth in large conferences and events for various agricultural sectors, including \$2 million support for horticulture industry events including Hort Connections.

This funding will provide a boost to support grower attendance at the event to develop industry partnerships, hear from the industry's leaders about innovations in the sector, and provide important opportunities to connect face-to-face with industry colleagues.



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Input costs, Ag Visa high on AUSVEG's election priorities

AUSVEG has been advocating strongly prior to, and during, the Federal Election campaign to ensure that growers' concerns are heard by all major parties and independents. While the result of the election was still unknown at the time of writing, increasing input costs, the Ag Visa, the Horticulture Award and various codes of conduct were also high on the agenda leading to the election. AUSVEG provides a report on its advocacy activities.

Federal Election overview

At the time of writing, the election still hangs in the balance.

Which way it lands is anyone's guess, but AUSVEG has continued to advocate and engage with all major parties and independents to ensure they are aware of the vegetable and potato industry priorities.

A key topic of this election for the sector has been the commitment of the Australian Agriculture Visa (Ag Visa).

AUSVEG has been actively advocating its election priorities and in particular has been pushing the Australian Labor Party (ALP) for a commitment to the Ag Visa.

It is AUSVEG's view that the Ag Visa will be a significant structural change for the sector, and it is a structural change that is needed for the benefit of the industry. The vegetable and potato sector continue to be struck with heavy workforce shortages and the Ag Visa will help to address that.

AUSVEG has highlighted to the ALP that the Ag Visa is not a thought bubble and a reaction to the COVID pandemic. The Ag Visa is a well-thought out, structured solution to what has been the most significant issue facing the industry for many years.

AUSVEG will continue to highlight the importance of the visa to the ALP and the independents to ensure that the Ag Visa is delivered on as it is intended.

AUSVEG will continue to raise issues and its priorities to government and departments up to the election and beyond.

Input cost rises

Confidence and cash flow

Growers continue to face challenges of confidence and cash flow as they battle with buyers to maintain their profit margins.

Record high input costs and lack of movement in the price received from buyers to reflect the increasing cost of production is testing growers' confidence to plant their next crop.

Having dealt with the worst of the COVID-19 pandemic, labour shortages and supply chain disruptions, growers are now facing their biggest test in maintaining profitability.

Growers are also struggling to maintain a steady cash flow, which is also heavily impacting their confidence to continue to take on the business risk of planting a crop, incurring more debt without any assurance of future profitability.

Inflation, price rises not isolated to the fresh produce industry

Recent data from the Australian Bureau of Statistics (ABS) indicates that 39 per cent of all businesses expect the price of their goods and services to increase more than usual, and 40 per cent reported an increase in operating expenses over the last month, compared to 24 per cent the same time last year.

According to the report, nearly all businesses anticipating price increases (97 per cent) said these were being driven by rising non-staff related operating expenses. These included rising fuel and energy costs (88 per cent) and increases to the cost of products and services used by the business (88 per cent).

The latest CPI data released in April 2022 highlights an increase in the price for fruits and vegetables, with the ABS indicating prices for vegetables (+ 6.6 per cent) and fruits (+ 4.9 per cent) rose due to COVID-related supply chain disruptions, and high transport and fertiliser costs. Flooding in production areas of New South Wales and Queensland also disrupted supply in early March, placing additional pressure on vegetable prices late in the quarter.

It is important to remember that the price that consumers pay for produce isn't what the grower receives.

If there are increases in prices at the retail level, these are not necessarily passed on to the grower, as there are people throughout the supply chain who make different margins on the product. This means that if the price that consumers may be paying for certain lines is higher, this does not translate to increased prices for growers.

AUSVEG has been strong in its calls for growers to receive a fair price for their produce, which is critical to cover the increased costs of production that have been called out over many months.

Cost of production up, lack of movement in prices from buyers all hurting growers' bottom line

Annual fresh vegetable production has remained relatively stable over the last three years, along with retail and wholesale market prices.

However, growers' costs have risen significantly.

Margins are critical for any business owner. If your margins shrink – or worse, disappear – so does the confidence business owners have to take on the next business risk or, in the case for vegetable growers, planting the next crop.

Like any market, there are peaks and troughs. However, the volatility of the fresh produce market currently indicates that there is only one fair solution to inject confidence back into the sector: growers receiving a fair price for their produce.

Ag Visa

AUSVEG has consistently called for a clear commitment from all major parties during the election campaign to continue

delivering the Ag Visa to ensure that the industry is able to secure a competent and reliable workforce.

Vietnam signs onto the Ag Visa

In a historic moment for the vegetable and potato industry, Vietnam signed onto the Ag Visa in March 2022.

AUSVEG has been heavily involved in the design of the Ag Visa and has been a key driver for its implementation, highlighting its importance to government for a number of years. The signing of Vietnam onto the visa now confirms its willingness to participate in the visa, and also represents a commitment to the visa settings proposed by industry in consultation with government.

This announcement should be celebrated by growers as a significant step in being able to access a willing, reliable and efficient workforce for the longer-term.

It should be noted by growers that the visa was not intended to be a COVID response. The visa was designed to deliver significant structural change for the industry and improve growers' access to an efficient and reliable workforce.

Growers should continue to access existing visa programs in the immediate term and make the appropriate decision for their business. Existing visa programs include:

- Seasonal Worker Programme.
- Pacific Labour Scheme.
- Working Holiday Maker Program.
- Horticulture Industry Labour
 Agreement.

AUSVEG will continue to advocate to all sides of politics to commit to and support the Ag Visa. For the most up to date information on the Australian Agriculture Visa, visit dfat.gov.au/people-people/ international-labour-mobility/australianagriculture-visa.

Labor's Ag Visa plan does not go far enough in securing workers

The Australian Labor Party's announcement to address the worker shortage facing Australian growers by reforming the Pacific Australian Labour Mobility Scheme's Seasonal Worker Programme and Pacific Labour Scheme



does not go far enough to address the horticulture industry's critical farm worker shortages.

The plan – announced in April during the election campaign – will see the Ag Visa embedded as a visa class under the expanded Pacific Australian Labour Mobility (PALM) scheme, as well as the Federal Government bearing the travel costs for Pacific workers under the Seasonal Worker Programme and allowing Pacific Labour Scheme participants to bring family members to live and work in Australia.

AUSVEG CEO Michael Coote said that while the announcement from the Australian Labor Party will help reduce the burden of paying travel costs for workers under the Seasonal Workers Programme, the changes to the Ag Visa will restrict the number of partner countries and will result in fewer workers on Australian farms.

"Industry has been working tirelessly with the Federal Government to create an Ag Visa that will deliver long-term results for growers. It would be a shame for the ALP to limit its effectiveness through nothing other than playing politics," Mr Coote said.

"If the ALP has genuinely spoken to growers, it will know that the delivery of an Ag Visa is absolutely essential. It is not too late for the Labor Party to make a clear commitment to support of the Ag Visa to give industry the certainty it needs.

"We also would like to see a commitment from the Labor Party

to increase investment in regional accommodation and services if it is expecting participants in the Pacific Labour Scheme to bring family to Australia. There is already a shortage of accommodation in many regional areas, and we do not want to see workers and their families struggling with inadequate accommodation options."

Piece rates

Changes to the Horticulture Award commenced on 28 April 2022, including the new minimum wage guarantee for pieceworkers.

AUSVEG was involved in the challenge through the Fair Work Commission via the National Farmers' Federation Horticulture Council. While this will impact many growers, it is critical that growers understand and comply with the new requirements under the Horticulture Award.

Minimum wage guarantee for pieceworkers

As described by the Fair Work Ombudsman, the new minimum wage guarantee requires all pieceworkers to be paid at least the 'hourly rate for the pieceworker' multiplied by the number of hours worked, for each day that they worked.

For example, under the Horticulture Award, the hourly rate for a casual adult level 1 employee is \$25.41 per hour (\$20.33 + 25% casual loading). If this employee works 7.6 hours per day, their minimum wage guarantee is \$193.12 per day (\$25.41 x 7.6) whether they have earnt that amount under a piecework record or not.

However, if the pieceworker would earn more than the minimum wage guarantee for the day based on the piece work rate and their productivity, they have to be paid the higher amount.

New piecework rules

The Award sets out new definitions for a 'pieceworker competent at the piecework task', the 'average productivity of a pieceworker competent at the piecework task' and 'hourly rate for the pieceworker'.

Where piece rates are used, employers must fix the piece rate at an amount so that a pieceworker, working at the average productivity of a competent pieceworker, will earn at least 15 per cent more per hour than the minimum hourly rate for their classification level. For example, the piece rate must allow an adult level one employee working at this average productivity to earn at least \$23.38 per hour if they're full-time or part-time, or at least \$29.22 if they're a casual.

New record-keeping obligations

Employers must now record the hours worked by all pieceworkers and the piece rates applied. New information is also required in the written piecework record pieceworkers receive before starting work.

Full details on all the changes and the new resources to help employers are available at the Fair Work Ombudsman's Horticulture Showcase at horticulture. fairwork.gov.au.



Find out more Please contact AUSVEG on 03 9882 0277 or email info@ausveg.com.au.

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Customer-focus key to business success

Value means something different to everyone, but common to all is achieving value to secure the long-term sustainability of their business. Boomaroo Nurseries understands the importance of providing this value to customers to meet their varying needs, as Director Nick Jacometti explains.

As the starting block for vegetable crops in the paddock, the quality, consistency and health of the seedlings planted are crucial to getting the crop off to a good start.

Boomaroo Nurseries understands the value in providing reliability to growers through the experience of its team and investment in its automated facilities to produce strong and healthy plants to ensure ease of planting in the paddock and offering the very best chance of high yields at harvest.

"The seedling phase is one of the most input sensitive of the plants' development. Boomaroo's ability to produce plants in a highly controlled growing environment helps to manage risk at this important stage and frees up land on-farm for growers," Boomaroo Director Nick Jacometti says.

The business of farming by its very nature can be unpredictable. Whether it be from the impacts of normal weather patterns, more extreme weather events such as the recent floods – or nonweather-related issues such as labour shortages – growers need to know that solutions can be put into place quickly and with a degree of flexibility.

Boomaroo's team of territory managers and dispatch coordinators are focused on working with growers to ensure that when these events occur, they can respond in a manner that suits the grower as well as looks after the plants.

"We've built our business and reputation on demonstrating flexibility and working through challenges affecting our customers," Nick explains.

"Whether that's working with growers to hold, re-allocate or reschedule seedling programs where necessary,



find extra plants to take advantage of opportunities or anything in between, it makes it easier for our customers to respond to the immediate challenges at hand."

Close collaboration

Boomaroo's ongoing relationships with seed companies and involvement in nursery and field trials ensures that it can offer growers the most recent advances in crop genetics to best meet their agronomic, harvest or consumer needs.

The benefits of these developments are wide-ranging. Improved varieties offer benefits such as better mildew resistance, reduced pinking (lettuce), slower bolting properties or tolerance to cold or tip burn.

Other developments include smaller varieties to reduce household waste or more flexible growing timeslots. These initiatives respond not only to the challenges in the field, but the changing trends and expectations of consumers and supermarkets.

"Furthermore, our treatment programs assist in building resilience, disease resistance and improved nutrient uptake, thus improving plant performance and yield in challenging agronomic conditions," Nick says.

One of the biggest changes Boomaroo has seen in the industry in the last decade is the increased focus on sustainability.

"This has been driven both by changing consumer expectations as well as industry responding to the more volatile environmental conditions we have been experiencing," Nick adds.

A green approach

Environmental sustainability underpins all decisions made at Boomaroo – within its nursery operations as well as supporting improved practices in the paddock.

Internally there has been a strong focus on water, input and energy reductions, and the adoption of softer chemicals and biological treatment programs. Boomaroo has recently invested heavily in its water recycling, treatment and storage facilities, guaranteeing the availability of highquality water to meet over 70 per cent of the facilities' peak water requirements.

The benefits of the new reverseosmosis, microfiltration systems in reducing water consumption is further enhanced by highly efficient irrigation and treatment delivery systems throughout the operation's two facilities. Boomaroo operates nurseries in Lara, Victoria and Southbrook, Queensland.

Beyond the nursery gates, there has been a similar focus on supporting more holistic and sustainable farming practices.

Boomaroo's beneficial host plant offering is an example of this, presenting growers with a range of flowering varieties, such as Alyssum, Marigold and flowering herbs to plant alongside their crops to support beneficial predatory insects on farm, which is a more sustainable approach to pest control.

"Our Certified Organic offering is another example of Boomaroo responding to consumers' increasing focus on sustainability, health and wellbeing, and to minimise environmental impacts and our footprint," Nick says.

Find out more

Please visit boomaroo.com or contact your local Boomaroo Territory Manager.



From agronomy to growing: Stuart Grigg enters exciting new phase

The past 15 months have been a whirlwind of hard work and long hours for Stuart Grigg. In this time, Stuart and his family have established Bolwarrah Springs, a broccoli growing operation at Bolwarrah, situated north-west of Melbourne – all the while continuing to run his agricultural consulting business and engaging in vegetable industry activities. AUSVEG's Michelle De'Lisle catches up with Stuart to chat about his latest venture.

Stuart Grigg was born for a career in the vegetable industry. He fondly remembers helping his father, Max, on the family's vegetable growing property in Devon Meadows and selling produce at the Footscray Markets (the egg and bacon sandwiches for breakfast were also a highlight of visiting the markets for young Stuart!)

"I've loved veggies from an early age," Stuart says.

"I studied horticultural science at the University of Melbourne's Burnley Campus and wasn't quite sure which part of horticulture I was going into. I majored in production horticulture and after I graduated from uni, I grew roses for about three years and hops and tobacco for another three in the Ovens Valley.

"However, it was never quite me. I love roses and Kate (Stuart's wife) and I enjoyed the Ovens Valley – but the faster moving field horticultural environment is where my passion lies."

Following his love for all things vegetables, Stuart – with the support of Kate – started their agronomic consulting business 11 years ago. The business, Stuart Grigg Ag-Hort Consulting, is based in Ballan, 80 kilometres north-west of Melbourne.

As an agronomist, Stuart connects with and supports the entire vegetable supply chain including growers, marketers and nurseries, and has built a strong industry network, especially in his home state of Victoria.

It was these connections and the ongoing passion for vegetables that lured Stuart back to his vegetable growing roots, with the Griggs purchasing a 148acre property at Bolwarrah, about 25 kilometres east of Ballarat on the fringe of Hepburn Spa country, in early 2021.

A growing business

One of Stuart's strongest relationships has been forged with Werribee Southbased Fresh Select. It has culminated with Stuart growing 35 acres of broccoli for the business, which is one of Australia's largest lettuce and brassica operations. The Griggs are currently leasing acreage to a livestock farmer and another paddock to local potato grower Neville





Quinlan from Quinlan Farming, while producing broccoli themselves.

"Fresh Select was very supportive of our decision to grow vegetables, and keen to be involved in the operation to produce broccoli outside of the Werribee region. Fresh Select's customers' needs were growing, and the Ballan family and John Said (Fresh Select owners) have supported us immensely in making that happen," Stuart says.

It wasn't an easy process. In one year, Stuart – with the help of his parents, Kate and her parents and Fresh Select – turned a former Blue Gum block and pasture paddock that had very limited fencing and infrastructure, no shed and just one laneway – into a fully-fitted vegetable growing operation, Bolwarrah Springs.

"We've built endless in-field irrigation infrastructure, fences a plenty and shedding. We picked up a huge number of rocks and sticks left over from the previous blue gum plantation and have drained the wet areas, giving us a property that is beginning to work," Stuart says.

The Victorian vegetable industry has lent its support to Stuart and Kate as they establish their growing operation, while Stuart is still running his consulting business.

"Many of our clients who we've worked with for a number of years reached out with encouragement and offers to help us," Stuart says.

"Dino Boratto gave us a motor, pump, some irrigation infrastructure and fencing posts. The Young family supplied a specialised drip irrigation filter, John Zausa provided us with an irrigation pipe and Adam Schreurs gifted a whole heap of fencing wire and posts. We very much appreciate everyone's support."

Machinery focus

Stuart says labour has been a major challenge so far. He's had to modify his machinery to fit in with the minimal tillage growing techniques being used on-farm.

"One of the biggest challenges we see in research – particularly through the Soil Wealth and Integrated Crop Protection project (Stuart is a steering committee member) – is that the machinery is not there. Some of the research guides us down a path where mainstream mechanisation does not exist in terms of soil management, crop management, planting, seeding and nutrition management – in many cases, a huge number of modifications are required," Stuart says.

"It also takes investment and capital, plus people with good know-how. That's where Fresh Select has been very supportive, in particular the workshop team. They have been able to interpret my ideas and then modify and manufacture equipment that really support sustainable farming practices."

Stuart believes more can be done in the R&D space when it comes to mechanisation, including implementing research findings.

"One of the biggest challenges is research adaptation," he says.

"I've been fortunate enough that my brother Daniel works in broadacre agriculture. So, in terms of reduced tillage and minimum tillage, I've been able to look over the fence and see what happens in broadacre. There's also a lot of spraying and application technology used in broadacre, ready for adaption into intensive horticulture.

"Precision agriculture techniques have been widely used in broadacre for a long time. I can really see the benefits and it has been a focus of mine in my consultancy for the last couple of years, introducing it to the vegetable industry and encouraging its use with our clients. It is also nice to now be able to 'practice what I have been preaching' on our own farm and see the success it's bringing.

"Adapting machinery to suit our needs assists in how we manage labour and how we can still produce crops efficiently and effectively when we're facing labour challenges.

"We can use this mechanisation to work with soils and the environment a lot better as well as produce a better planted crop that's more sustainable longer term."

Active engagement

In addition to his consulting business, growing operation and participation in the Soil Wealth and ICP project, Stuart is actively involved in Area wide management of vegetable diseases: viruses and bacteria (VG16086) and the Australian potato industry communication and extension project (PotatoLink; PT20000). These are strategic levy investments under the Hort Innovation Vegetable, and Fresh – Potato and Potato – Processing Funds respectively.





Stuart enjoys participating in these projects, but he says the aim is to make sure that the projects deliver practical outcomes.

Through PotatoLink, Stuart is the agronomist for the Ballarat region plus he is currently hosting a potato trial site on his farm where he has teamed up with fifthgeneration potato grower Neville Quinlan.

"I'll be open and honest and say I'm about six months into understanding the finer details of potato cropping, so I've got a lot more to learn. What I've learnt from the team in the last six months has been invaluable," he says.

Pride in the industry

Stuart's enthusiasm and willingness to share industry knowledge is endless, and it's this passion that he is proud to share with others.

"Working with the Soil Wealth and

ICP team has been fantastic and the knowledge and dissemination of information that I've been able to share with people throughout the industry has been brilliant," he says.

Another proud moment was hosting the 2020 East Gippsland Vegetable Days, which was held in May – two months after the COVID-19 pandemic was declared worldwide.

"The East Gippsland Vegetable Innovation Days that Andrew Bulmer, myself and the team were able to deliver was an absolute cracker," Stuart says.

"It was a huge amount of work, but what we were able to put on as a small group in East Gippsland – which involved my wife Kate, Bonnie Dawson, Noel Jansz, Jodie O'Brien and Daniel Hammond – was phenomenal.

"EGVID 2020 was captured virtually in many forms, and the high-quality video production my brother, Braden, and his wife Emma, put together for us and the wider vegetable industry is a brilliant ongoing legacy. It's a credit to all, how we were able to adapt. Everyone came along for the ride "

Finally, being a grower is never easy and Stuart admits establishing the farm has been hard work.

"It's put a huge amount of pressure on our family to make it happen, but we've had brilliant support from a lot of people," he says.

"I've been working up to 90 hours a week at times. But that's what you do to try and make it happen."

"The first year has been a big learning curve for us – and now that we've seen what we can do, we can go onto bigger and better things."

Acknowledgments

Stuart would like to thank the following people who have helped the Griggs to establish their growing operation: Schreurs & Sons, Boratto Farms, the Fresh Select team, Redgold, John Zausa and Bulmer Farms.

Family ties

Most importantly, Stuart would like to thank his wife, Kate, and their children Eamon, Kiara, and Bridie, for their ongoing support.

Cheers all, Stu.



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Floods devastate vegetable growers across New South Wales and Queensland

March and April saw many regions in New South Wales and Queensland devastated by floods and extreme wet weather. AUSVEG National Manager – Communications Shaun Lindhe provides an overview of the impact on vegetable producers from the floods, as well as an update from the Bureau of Meteorology on what we can expect for the coming months.

Many areas across south-east Queensland and New South Wales experienced devastating wet weather and floods, which are impacting production regions and many regional and rural communities.

While it is still too early to quantify the extent of the damage, this weather has affected many growers in those two states and its impact will be felt for many months.

Floods are also having flow-on effects throughout the broader supply chain, such as road closures and disruptions to a wide range of businesses.

Impact on growers

AUSVEG has received reports from growers who have had entire crops wiped out that have been only a few days away from harvesting. In addition, packing sheds have been flooded and require significant repairs or replacement.

There has also been damage to machinery, fencing and other critical farm infrastructure, and severe disruptions to paddocks – including losing topsoil – that will not only impact product currently in the ground, but also future crops where paddocks were being prepared for winter crops.

Growers in the region, and all over Australia, have faced significant hardship and challenges over the last two years due to COVID-19, supply chain disruptions and input cost rises. This is another challenge that growers will work to overcome in the coming weeks and months.

We encourage growers in impacted areas to continue to keep any records that will help assess the ongoing damage of the impact of the floods on their properties and businesses, including photos, and to contact relevant state departments of agriculture and primary industries authorities to complete the relevant natural disaster impact surveys.

AUSVEG participation in National Coordination Mechanism

In March, AUSVEG participated in the Commonwealth Government's National Coordination Mechanism (NCM) meeting to discuss government and industry response to the flooding and severe weather in Queensland and New South Wales.

This meeting was hosted by Senator the Hon. Bridget McKenzie, Minister for Emergency Management and National Recovery and Resilience, and the Director General of Emergency Management Australia, Joe Buffone.

A range of issues facing vegetable growers were raised by AUSVEG CEO Michael Coote, including the impacts on supply and availability of certain fresh vegetable product lines.

Resources for impacted growers

Queensland

Information on emergency management and disaster funding can be found via the below links:

- Queensland Reconstruction Authority: Queensland's lead agency responsible for disaster recovery and resilience policy – qra.qld.gov.au
- Natural Disaster Impact Survey: Queensland growers are encouraged to complete the online Natural Disaster Impact Survey, which will assist Queensland's Department of Agriculture and Fisheries to capture relevant information required to prepare applications for assistance more quickly to support recovery – survey123.arcgis.com/share/

New South Wales

- NSW Department of Primary Industries: Current situation and Natural Disaster Damage Survey – dpi. nsw.gov.au/emergencies/emergency/ floods/current-situation
- Storm and flood assistance for businesses: Information on disaster recovery assistance – service.nsw. gov.au/campaign/storm-and-floodassistance-businesses

Growers are often in situations that can cause significant stress and be damaging to mental and physical health. AUSVEG encourages growers to look after themselves, as well as their friends, families, colleagues and community members during this difficult time.

Anyone who is experiencing difficulties with their mental health can contact Lifeline on 13 11 14 or Beyond Blue on 1300 224 636. Further mental health resources can be found on pages 88 and 89 of this publication.



Climate outlook overview from the Bureau of Meteorology Issued: 28 April 2022

Summary

- May to July rainfall is likely to be above median for most of Australia, except south-western Australia and western Tasmania which have roughly equal chances of being above or below median.
- May to July maximum temperatures are likely to be above median for northern, and far south-western and south-eastern parts of Australia, but below median for broad areas of inland southern and central Australia.
- Minimum temperatures for May to July are very likely to be warmer than median across almost all of Australia.
- The weakening La Niña, the chance of a negative Indian Ocean Dipole, and other localised drivers are likely to be influencing this outlook.

Rainfall: Above median May to July rainfall likely for most of Australia, except south-west WA and western Tasmania

- May to July rainfall is likely to be above median for most areas of Australia (chance of exceeding median is greater than 60 per cent), with north-western and inland regions very likely to be above median (greater than 80 per cent chance). However, the south-west quarter of WA, and western Tasmania have roughly equal chances of above or below median rainfall (chance of exceeding median is close to 50 per cent).
- The May and June outlooks are broadly similar to the three-month outlook, with above median monthly rainfall generally likely away from

south-west and south-eastern areas of the country.

- It should be noted that May marks the beginning of the northern Australian dry season. This means tropical northern Australia typically has very low rainfall totals, and only a small amount of rainfall is needed to exceed the median.
- Past accuracy for May to July rainfall is moderate to high for most areas of Australia, with low accuracy for small parts of the northern tropics, far eastern Victoria, and southern Tasmania.

Temperature: Warmer May to July days for north, and far south-west and south-east, cooler for inland central and southern Australia

- May to July maximum temperatures are likely to be above median for the northern tropics, south-west WA, south-east NSW, southern and eastern Victoria and Tasmania (greater than 60 per cent chance). Below median maximum temperatures are likely for much of central WA, the southern NT, SA, southern Queensland, inland NSW, and northern Victoria (chance of exceeding the median is less than 40 per cent).
- There is an increased chance of unusually high maximum temperatures (in the top 20 per cent of historical records) for May to July over the far south-west and northern WA, the northern NT, northern Queensland, eastern Victoria, and Tasmania (1.5 to greater than 4.0 times the usual chance), with the highest chances in far northern Queensland. Conversely, there is an increased chance of unusually low maximum temperatures (in the bottom 20 per cent of historical records) in a broad

area stretching from the Pilbara coast in WA, across SA and the southern NT and into western and central parts of southern Queensland, NSW and Victoria (1.5 to 3.5 times the usual chance).

- Minimum temperatures for May to July are likely to be warmer than median Australia wide (chances are greater than 60 per cent), with most areas very likely to be warmer (chances are greater than 80 per cent).
- There is an increased chance of unusually high minimum temperatures (in the top 20 per cent of historical records) for May to July across virtually all of Australia (1.5 to greater than 4.0 times the usual chance). The highest likelihoods are across the northern tropics and north-eastern SA extending into the southern NT.
- Past accuracy for May to July maximum temperatures is high to very high for most areas of Australia, with moderate accuracy across the south-east NT and northern Tasmania. For minimum temperatures, accuracy is high to very high across northern Australia, grading to low to very low accuracy across southern parts of the mainland. Tasmania has moderate accuracy for minimum temperature.

Find out more Please visit bom.gov.au/climate/outlooks.

What delegates need to know: Your guide to Hort Connections 2022

The biggest event in Australian horticulture is almost here! AUSVEG looks forward to welcoming delegates to Hort Connections 2022, and this year there are few key program updates. The changes to the event program are set out to increase opportunities for grower-to-grower networking, and for wholesalers and exhibitors to engage in dedicated exhibition time.

Where: Brisbane Convention & Exhibition Centre

When: 6-8 June

Hosted by:

AUSVEG and the International Fresh Produce Association Australia & New Zealand

Forging connections

Join us for a wide array of networking events across three days!

Hort Connections 2022 kicks off with the **Welcome Reception**, which will take place on Monday 6 June at 4:30pm. Once formalities are completed, delegates can check out the Trade Show until 6:30pm. The Trade Show will be in Exhibition Halls 1 and 2 and is proudly sponsored by Australia's Fresh Produce Markets.

The Boomaroo Nurseries-sponsored **Women in Horticulture** event returns in 2022. This will take place on Tuesday 7 June, and will feature guest speakers Catherine Velisha, Managing Director of Velisha Farms and Shanna Whan, CEO and Founder of Sober in the Country.

There will also be a chance to network and reconnect with industry members at the **Happy Hour**, which is taking place in the Trade Show from 5-6pm on Tuesday 7 June. This is sponsored by Nufarm.

Following the Happy Hour, a **grower networking event** is being hosted by AUSVEG at Southbank Beer Garden. This is exclusive to vegetable and potato growers. Celebrating industry leaders

The National Awards for Excellence will be presented at the Hort Connections 2022 Gala Dinner.

This capstone event acknowledges and recognises the outstanding achievements of individuals and companies to the horticulture industry. The Gala Dinner, sponsored by Costa Group, will be held on Wednesday 8 June from 7pm following pre-dinner drinks in the foyer.

> Awards for Excellence will take place at the Hort Connections 2022 Gala Dinner on Wednesday 8 June.

Guest speakers

Tune in to hear from a range of presenters across a wide variety of topics that impact the fresh produce industry.



Jane Bunn Meteorologist, Founder and CEO of janesweather.com

Jane Bunn is a highly credentialed meteorologist with an infectious enthusiasm for the weather. As Channel 7 Melbourne's resident weather forecaster and presenter, Jane is featured on the 6pm and 4pm news, as well as national bulletins and special events.

Jane will be discussing how to take advantages of the weather to maximise farming opportunities on Wednesday 8 June, as part of the Growing and Farming Stream.



Justin Dry

A multi-award-winning entrepreneur, Justin will share the many lessons he has learned in the building of Vinomofo. Launched in April 2011 from a little garage in Adelaide, Vinomofo has grown quickly and profitably to a run rate of over \$50 million revenue, 500,000 members and a team of 100.

Justin is the keynote speaker at the Perfection Fresh Breakfast on Tuesday 7 June from 8-9am, sponsored by Perfection Fresh Australia.



Shane Quinn National Sales Manager, Mulgowie Farming Company

Shane Quinn has extensive experience in the fresh produce sector. He spent his early career in Ireland and the United Kingdom as a retail buyer before moving to Australia, where he has worked building high-quality value chains in table grapes, bananas, mangoes and avocados.

Shane's presentation 'Why farmers will be the central bankers of the 21st century' will be featured in the Growing and Farming Stream on Wednesday 8 June.



Bernard Salt Executive Director, The Demographics Group

Bernard Salt is widely regarded as one of Australia's leading social commentators. Bernard heads The Demographics Group, which provides advice on demographic, consumer and social trends for business. He is perhaps best known for popularising the phrase 'smashed avocado' globally.

Hear from Bernard in Plenary Session 3 on Wednesday 8 June.



Catherine Velisha

Catherine Velisha is a third-generation vegetable grower and Managing Director at Velisha Farms. A pioneering industry and education advocate, Catherine has worked in the fresh produce sector for over 19 years and has been involved in all aspects of the horticultural supply chain.

Tune in to hear more from Catherine at the Women in Horticulture event from 2:10pm on Tuesday 7 June.



Trade Show – the place to be!

Hort Connections 2022 will feature a refreshed Trade Show design and updated layout for ease of navigation and greater networking opportunities.

The Trade Show will run over a three-day period and provides a not-to-be-missed opportunity for companies to exhibit their cutting-edge products and solutions, technological innovation and showcase horticultural support for growers and industry members.

Extended hours

The Hort Connections team has extended the Trade Show's hours in 2022. Tuesday 7 June is unofficially known as 'Trade Day' – the Exhibition Hall will be open from 9am until 6pm, with many conference activities centred around the Trade Show. It will also operate on Monday from 4.30pm to 6.30pm and Wednesday from 8am to 3:30pm.

Speaker sessions

Joining 200 exhibitors in the Exhibition Hall will be engaging industry experts from right across the supply chain.

Drop by and hear from industry leaders including co-founder of FreshChain Systems, Greg Calvert; John Deere's Production Systems Manager for Australia and New Zealand, Stephanie Gersekowski; and Sharon Jones, who is the General Manager Technical at OneHarvest.

There will also be sessions on industry initiatives such as Growcom's Fair Farms program and the Hort Innovation-sponsored Churchill Fellowship.

The full Trade Show Speaker Program can be found on the Hort Connections website at hortconnections.com.au/program.

Acknowledgments

The Hort Connections team would like to acknowledge and thank the event's five Major Partners: Hort Innovation; the Department of Agriculture, Water and the Environment; Queensland Department of Agriculture and Fisheries; Syngenta; and Coles.

Also, thank you to all Hort Connections 2022 sponsors – this event would not be a success without your support.

The Trade Show is a popular place to connect and network during the threeday event.



Find out more

Please contact AUSVEG on 03 9882 0277, email info@hortconnections.com.au or visit hortconnections.com.au.

Seminar aiming to educate and inspire veg growers

Returning in 2022 is the AUSVEGfacilitated Annual Vegetable Industry Seminar, a strategic levy investment under the Hort Innovation Vegetable Fund. *Vegetables Australia* highlights some of the speaker and panel sessions taking place at this year's event.



The Annual Vegetable Industry Seminar (AVIS) will be held at the Brisbane Convention and Exhibition Centre on Monday 6 June from 12pm until 4pm, and lunch will be provided. The event will conclude immediately prior to the official opening of Hort Connections 2022.

This year, the AVIS will focus on a wide variety of topics relevant to vegetable growers. These include developments in protected cropping; increasing international and domestic horticulture market access opportunities; the VegNET project and the Regional Development Officers in each area; the latest findings from the Soil Wealth Integrated Crop Protection project; and resilience and mental health for farmers.

Keynote speaker

Resilience, persistence and determination are words used to describe farmer Warren Davies. But he is also a husband, father of five, son, brother, mate, and normal bloke down the road.

Warren's authentic, inspiring and sometimes confronting presentations are filled with take home strategies developed from his business and life journey that his audience can implement in their day-today life to overcome challenges or pick themselves up and keep moving forward. His message is simple and so very important at a time when stress is seen as normal, and depression is commonplace.

Warren's keynote topics are centred on resilience, persistence, determination, leadership and wellbeing, their moral relevant to all ages and communities. He takes the audience through the journey of him piecing his life back together and the lessons learnt along the way.

Increasing international and domestic horticulture market access opportunities

The Market Access Team from the Department of Agriculture and Fisheries, Queensland, will present an overview of the impacts and outcomes from 20 years of market access research and development.

Nick Macleod and Peter Leach will present on the research undertaken to gain acceptance of irradiation as a phytosanitary treatment for all fruit and vegetables in Australia and New Zealand.

In 2021, this work culminated in the successful application to Food Standards Australia New Zealand (FSANZ) to expand the list of fruit and vegetables that can use irradiation – a provision that has already been successful in expanding domestic market access options.

Hear from commercial businesses and industry leaders about the benefits of market access research and development, perspectives on the importance of data to underpin trade, experiences in accessing new markets, and the need for different treatment options.

Innovations through demonstration sites – insights from leading growers

Over the past eight years, the Soil Wealth ICP project (VG16078; a strategic levy investment under the Hort Innovation Vegetable Fund) has operated a network of demonstration sites around Australia. These sites have been the centre-point of putting soil management and plant health research into practice on-farm.

Farm walks, trials, case studies and

other resources have been developed based on the findings and lessons from the demonstration sites.

For the first time, the Soil Wealth ICP team will bring together a select group of leading growers and innovators to discuss their experience and insights from hosting a demonstration site.

Attendees can expect an engaging panel discussion, practical insights and relevant R&D information, expertly facilitated by one of the Soil Wealth ICP team.

Gaining knowledge

The AVIS has been delivered in various formats (and under different names) for a number of years. Previous projects have provided growers with an overview of leading technologies and innovations from overseas to assist them improve productivity and profitability within their businesses.

It is hoped that once again will growers continue to gain useful information on new products and services to assist their businesses.



Please contact Ian Thomas on 03 9882 0277 or email ian.thomas@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: VG21003



VegNET 3.0: Introducing your VegNET Regional Development Officers

VegNET 3.0 is a strategic levy investment under the Hort Innovation Fund. It strives to improve Australian vegetable growers' knowledge and skills to implement best practice management on-farm through a variety of delivery mechanisms.

This investment acts as a knowledge broker to link growers with the best science and tools to meet their individual business development goals, as well as linking the rest of industry with growers to help focus R&D efforts.

At the forefront of the project are highly skilled and trained extension experts, known as Regional Development Officers (RDOs). Their focus is on delivering results for growers, while forming a key link in providing information and feedback into the levy investment system to ensure that R&D priorities are delivering on key industry issues.

In this edition of *Vegetables Australia*, RDOs Andrew Halpin (Wide Bay-Burnett) and David Shorten (North Queensland) introduce themselves to readers and outline their priorities for the third iteration of the nationally-coordinated, regionally-delivered VegNET project.

Get in touch

VegNET RDOs are located in all Australian major vegetable growing regions. For further details or to become involved, please contact your local representative.

Region	RDO (name and organisation)	Contact
New South Wales	Sylvia Jelinek, Local Land Services New South Wales	sylvia.jelinek@lls.nsw.gov.au 0427 086 724
Northern Territory	Mariah Maughan, NT Farmers	ido@ntfarmers.org.au 0417 618 468
Queensland – North and Far North	David Shorten, Bowen Gumlu Growers Association	rdo@bowengumlugrowers.com.au 0419 429 808
Queensland – Wide Bay-Burnett	Andrew Halpin, Bundaberg Fruit and Vegetable Growers	vegnet@bfvg.com.au 0407 366 797
Queensland – Southern Queensland	Caley Croft, Lockyer Valley Growers Inc.	ido@lockyervalleygrowers.com.au
South Australia	Interim: Jordan Brooke-Barnett, AUSVEG SA	jordan.brooke-barnett@ausveg.com.au 0404 772 308
Tasmania	Ossie Lang, RM Consulting Group	ossiel@rmcg.com.au 0430 380 414
Victoria – Gippsland	Bonnie Dawson, Food and Fibre Gippsland	bonnie.dawson@foodandfibregippsland.com.au 0407 683 938
Victoria – Northern, Southern and Western	Danielle Park, AUSVEG	danielle.park@ausveg.com.au 0432 324 822
Western Australia	Michael Bartholomew, vegetablesWA	michael.bartholomew@vegetableswa.com.au 0427 373 037

Wide-Bay Burnett Regional Development Officer: Andrew Halpin



Name: Andrew Halpin Region: Wide Bay-Burnett Organisation: Bundaberg Fruit & Vegetable Growers

Andrew Halpin grew up on his family's sugarcane and vegetable farms in the Bundaberg region. From a young age, he was involved in the operations; helping to grow and pack capsicums, zucchinis, button squash, cucumbers, eggplant, chilies, melons and tomatoes.

Andrew tried a few different occupations in logistics and manufacturing before finding his way back to farming.

Andrew started his role as VegNET – Wide Bay Burnett Regional Development Officer in December 2021. Since then, he has been able to interact with many individuals, businesses and government organisations working in the Wide Bay-Burnett region.

Andrew believes grower involvement is key to the success of the VegNET project, particularly at a one-on-one level. Being a farmer himself, Andrew has always found it hard to accept information from someone who has never set foot on his farm and seen how it operates.

Having the opportunity to routinely meet with growers to discuss existing and emerging issues in their business and the industry will allow for a higher rate of success of the project. It will deliver the region's growers greater access to information as well as demonstrative trial work.

A major focus for the Wide Bay-

Burnett region over the next 12 months is fall armyworm. The region has seen an increased production of sweet corn over the past two years, and this pest is a major threat to the crop. Bundaberg Fruit \mathcal{B} Vegetable Growers has been working with growers, biosecurity departments and agtech companies to investigate how industry can band together to address the issue.

Rising input costs is a challenge affecting all growers. There was a rapid increase over summer 2021/22, so working with growers on this issue is also high on the agenda for Andrew.

Andrew is hoping to achieve change in the next five years. VegNET – Wide Bay-Burnett's focus areas are all issues that are either restricting or constricting the increased profitability and viability of the region's growers. By increasing awareness and hopefully encouraging growers to modify their current practices or invest in certain areas, Andrew hopes to see change for the benefit of vegetable growers and industry.

North Queensland Regional Development Officer: David Shorten



Name: David Shorten Region: North Queensland Organisation: Bowen Gumlu Growers Association

David Shorten joined the *VegNET 3.0* project in January 2022. He has a background in agriculture, and prior to this role was a section head of an

intensive aquaculture hatchery that was producing over 150 million prawns per year.

David completed a Bachelor of Science from James Cook University and a post graduate diploma while studying and working at Bribie Island with the Queensland Department of Agriculture and Fisheries and CSIRO.

David has learnt a lot since becoming the VegNET – North Queensland Regional Development Officer, particularly around building relationships and trust with growers – which he says is key to the project's long-term success.

The past two years have seen many challenges thrown at the growers in North Queensland, with COVID and supply chain issues to name a few.

Davis is most looking forward to seeing the region's vegetable production grow through innovation and technology. The traditional farming processes will be enhanced through precision agriculture, which will improve production output and lower labour costs.

There are three focus areas for year one of VegNET – North Queensland 3.0. These are: reduction of input costs, soil health, and reducing workforce through ag-tech innovations. There is a lot of scope across these three focus areas, but David is happy to assist growers with other work should they need it.

David's focus over the five years will be to grow his profile and become at the front of growers' minds when they think about improving their growing operation. He'd like to build a reputation as someone who is happy to go that extra mile to assist a grower with any activity or issue.

David is currently studying a Masters in Horticulture through the University of Queensland. He believes it is important to do a deep dive into horticulture from an educational and practical perspective, as well as gain a profound understanding of the challenges growers face.



Connecting north Queensland's vegetable producers to new ag-tech

Autumn is the start of an intensive vegetable growing season in north Queensland. Fields have been ploughed in readiness for season to start. VegNET – North Queensland hosted and supported several events in the region focused on ag-tech and Soil Health. Regional Development Officer David Shorten discusses outcomes from these events.

Soil health expert visit

Bowen Gumlu Growers Association (BGGA) hosted a visit by leading soil expert David Hall on Thursday 24 March. David has over 30 years' experience in soil management research as a researcher and project leader. His fields of research have encompassed the use of amendments (gypsum, lime, wetting agents, clay, organic compounds), tillage (deep, shallow) and cropping rotations to modify and improve soil productivity.

David was able to visit producers across the region, where he took samples to analyse before sending a report back to the growers. There were a large range of soil types for the small geographic area that the group was able to sample and attendees discussed ideas on best management practices for those soil types. After the visits, David and agronomist Jessica Volker sat down virtually to discuss a wide range of issues on soil health in the region.

The following day, David was the guest speaker at the Compost in Agriculture Workshop held at the Queensland Department of Agriculture and Fisheries' (DAF) Bowen Research Facility.

The workshop was designed to help north Queensland growers and industry understand the benefits and effective use of compost and mulches produced from recycled organic inputs. There was a good turnout and all attendees felt that they received valuable information from the event. 24 | Vegetables Australia

Weather station field walk

Wireless weather stations were installed as a joint project between DAF and BGGA. They were set up last year in several locations across the region to establish a local sensor network, which could be accessed by growers to gather improved data on weather conditions in proximity to local farms in the growing region.

In March, BGGA facilitated on-site visits for growers to view the weather station. Sarah Limpus from DAF led the discussion into the technical functionality of the weather station, while Jessica Volker an agronomist and owner of Lower Don Organics - provided valuable insights into how it was being utilised by growers across the region.

- Key points discussed included:
- Functional overview of the MEA weather station and the installed sensors.
- Accessing and using the Greenbrain online platform to view data from the weather stations.
- How to interpret data from the weather stations to make informed decisions around pest and disease management, nutrient application, and irrigation.
- Tips on how to compliment the data with on-farm sensors and other technoloav.
- Differences in the temperature between the local weather station versus the Bureau of Meteorology (BOM).

Precision ag-tech

NQ Aerovation recently hosted a drone workshop in Bowen showcasing precision ag-tech and how its use can benefit north Queensland growers.

With ever-increasing input costs, growers are looking for new and innovative ways to save money through precision agriculture.

Drones are a recent entry into the ag-tech space, but they have already evolved to play a crucial role in increasing productivity and sustainability. NQ Aerovation's Luke Jurgens showcased a range of drones that demonstrated a large range of applications now available to growers in the region.

Biological control application

Biological control agents are used to improve biosecurity through limiting the impact of pests on your crops. Beneficial insects cover a wide range of local pests including silverleaf whitefly, thrips, mites, heliothids and moths.

Precision spray application

NQ Aerovation drones are equipped with advanced variable rate technology that can spray your crops with farm more precision than conventional tractor spraying.

Drones come into their own when paddocks are too wet for conventional farm equipment. The use of drones also reduces compaction on newly ploughed fields.

Mapping and crop data

NQ Aerovation drones are so sophisticated these days that they can monitor crop damage, identify levels of infestation and apply precision treatments reducing time and money spraying the entire crop.



Please contact VegNET – North Queensland Regional Development Officer David Shorten on 0419 429 808 or email rdo@bowengumlugrowers. com.au

VegNET 3.0 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: VG21000





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Extension update from Wide Bay-Burnett

In this edition, VegNET Regional Development Officer Andrew Halpin provides an update on the issues affecting the Wide Bay-Burnett region, along with the project activities being undertaken. These include an ag forum and trials that are looking at temperature and GPS data to help understand why losses occur in the supply chain.

The 2022 growing season is wellunderway and is looking to be a particularly promising, with the earlier summer rains delivering revised allocations to the region's growers.

collaboration with other stakeholders.

Most growers are now back to their full allocations, which allows them to have confidence in their autumn and winter crops.

COVID-19 is still affecting farm operations in the region, with worker isolations creating staffing issues over the past few months. Added to this is the shortage of seasonal workers – including the lack of international travellers to help fill the gap in the employment market.

Growers are continuing to struggle to find enough workers to harvest their produce, with many growers paying well above award wage to maintain the workers they currently employ.

These factors – along with the changes to the piece rate award – has many farmers tackling a number of issues to ensure their produce makes it to market.

Input costs have been a major concern for growers during the first few months of 2022, with diesel, fertilisers and chemicals all increasing to record price highs, while produce market prices remain virtually unchanged during this same period.

Ag forum success

Bundaberg Fruit & Vegetable Growers and the VegNET – Wide Bay-Burnett project appeared at Agrotrend, which was held in Bundaberg. BFVG supported Agrotrend's AgForum event, which featured nine panellists covering two important topics affecting the region's horticultural growers.

The forum was well-supported, with around 80 delegates in attendance. The two sessions held on the opening day discussed 'Water – technology, efficiency and managing your resource' followed by 'Agricultural investments – trends and opportunities'.

Both sessions had lively discussions between the panellists and attendees, and was a great opportunity for everyone involved to broaden their knowledge.

VegNET 3.0 trials begin

The first trial for VegNET – Wide Bay-Burnett has growers in the region taking part in a program focused on realtime temperature and GPS tracking of their produce – from farmgate to the metropolitan distribution centres.

The information obtained will enable growers to assess any issues that may arise in the cold chain, from their packaging facilities to wholesaler distribution.

Data will be collected from several different growers, with a range of produce including capsicums, eggplant, zucchinis, lettuce, cucumber, snow peas and sweetcorn.

The trial is being conducted in partnership with the device company Escavox. The Sydney-based company is also partnering with Central Queensland University in a similar study, with all parties agreeing to share data to enable a larger data set recovery.

This information will give growers, transport and wholesalers a better understanding of the challenges industry faces, and to ensure a lower percentage of post-harvest loss occurring in the supply chain.

Upcoming event

VegNET – Wide Bay-Burnett Regional Development Officer (RDO), Andrew Halpin, will be attending the Hort Connection conference in June, where he will meet with industry and growers over the course of the week.

He will also meet with the other VegNET RDOs for meetings and training to assist him in delivering the best outcomes for the Wide Bay-Burnett region.



If you would like to take part in one of the Wide Bay-Burnett VegNET trials – or have an issue you would like to discuss with your VegNET RDO – please contact Andrew Halpin on 0407 366 797 or email vegnet@bfvg.com.au

VegNET 3.0 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.

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Growers in the southern Queensland region have endured a tough summer and start to autumn with floods severely affecting the area. VegNET – Southern Queensland continues to support growers, as well as hosting a number of engaging events. The project also welcomes a new Regional Development Officer, Caley Croft. Vegetables Australia reports.

Southern Queensland has had a difficult end of the summer season with various weather events directly or indirectly impacting growers in the region.

Record floods affected many farms in the region and the clean-up is likely to be ongoing. Growers not directly impacted by flood waters suffered crop losses due to the incredible volumes of rain throughout the south-east. Supply chain challenges and lingering COVID-19 issues have only made it even more challenging for growers.

Despite these challenges, the VegNET project has proved to be a success for growers in southern Queensland. The first six months of the new iteration (*VegNET 3.0*) has seen the delivery of a number of events to help growers implement on the ground best practice, and support long-term profitability and sustainability.

VegNET activities

In late October, a grower seminar was held to provide industry with updated information on insect pests, the Gatton Smart Farm initiative, and new water opportunities for the Lockyer Valley. This was followed by a VegNET 2 project wrap-up and an introduction to VegNET 3.0. The event was well-attended and provided a useful knowledge development opportunity for the local grower community.

Mid-December saw the project host a grower seminar for the local LOTE growers. The event was strongly supported and included information of the management of soil-borne pests, optimising spray efficiency and an introduction to accreditation programs.

Engaging with local LOTE communities is a focus area for the project, and this

provides a great opportunity to codevelop knowledge with a wide variety of growers and industry members. Attendees walked away from the event with language-specific resources including best management for postharvest storage for cucumber, impact of pesticides on beneficial arthropods, and biosecurity, to name a few.

Gala Dinner success

Most recently, Peter Helliar and Lockyer Valley Growers hosted the 'Touched by Cancer Charity Gala Dinner'. Over 500 industry members and guests gathered under The Grand Marquee, where \$115,000 was raised for Icon Cancer Foundation. The event was a great opportunity for the community to come together after a challenging few months for a great cause.

Farewell Zara, welcome Caley

The end of summer also saw our long serving Regional Development Officer, Zara Hall, moving on to bigger and better things. Zara served the local grower community incredibly over her tenure and will be sorely missed by all.

With every ending is a new beginning and Lockyer Valley Growers was excited to welcome Caley Croft to the VegNET – Southern Queensland RDO role in late April.

Caley grew up on a farm in the Lockyer Valley and is closely connected to the grower community. She comes to the role from an education background and is also the Founding Director of RRAD Communities, a local non-profit charity for youth and community.

Caley is excited to join the VegNET team to help deliver meaningful impacts for the local grower community.



Find out more R&D

Please email ido@lockyervalleygrowers.com.au.

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VEGETABLE FUND



An update from VegNET – Victoria (North, West and South-East regions)



In this column, *Vegetables Australia* provides an overview of recent VegNET – Victoria (North, West and South-East regions) project activities, as well as new COVID-safe resources developed for Victorian growers by Victorian industry group, AUSVEG VIC.

While events planned for early in 2022 needed to be postponed due to COVID-19 restrictions in Victoria, the first three months of *VegNET 3.0* have been a busy period for the AUSVEG-facilitated VegNET – Victoria (North, West and South-East) team.

Key outcomes from last three months of program

Enhanced grower awareness and decision making relating to native vegetation insectaries

VegNET – Victoria (South-East, West and Northern), previously delivered by RMCG, facilitated an R&D roadshow forum in mid-October 2019 with a focus on native vegetation insectaries at the CSIRO Food Innovation Centre in Werribee, Victoria.

The focus was to build on interest shown by several growers to learn more about insectaries. It included presentations from the Port Phillip and Westernport Catchment Management Authority and the project team behind *Field and landscape management to support beneficial arthropods for IPM on vegetable farms* (VG16062), a strategic levy investment under the Hort Innovation Vegetable Fund that was led by Charles Sturt University.

A key outcome from this workshop is the active exploration of external funding support to trial native vegetation insectaries (NVI) in the Werribee region.

In late March 2022, VegNET – Victoria teamed up with E.E. Muir & Sons Pty Ltd and Melbourne Water to host a NVI 'open house' at a vegetable farm in Werribee South.

Agriculture Victoria and AUSVEG staff were also on hand to offer free pest and disease diagnostics.

For more information on how to create an insectary on your own farm, including a suggested species planting list, please visit the AUSVEG VIC website. A fact sheet can be found here: ausvegvic.com.au/ wp-content/uploads/2021/09/NVI-casestudy-FINAL.pdf.

Helping growers make more informed decisions when considering new technologies or practices for improved soil moisture retention

The VegNET RDO was responsible for building industry networks with growers and agronomists in the northern and western regions. This includes connecting growers with industry stakeholders, agronomists and the State Government to ensure Victoria's vegetable growers have access to the relevant information that can help them with their businesses.

AUSVEG VIC COVID-Safe video resources available to growers

Since the spread of COVID-19 in Australia began in March 2020, international borders closed, resulting in a severe reduction in workers in Victorian growing regions to harvest, package and process vegetables.

While the long-term outlook of managing COVID-19 may improve, two key areas of immediate concern that the Victorian horticulture industry continues to face are:

 Ensuring worker and food safety protocols surrounding COVID-19 transmission; and



• Access to the seasonal horticulture labour workforce.

Victorian vegetable industry peak body AUSVEG VIC, with support from the Victorian Government, has produced a video series promoting COVID-Safe practices, for workers to prevent the spread and transmission of COVID-19. The video series has translated subtitles in a few key languages identified:

- Vietnamese.
- Mandarin.
- Bislama (Vanuatu's native language).
- Khmer (Cambodia's native language) voice over versions are also available for viewing.

The video series has been communitychecked with accredited language and cultural experts for each of translation and is tailored specific to workers in the Victorian horticulture industry.

The series promotes the adoption of COVID-Safe practices, while highlighting the safe practices of Victorian horticulture to a broader audience of prospective workers for Victorian horticulture businesses.

Growers are encouraged to share these targeted industry specific resources with your council constituents, to further increase the adoption of COVID-Safe practices on Victorian horticulture farms.

To watch the videos, please visit ausvegvic.com.au/covidsafe.

Find out more

Please contact VegNET – Victoria (North, West and South-East regions) Regional Development Officer Danielle Park on 0432 324 822 or email danielle.park@ausveg.com.au.

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Project Number: VG21000

VEGETABLE FUND



VegNET update from the Gippsland region

R&D | VEGNET GIPPSLAND

In this column, VegNET – Gippsland Regional Development Officer Bonnie Dawson introduces readers to the Victorian town of Orbost and the role it plays in sweetcorn production. Meanwhile, a range of extension activities continue to be held across the Gippsland region.

The unassuming town of Orbost in fareast Gippsland is better known for its historic timber logging industry; however, it plays a pivotal role in the world's vast sweetcorn industry.

Spending a day within a small radius of the town, myself and Agriculture Victoria's new Horticulture Industry Development Manager for Gippsland, Scott Botten, were able to see the whole process from seed breeding to sweetcorn production.

Snowy River Seeds has been a significant source of new sweetcorn varieties for decades. From the origins on a small block of land on the Snowy River flats outside of Orbost, these seed varieties are grown on every continent of the world.

It takes sweetcorn breeder, Damien Courtier, approximately 10 years to commercialise a new seed variety. Damien and his assistant, Lochy Richy, embrace disease and pest pressures in their crops and try to predict consumer's tastes ten years into the future.

Going global

While the breeding process is supported and accelerated on properties with alternate seasons in north Queensland, Chile and Europe, the potential for Gippsland-bred seed to be supplied across the world is enabled by another Orbost business, Gippsland Seed Services.

Head of Production Marni Riordon is responsible for approximately 200 hectares of corn seed on properties surrounding Orbost and further afield across Gippsland. While Gippsland Seed Services has faced the same challenges in sourcing a workforce as the rest of the industry, investment in technology allows the seed grading facility to operate with a small team of about five workers and can process over 200 tonnes of seed each season. Seed is exported to over 40 countries, including the United Kingdom, Turkey and New Zealand.

Area wide management masterclass

In mid-April, VegNET – Gippsland hosted the Area wide management of vegetable diseases: viruses and bacteria (VG16086) project and the AUSVEG engagement and extension team.

A masterclass was delivered to local growers and agronomists, and sites were visited across South Gippsland and the Mitchell River Valley to collect samples from a variety of crops including snow peas and sugar snaps, sweetcorn, celery, lettuce and broccoli.

The researchers and scientists offered valuable insights to those growers who allowed us to scout their crops, and they asked many questions to better understand their growing practices.

Groups then gathered in Korumburra and Lindenow to hear about findings from VG16086 over the past three years. The samples that had been gathered from the local area that morning provided an engaging focal point for discussion.

The researchers were in their element showing off slides that had been prepared of fungal spores that demonstrated their reproductive potential. There was an excited energy in the room and it was clear that growers and agronomists have a thirst for more knowledge about the diseases that impact their production. As well as diseased samples, the team gathered a number of suspected fall armyworm (FAW) specimens from within sweetcorn and lettuce crops. It is



hoped that by the time this article goes to print, the region will have hosted the Agriculture Victoria team that is developing a field-based test for FAW after two false starts due to COVID-19 and severe weather.

This technology is vital for the industry to provide rapid diagnosis of suspected FAW and enabling appropriate control measures to minimise damage.

Spotlight on biosecurity

The VegNET – Gippsland Regional Extension Strategy will continue in its focus on on-farm biosecurity, providing support over the winter to those who would like to improve their risk reduction processes and exploring regional methods to minimise the impact of pests and disease on the region.

A workshop on Integrated Pest Management has been pencilled in for after Hort Connections – hopefully see you there!

To find out more about any of the projects or activities above, please contact Bonnie Dawson on the details below.



Please contact VegNET – Gippsland Regional Development Officer Bonnie Dawson from Food and Fibre Gippsland on 0407 683 938 or email bonnie.dawson@foodandfibregippsland.com.au. VegNET 3.0 is a strategic levy investment under

the Hort Innovation Vegetable Fund.

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Knowing and improving your irrigation: Hydroponic protected cropping essentials

The Protected Cropping Australia (PCA) Conference was held in Coffs Harbour in March. As part of the event, the VegNET – New South Wales team hosted a grower workshop on the essentials of irrigation for hydroponic protected cropping. The event attracted a diverse group of local and visiting participants, and the VegNET team secured industry specialists Tony Bundock and Levi Nupponen to present. Sylvia Jelinek reports.

Coffs Harbour has a long rich history of horticultural crops and is famous for its homegrown and harvested banana industry. In recent times, it has transformed into a large and thriving protected cropping area, growing mostly vegetables in greenhouses and berries under structures.

With the change in cropping styles, new growers and the ever-expanding industry comes more demand for training in technical skills. Many new growers are moving to the area and are keen to learn and improve their skills.

The VegNET – New South Wales grower workshop at the recent Protected Cropping Australia Conference focused on the essentials of irrigation for hydroponic protected cropping.

Agrology Managing Director Levi Nupponen presented on the practical aspects of irrigation monitoring and management: drip-irrigated hydroponics, while Genesis Horticultural Solutions Director and irrigation guru, Tony Bundock, spoke about initial system setup for irrigation.

Information learnt and provided in this workshop proved to be especially

valuable for berry growers. The principles are the same for berries and vegetable crops – and many growers have tried their hand at both as part of farm diversification.

"Effective irrigation monitoring and management is critical to the economic success of drip-irrigated substrate-based hydroponic systems, such as that used for vegetables or soft fruit," Levi said.

"Arguably, the most critical monitoring task is that of drip and drain programs – a daily job that will help inform the grower of the effectiveness of their irrigation strategy. While this form of monitoring is a great equaliser, applicable across all levels of technology, it is often neglected by growers."

Hydroponic irrigation – drip irrigated substrate key messages

- Site establishment can ultimately determine the yield potential of your crop. Getting this right is essential! Key considerations include:
 - Total water requirements.
 - Water quality (salinity, alkalinity etc)
 - System capacity (peak demand).
- Verify system capacity and uniformity through physical checks such as drip uniformity and flow variance. Carry this out after installation, maintenance and before each crop cycle.
- Fertigation units must be well designed and maintained. Regular preventive maintenance and calibration is required.
- There is no blueprint for irrigation, you must adapt the strategy to suit your crop and conditions.
- Irrigation monitoring is critical, there is no substitute for correct drip and drain data, this will ultimately guide your irrigation strategy.



Protected cropping toolkit - episode 3 - irrigation is available on YouTube.

Tony Bundock's message during the workshop was that computerised irrigation system is the conduit between you – the grower – and your crop.

"It's vital you monitor the crop and adjust settings accordingly to achieve optimum results. Just irrigating on time alone is like having a Ferrari that only has first gear! Using light dependent triggers allows the system to respond to changing climatic conditions," Tony said.

"The workshop set out to present the importance of an effective monitoring program, how to establish your system (with minimal cost) and the correct procedures for monitoring and data collection. We finished up by explaining how to translate these data points to standardised values to help inform adjustments to your growth strategy."

– Levi Nupponen, Agrology

Tell, see and do

Growers learn best from a *tell, see and do* perspective. This event was the *'tell'* part of the learning process with future events planned to roll out on farm demonstrations, which will be the *'see'* and getting it *'doing'* it for themselves on their farms.

It was a well-received event, and 35 people attended with much interest generated in further learning opportunities and support as well as hands on training.

Resources

There are some great new factsheets in development on these topics, so keep an eye out for them. Greater Sydney Local Land Services and VegNET – NSW have developed several resources as support and starting point for protected cropping. The 2019 edition of the *Greenhouse Cucumber Production Manual* can be downloaded from our resources page: Resources - Website - Local Land Services

(nsw.gov.au).

VegNET – NSW produced a series of Greenhouse videos – Protected Cropping Toolkit. One that suits this event well is episode 3 on irrigation that can be found here: https://youtu.be/kwHklc0axqc.

The full series can be found here: Resources - Website - Local Land Services (nsw.gov.au). **Episode 1** – Layout and planning: youtu.be/yyK5tqZvaiw **Episode 2** – Greenhouse set-up: youtu.be/Vxr8zn359QA **Episode 3** – Irrigation: youtu.be/kwHklc0axqc **Episode 4** – Nutrient management: youtu.be/rOj2tOFXqxY **Episode 5** – Cleaning and sanitation: youtu.be/OFCZm-fpQDE **Episode 6** – Key pests and diseases: youtu.be/mwAZsyyfJT8

Substrate use in hydroponics – basic principles and planning key messages

- There is no one substrate to rule them all! You can have success with a wide range of products; however, you may need to adapt your irrigation strategy to suit.
- Ensuring your substrate has the appropriate physical characteristics is essential for both water and air management in the rootzone.
- Matching growing containers and substrates can help get the best result out of a product, different containers may require variations in substrate.
- Understand that many measurable parameters are 'dynamic' and will change over time.
- Chemical properties of substrates vary, not all substrates are inert, and some interact with nutrient availability and pH buffering.
- Purchase substrate from a reputable supplier that can provide technical specifications.
- If in doubt, use this resource to carry out on farm testing to verify the quality of your substrate.



Please contact Sylvia Jelinek on 0427 086 724 or email sylvia.jelinek@lls.nsw.gov.au.

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Top End extension activities in full swing

NT Farmers recently renewed its collaboration with Hort Innovation and the AUSVEGfacilited National Vegetable Extension Program (VegNET) to support local vegetable growers grow a sustainable crop and profitable business. In this article, NT Farmers Association provides an update on the early stages of the project and recent interactions with Top End growers.

In October 2021, AUSVEG launched the third iteration of the VegNET project (VegNET 3.0) aimed to boost productivity and deliver the latest research and development on-farm between 2021-2026. The nationally-coordinated project is delivered locally by regional organisations to ensure growers from all regions benefit from local advice and support to help grow a sustainable crop and profitable business.

In the Northern Territory, VegNET is delivered by the NT Farmers Association (NT Farmers), which provides on-theground extension to vegetable growers in the Greater Darwin, Katherine and Central Australia growing regions.

In February, vegetable growers and other industry stakeholders were invited to the first VegNET 3.0 pre-season meeting in Marrakai. It was a great opportunity for everyone to strengthen their local network and to discuss opportunities available through the VegNET 3.0 project.

More resources for NT growers

NT Farmers first delivered a short presentation about the VegNET 3.0 project's focus areas identified for the vegetable industry: Integrated Pest Management (IPM), soil health, water efficiency, biosecurity, and crop diversification and protected cropping.



The team also highlighted different services available to growers and introduced key industry stakeholders including NT Farmers staff, government extensionists and entomologists, local agronomists, suppliers and more.

NT Farmers has led this opportunity to bring all key stakeholders into one room to provide extension synergy. Collaboration in this arena will benefit all and drive a legacy for industry development, servicing growers and encouraging grower adoption and practice change.

After the presentation, growers were encouraged to mix with scientists to learn more about the recently detected fall armyworm (FAW) and American serpentine leafminer (ASLM). Entomologists from the NT Government provided specimens for different pests and discussed current surveillance tools and activities in the region.

It was great to see more than 36 growers and industry stakeholders including young farmers from the NT Vietnamese Growers Association attending and engaging.

Another meeting is planned for April in Lambells Lagoon to give growers in that area an opportunity to meet with the team. The rollout of these grower and industry stakeholder meetings will continue across the NT in the coming months as the 2022 season ramps up.

IPM focus

This year's main activity for VegNET -Northern Territory is the undertaking of IPM demonstration plots at the NT Government Coastal Plains Research Station in Middle Point, 65km south-east of Darwin

Insect pests are an ongoing challenge as they can reduce fruit yield and quality, ultimately leading to severe economic losses for growers.

IPM combines the use of biological, cultural, and chemical control methods to manage insect pests in agricultural production. It also incorporates the use

of natural predators or parasites and selective pesticides to minimise negative impacts for farmers and the environment. An IPM approach consists of regular monitoring of insect pests to determine the need for spraying, preferably using soft chemicals, where necessary.

Following on from successful IPM trials on okra and snake beans in 2017-18. this year's trials aim to further understand the effect of FAW and ASLM on common vegetable crops grown in the Top End, namely from the Cucurbitaceae (e.g., Asian melons, cucumbers) and Solaneceae (e.g., chillies, eggplants) families.

The field trials will evaluate the vegetable-pest-disease interactions to improve the knowledge of beneficial insects and IPM practices to maximise productivity and profitability of NT vegetable farms.

While the entomologists are excited to start monitoring insects, the preparation of field sites is well underway, and the next few months will be busy with the preparation of seedlings, laying of beds, trellises, and planting.

The team looks forward to undertaking these trials under the wise eyes of local vegetable grower experts! The results from this year's trials will be used to continue the development of the suite of resource tools for the 'IPM Wheeling On' project.

This suite is building on from the work completed under the previous VegNET project (VG18003).



Please contact VegNET – Northern Territory Regional Development Officer Mariah Maughan on 0417 618 468 or email ido@ntfarmers.org.au. VegNET 3.0 is a strategic levy investment under

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VegNET WA projects continue to progress despite COVID challenges



In March, Western Australia threw open its borders and began to glimpse the 'new normal' that most of Australia had already experienced. VegNET – Western Australia Regional Development Officer Michael Bartholomew provides an update on how WA growers are managing the challenging COVID environment, as well as future VegNET activities.

Mirroring the impacts that it has had on growing regions around the country over the past two years, COVID-19 has proven to be an unwelcome distraction from the regular scheduled programming of the west's VegNET 3.0 project.

Consider us lucky or unlucky that we are only facing increased cases now. However, it has provided ample time to prepare with a head-start on legislation and a continuous feed of shared experiences from the east, which has been living in a COVID reality for some time now. As the sun appears to be setting on our country's COVID woes, the west is still playing catch-up.

Business continuity and risk management planning has been high on the agenda for the state's vegetable growers. I have been hard at work providing planning support and swiftly decoding legislation for the state's growers as the COVID threat looms ever closer.

General feedback and grower sentiment suggests that Western Australian growers are well-prepared for managing the uncertainty when it arises and have taken steps in reducing the risk where they can.

Several successful workshops have been run in the Wanneroo, Geraldton and Carnarvon areas, as well as a series of one-on-one visits in the Manjimup growing region that have focused on COVID planning and updates, Ag Visa updates and a disease forecast for our predicted wetter-than-average winter. These updates have been positively welcomed by the state's growers.

Summer scorcher

Dissimilar to the widespread and devastating flooding seen in Queensland and New South Wales, WA has endured the hottest summer on record.

The state has recorded a full combined fortnight above 40°C with continual, high-pressure easterly winds, and an average maximum temperature of more than 33°C. Other than slowing crop growth and causing widespread yield loss, this has also put pressure on water demand – specifically in regions such as North Wanneroo, where water allocations have been cut.

Biosecurity video series coming soon

Once the COVID wave begins to lessen, there are a couple of new exciting projects that I will be assisting in delivering to WA growers. First is a series of biosecurity videos, filmed in WA with the help of a local media company as well as vegetablesWA and AUSVEG. The first of these videos are scheduled to be filmed in May, with the rest to follow in coming months.

These short videos will aim to address the top causes of pest and disease entering farms, and what growers can do to minimise the risk in a manner that is convenient and relatable.

These types of videos are on the internet already; however, none address the specific nature of vegetable enterprises and certainly not the uniqueness of WA growing conditions.

One of the largest barriers of adoption of biosecurity practises is confusion amid the sea of irrelevant information. Out of all farm biosecurity advice available, only 10 per cent may be relevant to a grower's specific situation.

Greenhouse heating in-focus

A study into greenhouse heating efficiency and reducing reliance on expensive and non-renewable heating methods is in its early stages of progression.

This project aims at addressing the rising input costs associated with conventional heating methods and providing feasibility studies into using cheaper, modern, and efficient ways of heating greenhouses. All with the added benefit of making production that much greener by reducing greenhouse gas emissions.

Discussions have been held with renewable energy consultancy companies, engineering firms and grower stakeholders in getting this project off the ground, with promising results.

The technology is new in Australia and a study like this in WA will be the first of its kind. Please get in touch if you would like further details.



Please contact Michael Bartholomew on 0427 373 037 or email michael.bartholomew@ vegetableswa.com.au.

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Establishing networks between veg growers and the wider industry



AUSVEG SA is the state-wide representative body for South Australia's \$2 billion vegetable industry. It works with governments at all levels to advocate on key issues and deliver several key industry development programs that include facilitating VegNET – South Australia, an investment that keeps vegetable growers informed about current R&D activities, results and resources. AUSVEG SA Chief Executive Officer Jordan Brooke-Barnett provides an update.

New Hortbiz Program launched

VegNET – South Australia is assisting with the delivery of the new 'Hortbiz' Business Capability Program, which has been launched in South Australia with assistance from the Australian Government's Future Drought Program.

The program will be delivered in two streams with a Business Foundations Program focused on working with horticultural businesses in a hands-on manner to support business growth. Meanwhile, a competitively selected Masterclass Program is set to provide a select group of businesses with targeted and intensive learning opportunities geared towards the needs of larger horticultural businesses.

Business foundations program

As part of this exciting new initiative, AUSVEG SA will team up with leading independent not-for-profit financial advisory organisation Rural Business Support (RBS), which will provide a team of trained advisors to work with industry to improve business support and training. Under the initiative, growers will be able to access support and advice from the RBS team to review current practices.

RBS can provide assistance in the following areas:

- Business planning.
- Financial and cash flow review.
- Succession planning.
- Strategic advisory.
- Strategic planning.

As part of this initiative, participating

businesses will be able to undertake a formal business assessment and work with the team at RBS to develop a comprehensive business strategy.

Masterclass program

The AUSVEG SA Masterclass Program was being held over two days on Thursday 21 April and Thursday 12 May 2022.

The goal of the program was to expose South Australian horticultural producers to advanced level business concepts and knowledge that they can take back to their business. Growers participating in this program will be entitled to two full days training and some targeted follow up support as part of this program.

Masterclass 1: Managing Risk Scenarios in Horticultural Enterprises

Leading horticultural risk management advisor Julian Robinson from Crux Point provided a one-day masterclass on risk management for horticultural producers. This module comprised a half-day workshop with an opportunity for short follow-up consultation sessions with participating businesses to discuss issues relevant to their businesses.

Key topics included:

- Principles of crisis management.
- Developing strategies to effectively respond to crisis events.
- Examine relevant case studies across horticulture both in Australia and internationally as well as lessons learned.

For further information on Crux Point, please visit cruxpoint.com.au.

Masterclass 2: Advanced Negotiation Skills for Horticultural Businesses

Edwina Swan from leading business negotiating firm ENS International provided a full-day workshop focusing on business negotiating principles for horticulture producers. Edwina has significant experience in working with horticulture producers throughout Australia to improve negotiation techniques and is familiar with the issues and challenges particular to our sector. Key topics included:

- Building negotiation awareness and knowledge of theory.
- Coaching each individual as part of the cohort to persuade and shape communication to lead stakeholders to a preferred position.
- Providing confidence on managing and diffusing conflict or deadlocks whilst still achieving objectives and maintaining productive relationships.
- Building commercial strategy with structured process skills to successfully undertake complex negotiation.

For further information on ENS International, please visit negotiate.org.

Gawler River flood protection

Assistance is now available for landholders adjacent to the Gawler River who would like their section of the river assessed for potential clean up, levy strengthening and other flood protection activities under a new program run by the Department of Environment and Water.

The program is being delivered as part of the \$9 million in flood mitigation investments allocated by the SA Government towards the Gawler River and VegNET SA is assisting to ensure this vital assistance makes its way to affected landholders.

The program

Urban Planning consultancy URPS are coordinating this project and growers will need to express their interest directly with them to participate in this exciting new project.

How it works

Following receipt of a landowner expression of interest, URPS will contact the landowner and arrange a site visit. At this site visit, a visual assessment of the area of the Gawler River within their land parcel will be made.

Should the land parcel be selected to be a part of the project, URPS will work with the landowner on the scope of works, timing for delivery and requirements for access to their property.

Works are dependent on the condition of the Gawler River within an individual property. Works may include excavation and earth works to repair levee banks, removal of silt from the channel or vegetation removal and trimming. In some cases, no work will be required.

The project is being funded by the State Government. There won't be any cost to property owners in the delivery of the works.

To express your interest, please contact **URPS Senior Consultant Rebecca Gosling** on 0431 946 022 or email rgosling@ urps.com.au, or Principal Consultant Jane Wilson on 0422 361 669 or email jwilson@urps.com.au.





Please contact AUSVEG SA CEO Jordan Brooke-Barnett on 0404 772 308 or email jordan.brookebarnett@ausveg.com.au.

VegNET 3.0 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: VG21000





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Training in-focus for Tasmania's extension team

While growers have been busy with producing and harvesting this season's crop, the VegNET – Tasmania team's focus has turned to its training component of identified priority areas. There is a lot happening in this space, and VegNET has been engaging with a wide range of participants to achieve quality training outcomes for industry. Regional Development Officer Ossie Lang reports.

VegNET – Tasmania has identified training as a priority for the project and is looking to understand what industry requires – from short course/informal opportunities, such as field days or workshops to formal or compliance training, such as chemical accreditation courses or forklift training. The team also needs to explore the requirements for formal and longer-term training such as VET courses (Certificate III, IV or Diploma), as well as university courses and pathways (including micro credentials).

Throughout VegNET Phase 2, we worked with industry to identify broad training requirements for different levels of responsibility on vegetable farms.

This involved packers and processors, as well as agribusinesses that support vegetable production. We found that there is a general lack of suitable formal and informal training available for the vegetable industry, apart from compliance courses. Gaps are in irrigation



management, supervisory/management training, LEAN for agriculture, precision agriculture and agronomy – along with others that are more specific to individual businesses.

We found that many years of a lack of suitable training has had an impact on attitudes towards the effectiveness of the formal training system, affecting the culture of training and leading to 'poaching' of staff. This means courses that are offered may not have high attendance unless delivered by respected experts in their field. Many people prefer short courses and flexible delivery in their region with high relevance for their business.

VegNET is providing information on any suitable training offers to the vegetable industry and is organising informal training; for example, irrigation efficiency training was held with Irrigation Australia or precision agriculture was a focus via the Ag Innovation Expo held on 28 April. We are planning to run irrigation efficiency training – which was unfortunately postponed earlier this year due to COVID-19 – later in 2022, just ahead of the irrigation season.

Alongside the irrigation efficiency training there will be a mini 'road-show' with a number of irrigation suppliers present on the day to discuss their systems and equipment with attendees.

Stay tuned to the VegNET – Tasmania social media channels for more details. You can also email Ossie on the details below to register your interest.

Importantly, in this early part of Phase 3, we are working closely with TAFE Tasmania and a representative producer/ packer enterprise to develop a blueprint of suitable VET training.

Lost in translation

One aspect that became obvious when starting the conversations were issues



Informal training opportunities, such as the Spray Day with Don Thorp, are a key focus for VegNET - Tasmania.

around industry understanding the VET language, and TAFE staff understanding the complexity of a horticultural business that often does not formally described job roles that easily align with descriptions in VET training packages.

Therefore, we have set about documenting the current staffing profile, the skills and attributes of staff at each level, and how these can align with current training packages.

We will define typical job roles in the Tasmanian vegetable industry and associated training needs that can be communicated to the VET sector in 'VET language'.

While providing training days is an important part of the training focus area for VegNET – Tasmania, there is also work to be done for having training in place for the future that will provide ongoing support to industry.

To achieve this, we will continue to work with training providers to embed

required training within the state and ensure that the courses offered locally are relevant to industry and in line with current industry best practices.

As part of this process, we will continue to engage with training organisations to drive course design to ensure that it is meeting the needs of industry.

Building a training culture

We are looking at this from the ground up and will both document career pathways in the industry, as well as map out how relevant training can support individuals in moving along their individual career pathway.

The current work with the Tasmanianbased grower/packer will be tested with other vegetable businesses and refined as required. It will then be used to inform training that supports career pathways within the industry. Where there are gaps, we will be working closely with the training providers to ensure that courses are offered that meet these needs.

Another aspect we will look into is the lack of suitable trainers in formal system.

With a government focus on agricultural education in Tasmania and a new structure at TasTAFE – as well as more focus on industry needs by the University of Tasmania – the timing of our work will allow us to engage with the training organisations as they review their course offerings.

We have also been working closely with the Burnie Industry Training Hub and the State Government's Skills Tasmania to ensure that the training is aligned with pathways for students finishing high school. The aim is to support a skilled workforce for the vegetable industry into the future.

While we have been discussing our approach with a range of industry members, we are always happy to hear from more. Please reach out if you have any training needs in your business.

We can support you in finding the right course or information. Or if there is nothing available, we can work on putting training options in place that meet your needs.

Find out more

Please contact Ossie Lang on 0430 380 414 or email ossiel@rmcg.com.au.

VegNET 3.0 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: VG21000





In this article, the team from the recently completed project *A strategic approach to weed management for the Australian vegetable industry* (VG15070) report on a series of written and video materials that were produced for Australia's vegetable industry. Together, these materials constitute the industry's first comprehensive resource on sustainable Integrated Weed Management (IWM).

Weeds are a significant ongoing burden in vegetable production. They have considerable impacts on crop profitability by reducing crop yield and quality, increasing input, machinery and labour costs, and making crop management more difficult.

Between 2016 and 2021, a team from the University of New England (UNE) conducted a comprehensive Hort Innovation-funded project entitled *A strategic approach to weed management for the Australian vegetable industry* to explore and extend best-practice Integrated Weed Management (IWM) principles to Australia's vegetable industry.

The impact of weeds and importance of IWM

In consultation with vegetable growers, the research team found that, on average, weeds reduced the operating profit of a sample of vegetable farms by \$2,090 per hectare. The economic benefits of getting on top of the weed problem and keeping weed populations to a manageable level are therefore likely to be significant.

To help provide vegetable growers with access to current best-practice information on how to reduce the burden of weeds on their farms, the UNE team prepared a series of written materials as well as video case studies on the effective use of IWM principles in different contexts. UNE project leader, Associate Professor Paul Kristiansen, explained there is no single approach to successful IWM.

"The mix of techniques used in a grower's IWM strategy will depend on their crops, their climate and soil, and the weeds having the biggest impact on their production system," Paul said.

Resources available

The Integrated weed management for the Australian vegetable industry resources produced by the UNE team summarise four years of field and glasshouse research, as well as information collected from other cropping industries and around the world.

This is the first time that Australian vegetable growers have had access to comprehensive and targeted resources on IWM, bringing the industry into line with Australian grains and cotton production.

These resources focus on sustainable approaches that can support application of herbicides but also potentially reduce vegetable grower reliance on chemical weed management. This is important given the growing problem of herbicide resistance, and the limited number of herbicides registered for Australian vegetable crops.

The materials are now freely available via the web pages of AUSVEG, Hort Innovation and UNE. These include:

- A three-part comprehensive IWM manual. The first two sections describe the impact of weeds on vegetable farms, and the principles of IWM. Part three discusses suitable techniques for inclusion in a grower's IWM strategy, including chemical, mechanical, physical and cultural approaches, each of which are outlined in detail.
- Summary versions of 'The principles of integrated weed management' in Simplified Chinese, Khmer, and Vietnamese (read more below).
- Two detailed case studies accompanied by short videos – to explain different approaches to successful implementation of IWM to reduce the weed burden and improve farm profitability in a sustainable manner.
- Detailed guides on management of 11 specific weed species of importance to Australian vegetable production.
- Short videos outlining field trials of different winter and summer cover crop varieties to determine their performance in suppressing weed growth.

IWM principles delivered to growers from diverse backgrounds

Industry consultation during this project found that Australia's vegetable industry is



comprised of significant communities of growers from Chinese, Cambodian and Vietnamese background.

These growers make a significant contribution to the industry, particularly in the production of specialty Asian vegetable varieties for local consumption and export.

Therefore, a significant project outcome was to translate the 'principles of IWM' into Simplified Chinese, Khmer Diligent application of Integrated Weed Management principles can reduce the burden of weeds to a minimum on vegetable farms.

and Vietnamese to ensure that a wider selection of Australian growers had access to this information.

This document defines IWM, its advantages and challenges, and explains why it is important in reducing the soil weed seed bank.

Different goals are outlined for differing levels of weed infestation, and the various methods that may be selected by vegetable growers as part of their IWM strategy are summarised.

Finally, the document describes suitable timing of IWM activities to maximise the chance of success and outlines some emergent technologies, particularly in the area of automation and treatment of the weed seed bank beneath the soil surface.

The bottom line

Most vegetable growers already use some form of IWM approach in their crops – many with considerable success, as the case studies published by the UNE team illustrate.

However, it is hoped that publication of the Integrated weed management for the Australian vegetable industry materials will give all growers access to a comprehensive and useful resources as they continue to search for ways to make further improvement in addressing the burden of weeds.

Carl Larsen from RM Consulting Group has a wealth of experience in industry development and practice change in Australia's vegetable industry. He outlined the benefits of IWM for vegetable growers.

"IWM reduces the weed seed bank to ensure that the weed burden is minimised," Carl explained.

"Combining multiple weed control options is vital for getting on top of weed problems in vegetable production. This means healthier crops and better returns in the long-term."





Priority weeds of Australian vegetable production

vegetable production tend to be heavyseeding annual broadleaf species or sedges, both of which can be difficult to control using widely favoured approaches such as selective herbicide application in

Following consultation with industry to identify the most important weed species detailed management guides on 11 priority weed species. Each explains in detail

Management guides have been published for the following weed species:

- (Sonchus oleraceus)
- Dwarf nettle (Urtica urens)
- Marshmallow (Malva parviflora)
- Nutgrass (Cyperus rotundus)

Find out more

The Integrated weed management for the Australian vegetable industry resources are available for free download from the AUSVEG website

Readers can also watch short videos describing examples of successful IWM and outlining the role of cover cropping in IWM. The resources and videos can be found on the AUSVEG website under the 'Integrated Weed Management' tab: ausveg.com.au/biosecurity-agrichemical/cropprotection

For further details, please contact Michael Coleman by emailing michael.coleman@une.edu. au or Paul Kristiansen at paul.kristiansen@une edu.au.

A strategic approach to weed management for the Australian vegetable industry was 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: VG15070





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Thriving horticultural business homes in on technology

Large-scale mixed enterprise venture, Bonaccord Group, is preparing for the next phase of its technical evolution. This is following a sustained period of growth and development across its 1,720-hectare operation, located outside Walpa in eastern Victoria. *Vegetables Australia* reports.

Bonaccord Group is a multi-faceted business that grows cabbage, cauliflower beans, sweetcorn, salad leaves, broccoli and potato alongside barley, cattle and the operation of a freight business boasting a fleet of 52 trucks. Despite its breadth and scale, it retains the heart of a family farm and is headed by four brothers and their wives.

Bonaccord Group Director, Gerald Ingram, said the venture relied on a John Deere fleet of equipment, including a powerful lineup of 36 tractors, an L340 Baler, 1725NT ExactEmerge™ Planter and two R4023 Sprayers to help supply 30,000 tonnes of fresh produce to markets in Melbourne, Sydney and Brisbane each year.

Mr Ingram said connected equipment recording accurate farm data to automate machine functions would become increasingly imperative to the business moving forward.

"We see machinery technology as something that is going to grow and evolve and will be a lifelong project for the next generation." Mr Ingram said.

"Just one example where I see this coming into play, is in protecting our assets. Our business has an extensive underground network of pipes for our irrigation, and some of these pipes are quite shallow.

"We want to get to the stage where we can send our 8R into any field with deep ripping equipment, and the tractor can automatically know there is a shallow mainline and lift the implement.

"It's information like this we will rely on our technology for, as it can be a challenge to pass this on to our next generation of employees."

Streamlining operations

The work rolls on 52 weeks of the year for the Ingram family as broccoli, cauliflower and cabbage are planted weekly, slotting in alongside seasonal sowing in September for beans and sweetcorn.

John Deere technology already plays a vital role in streamlining the workflow of Bonaccord Group's team of 120 people, which swells to 250 in the peak harvest season. Most machines are connected through JDLink[™] to relay almost-real-time data to the operations centre and create an instant snapshot of task progression.

"We are monitoring the operations centre all the time," Mr Ingram said.

"It's very important to our managers as after our toolbox meeting – where we talk through tasks for the day with operators – we can easily see how they are progressing by glancing at our phones.

"This means we are not having to hassle them, and we are leaving them to do their jobs."

At seeding, all machines operate on GPS steering to not only help to optimise productivity but to soften the impact of rising fuel costs.

Evolving business

The Ingram family transitioned to John Deere machinery in the early 1990s, starting with a 2250 tractor.

"At the time, John Deere offered us excellent backup support and was extremely helpful when we were in our infancy," Mr Ingram said.

"Since then, it has been part of the journey with us."

Mr Ingram also praised his local

dealership, Brandt Maffra, for an ongoing commitment to minimising machinery downtime and providing swift access to parts.

Looking ahead, Mr Ingram is eager to see the next generation of family members make use of the horticulture industry's vast opportunities.

Already, there are six members of the third generation working within the business, in roles spanning from quality assurance management and marketing to hands-on positions, such as diesel fitters in the machinery shed or field operators.

"The food industry in Australia has a promising outlook, because, at the end of the day, there is a growing population and people need to eat," Mr Ingram said.

"There is always a challenge in knowing what the next buzz crop is to grow, but we see our future in bringing the staple vegetables to market."

Find out more Please visit johndeere.com.a





Ground-breaking multi-industry export program set to commence

Hort Innovation has recently contracted AUSVEG to deliver the industry export development program for the vegetable, onion and melon industries. *The Multi-Industry Export Program (Vegetables, Onions, Melons)* is a first for the horticulture industry and will see a collaborative approach to export development for growers in the vegetable, onion, and melon industries under a single holistic export program.

About the project

The Multi-Industry Export Program (Vegetables, Onions, Melons) (MT21009) is a five-year strategic levy investment under the Hort Innovation Vegetable, Onion, and Melon Funds. Hort Innovation – working with AUSVEG, Melons Australia and the onion industry – has brought three different industries together for the first time to collaborate on a combined industry export program.

The program developed for the Multi-Industry Export Program builds on successful export capability and market development activities AUSVEG has refined through years of successful delivery. The program incorporates enhancements such as provision of sophisticated market intelligence data and insights for growers.

This is in addition to tailored advice on product development for export, and a comprehensive market development program providing growers with valuable opportunities to re-engage with export markets and customer networks.

The synergies that will result through the joint approach between the three industry sectors will deliver strong positive outcomes for growers and achieve project delivery and resourcing efficiencies.

This investment in international trade development aligns with each of the three industry's Strategic Investment Plan priorities to develop trade with international markets.

The new Multi-Industry Export Program

will be led by AUSVEG, partnering with stakeholders in the melon and onion industries, and encompasses service delivery in the following areas:

- Export Skills and Capability Development.
- Market Planning and Market Entry.
- Market Development and Trade Facilitation.
- Market Intelligence and Trade Expansion.
- Trade Policy, Protocol and Risk Management.
- Communication and Industry Engagement.
- Assistance, Advice and Resource Development.
- Export Strategy Implementation. The program focuses on building

export capability and capacity in the vegetable, onion and melon industries.

It will also collate international market information for decision making – as well as business development functions to uplift the ability of exporting growers to service a wider range of markets and channels, and to expand international trade opportunities in the future.

The primary objectives of the program are to:

- Provide holistic international trade development support for Australian vegetable, onion, and melon growers to develop export markets.
- Maintain viable export pathways.
- Develop industry capability.
- Achieve sustained export growth under a multi-industry approach, leveraging existing vegetable industry



trade development activities and the expertise and capacity that exists within the AUSVEG international trade team.

Grower-facing service delivery

Vegetable, onion and melon levy-paying grower-exporters will gain access to a wide range of activities and services through this multi-industry project, including – but not limited to – the following:

- Online export e-learning program and export training workshops.
- Access to export resources and educational materials.
- Advice on export market entry and planning strategies.
- Participation in the annual AUSVEG Reverse Trade Mission.
- Participation in outbound trade missions.
- Access to an international business innovation mentoring program.
- Access to a centralised market intelligence platform to obtain market insights, competitor analysis information, detailed trade statistics and market data.

Industry support

AUSVEG and representatives from the melon and onion industries will provide industry support to levy-paying growers, including:

 Representation at industry and government forums, government engagement and participation in various international trade working groups on export topics.

- International trade risk management.
- Deliver timely assistance, troubleshoot issues and facilitate trade enquiries, provide industry specific advice and issues resolution, and develop various educational resources.
- Communicate and publish relevant international trade updates to industry.
- Provide input into the maintenance and implementation of the vegetable, onion and melon industry export strategies to ensure all program activities are aligned and intended outcomes and export targets are achieved throughout the life of program.

What's next?

With international travel restrictions easing and the need for exporting growers to re-engage with international customers, AUSVEG is currently planning to reactivate select international outbound trade missions in the second half of 2022.

Further information will be released shortly on how exporting vegetable, onion and melon levy-paying growers can access these trade mission opportunities through MT21009.

Find out more R&D

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

This project is funded by Hort Innovation using the vegetable, melon and onion research and development levies and contributions from the Australian Government.

Project Number: MT21009

Hort Innovation



Passion for soils leads to hosting Top End demonstration site

The Soil Wealth and Integrated Crop Protection project team has set its sights on the Northern Territory in 2021/22, working with Jeremy Trembath and his family to establish a trial site on his cattle and vegetable farm just north of Katherine. In this edition, Michelle De'Lisle speaks to Jeremy about his involvement in the project, the farm's approach to soil health and what lies ahead.

Jeremy Trembath, along with his parents and wife Amy, operates an almost 1,000-hectare cattle farm five kilometres north of Katherine in the Northern Territory.

"We've been running a breeding herd of cattle for around 18 years and for a time we had pasture –annual and perennial – that we cut for hay for on- and off-farm use and sale," Jeremy says.

"We had a 2,200 strong Kensington pride mango tree orchard. But when the industry became unviable for us as smaller scale growers, we removed the trees and put the area to perennial pasture."

The Trembaths are focusing on what Jeremy describes as "little D (development) and big M (maintenance)." They have implemented a three-year pasture/one-year vegetables rotation system.

"It (the farm) is both the under- and above-ground honest and driven workforce that we need," he says.

"Cattle, landscape regeneration and growing healthy vegetables is currently our focus. That said, we have come to recognise that to grow cattle and crops we grow grass and for that we need soil – plenty of good, healthy, stable soil. So not that we consider ourselves expert or experienced, we are, in fact, soil farmers.

The soils are light textured with low organic matter levels and are prone to erosion, which is the biggest challenge on the farm. Additionally, wet/dry season cycles result in compaction of the soil top layer which requires tillage, although minimum tillage activity is the goal. Jeremy has sown seed directly into the soil without tillage in the past and that worked well.

On the farm, the aim is to move away from synthetic inputs and include more legumes as natural sources of nitrogen. This will benefit the small-scale horticulture that is planned for the winter months, including a harvest garden for local families hoping to access a broad range of fruit and vegetables.

Soil Wealth and Integrated Crop Protection: Becoming involved

In mid-2021, NT Farmers Director of Regions and Projects Simone Cameron (formerly the VegNET – Northern Territory Regional Development Officer) introduced the Trembaths to *Soil Wealth and Integrated Crop Protection – Phase* 2, which is a strategic levy investment under the Hort Innovation Vegetable Fund.

The Trembaths are currently hosting a demonstration site, with the Soil Wealth ICP project team assisting Jeremy with building greater resilience to heavy weather events and soil erosion. This is through growing a corn cash crop following mixed cover crops, reduced till (strip till), the input of soil biology (mycorrhizal inoculants) and early-stage non-chemical weed control with a finger weeder.

"We're keen to be involved in anything that looks at soil health. The main benefit of being involved in the project is the knowledge and guidance that we have had access to and been given. It has been invaluable," Jeremy says.

"We highly recommend this project to anyone interested. There is sound advice and support."





Grower observations

It's too early to say if there has been any yield improvement. At the time of writing, the Trembaths had just sown their first corn crop in the area, so any results won't be seen until spring. It is hoped that the corn will prove an easy win for raising organic matter levels in the soil.

However, Jeremy has seen some positive changes. This is, he says, though the use of bio fertiliser, no kill, no till, strategic grazing – and a bit of love. These include:

- A reduction of undesirable species onfarm by at least 70 per cent.
- Taken an area with basal cover of around 10 per cent to more than 25 per cent.
- As a knock-on of an organic approach there are sida beetles stripping sida plants (the Trembath's most prolific 'weed') to bare stalks in places.
- Cattle pats are a moving mass of dung beetles.
- Patches of ground the size of a house that have been completely bald for years are now covered.

"We always were of the mind that we needed to remediate these sorts of areas with a recipe of deep ripping and gypsum application. While we still like the idea of those inputs, we've come to realize that in fact it is the microbiology in the soil that is the key. We call them our underground herd," Jeremy says.

- In big (75mm+) rain events, there has been no runoff where before there would have been water movement and erosion.
- Earthworms have appeared in the paddock where the Trembaths have never seen them before.
 "I recently took a soil sample to

compare with last year's pre-cover crop

and cannot quantify an improvement, except for the pH moving closer to neutral from being slightly more acid than desirable. Also, digging is easier, and it certainly feels more alive," Jeremy says.

"These regenerative practices have been used by farmers all over the world for the past 10,000 years. We are just really excited to discover that we don't need to 'farm out of a bag' and can achieve great results without it."

Jeremy added that trial has not necessitated any large changes in the Trembath's farming system.

"Our on-farm revolution started before the trial, but the trial has worked in well with what we were looking to achieve. We would like to think that we are constantly changing and adapting as we find what works and what doesn't," he explains.

A sustainable future

Once the trial has concluded, the Trembath family will continue to explore farm fertility and ways to become less reliant on imported inputs.

"We are looking at how we can contribute to whole farm systems and grow vegetables for a longer season, so that as a community we can regain some lost sovereignty by locally having highquality, nutrient dense food," Jeremy says

"The next project will be having a go at brewing our own nitrogen fixing organisms and how we keep them around over the hot and dry periods of the year. This will be coupled with sourcing and making our own fertiliser and soil conditioning products.

"Also, trying no-till corn. This year, we are lightly running a rotary hoe preplanting, but I'd like to try sowing directly into a heavy cow pea crop."

eetcorn seedlings with mulch cover protecting the soil

Acknowledgements

This article is based on a case study produced by the Soil Wealth ICP team, and can be found online at soilwealth.com.au/resources/articlesand-publications/new-nt-demo-siteprotecting-soil-in-the-north-withjeremy-trembath/

More Soil Wealth ICP case studies can be found online at soilwealth.com.au/ resources/case-studies/



For more information about the Soil Wealth/ICP project, please contact project leaders Dr Gordon Rogers on 02 8627 1040 or gordon@ahr.com.au and Dr Anne-Maree Boland on 03 9882 2670 or anne-mareeb@rmcg.com.au.

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

Project Number: VG16078

Hort nnovation Statesic levy investment

Nitrogen fertiliser price and supply: A good reason to look at legume cover crops

The Soil Wealth and Integrated Crop Protection (ICP) project works with growers to put soil management and plant health research into practice. This edition explores the use of legume cover crops to better manage nitrogen on-farm. *Soil Wealth ICP Phase 2* (VG16078) is a strategic levy investment under the Hort Innovation Vegetable Fund.

The commercial nitrogen fertiliser market has been very volatile in recent times, with shipping issues and shortages for all of Australia. As Australia does not manufacture enough nitrogen to supply its own domestic market, the cost of nitrogen fertiliser has more than doubled.

Given the price rises and uncertainty of nitrogen fertiliser supply, it's a good time to add a legume cover crop into your rotation and reduce your reliance on nitrogen fertiliser.

Legume cover crops can add lots of nitrogen, with a good cover crop adding

160-200 kilograms per hectare (kg/ha) of nitrogen. Based on recent nitrogen fertiliser costs, that is \$500-\$600 of added nitrogen per hectare, with seed and inoculant costing around \$100-\$200 per hectare.

The science of biomass

To add the most nitrogen, legume biomass is king.

For every tonne of shoot biomass grown, about 20 kg of nitrogen will be added. So, if you can grow a good legume cover crop with the right inoculant and produce 8-10 tonnes of shoot biomass, then that's 160-200 kg of nitrogen added. Your cover crop roots can have a further 30-100 kg of nitrogen.

Less nitrogen will be added when cover crops are grown as part of a cover crop mix, as the legume growth and biomass are reduced due to competition from the other cover crop species in the mixture. However, cover crop mixes are a good option when you have high soil nitrate levels.





High soil nitrate levels will reduce nitrogen added by legumes. Basically, if the plant can get lots of 'free' nitrogen from the soil then it will not allow the Rhizobium bacteria to nodulate the roots and will not feed the bacteria. Instead, the plant will take the 'free' nitrogen from the soil.

It's important to use soil tests before your cover crop is planted to find out how much soil nitrate is remaining. If it's below 50 kg of nitrogen per ha (to 30 cm), the legumes will add lots of nitrogen. Above 200 kg of nitrogen per ha will limit your legume from adding much nitrogen.

Managing soil nitrogen levels

Typically, soil nitrogen levels will be low following nitrogen-hungry crops like corn and potatoes; higher soil nitrogen levels are likely following leafy vegetable crops. The levels of soil nitrogen before you sow your cover crop will also depend on how much in-crop nitrogen fertiliser was used.

If you have high soil nitrogen levels, it may be better to plant a mixed cover crop of a cereal/broadleaf and legume. The cereal and broadleaf will recover and store the nitrogen in the soil and force the legume to fix its own nitrogen.

A mix like a sunn hemp, sorghum and tillage radish for summer – or oats and vetch mix for winter – will do a good job of soaking up the nitrogen already in your soil left over from a previous crop and encourage the legumes in the mix to add some more nitrogen.

Nitrogen added by legume cover crops must be converted into nitrate and ammonia by the soil biology to be available to your vegetable crop. This typically means there is a nice, slow release of nitrogen over the life of the crop.

Additional resources

To understand how much and when nitrogen will be available for your vegetable crop, watch the Soil Biology Master Class 2021 – Nitrogen availability webinar: soilwealth.com.au/resources/ webinar-recordings/soil-biology-masterclass-2021-nitrogen-availability-day-1part-3-of-7/

To help choose the right legume and Rhizobium, see the Cover Crops for Australian Vegetable Growers poster: soilwealth.com.au/resources/posters/ cover-crops-for-australian-vegetablegrowers.

You can also find out more about managing nitrogen on-farm and using legume cover crops in this recent webinar recording with Kelvin Montagu, Doris Blaesing and Marc Hinderager: soilwealth. com.au/resources/webinar-recordings/ nitrogen-fertiliser-price-and-supplymanagement-options-in-difficultconditions/

The presentation also covers:

- Optimising fertiliser practices.
- Reducing nitrogen fertiliser losses (e.g. leaching and denitrification).
- Soil testing and crop monitoring.
- An agronomist panel that discusses the tried strategies to manage nitrogen on clients' vegetable farms.

Find out more R&D

For more information, please contact project leaders Dr Gordon Rogers on 02 8627 1040 or gordon@ahr.com.au and Dr Anne-Maree Boland on 03 9882 2670 or anne-maree@@rmcg.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: VG16078



Tips to get the most nitrogen out of your legume cover crop

- Add the right Rhizobium inoculant at the right time
- Select and grow a vigorous legume cover crop – the more biomass grown, the more nitrogen added.
- Grow a straight legume (i.e. not part of a cover crop mix).
- Legume cover crops are most effective with low to moderate soil nitrate levels – less than 50 kg/ha of soil nitrate will encourage your legumes to add the most nitrogen.

6 June: Don't miss the Soil Wealth ICP grower panel at Hort Connections!

The Soil Wealth ICP grower panel at Hort Connections 2022 will explore cutting-edge practices and technologies that are key to improving productivity, profitability and sustainability in the Australian vegetable industry.

On Monday 6 June during the Annual Vegetable Innovation Seminar, leading growers will provide first-hand experience and insights from hosting a demonstration site as part of the project over the past eight years.

The panel will tackle some of the big topics – from strip-till, cover crops, soil amendments and biological products – and your burning questions about putting research into practice, including:

- What are the benefits of hosting demonstration sites and undertaking trials?
- Why is it important to innovate?
- How do you start trialling a new technology or practice on your farm?
- Who do you look to for inspiration and research? You can also meet the Soil
 Wealth ICP team at the Trade Show (Booth 233 – RMCG and Booths 255/271 – Applied Horticultural Research).



Understanding and managing the role of honey bees in CGMMV epidemiology

From 2019-2021, a project was undertaken that determined how honey bees introduce Cucumber green mottle mosaic virus (CGMMV) into healthy cucurbit plants, and then developed recommendations to manage the transmission of this virus by honey bees. *Vegetables Australia* has published excerpts from the project's final report, collated by Project Lead Mary Finlay-Doney from the Northern Territory Government's Department of Industry, Tourism and Trade, in collaboration with Hort Innovation and Melons Australia. Cucumber green mottle mosaic virus (CGMMV) was first detected in Australia in 2014, and is now found in many states and territories. This plant virus is highly destructive and contagious. It affects all cucurbits and can lead to significant reductions in productivity and fruit quality. Exposure to CGMMV is a national concern for cucurbit producers and apiarists.

Cucurbit crops are almost 100 per cent pollinator dependent – they require insect pollination for successful fruit set and production. In Australia, honey bees are regularly used to provide managed pollination services to broad acre watermelon cropping. CGMMV is not known to affect bee health. The main concern is that if honey bees are exposed to CGMMV and then moved significant distances within or between states, they may move this highly destructive plant virus to new locations.

Based on previous research conducted in Australia and elsewhere, we know that honey bees are able to move CGMMV from one flower to another and that the virus can persist in bee hives. Bee hive products from the Northern Territory

CGMMV SOURCE



and Queensland have been tested for the presence of CGMMV both as fragments and as viable virus. This testing was undertaken by the project team from *Improved management options for cucumber green mottle mosaic virus* (VG15013), which was a strategic levy investment under the Hort Innovation Vegetable Fund.

All hive products (adult bees and brood, pollen, empty cells and propolis) contained CGMMV. However viable virus (capable of causing infection in plants) was only found in pollen, honey and adult bees.

The possibility that hives could carry a highly destructive plant virus with them and transmit it into new areas was a significant concern, both to melon producers (2019/20 industry value: \$152 million) and the apiary industry (2018/19 industry value: \$147 million). Understanding and managing the role of honey bees in CGMMV epidemiology was a strategic levy investment in the Hort Innovation Melon Fund, and it was established to determine if honey bees are able to transmit the viable virus from inside their hives into clean melon crops.

Honey bees and their role in CGMMV spread

The project's results indicate that honey bees can spread CGMMV when pollinating infected and healthy crops at the same time.

However, the intensity of this transmission is dependent on the availability of the infected plants at the property. The risk (likelihood and proportion) of virus transmission increases the greater number of CGMMVinfected plants at the property. In this situation, honey bees are no different from any other mechanical vector that can spread CGMMV within a site.

Early detection and proper removal of CGMMV infected plants remains the most important biosecurity measure to manage CGMMV.

The evidence from this project is that the risk of foraging honey bees introducing CGMMV into new areas when their hives are moved is low.

The project team's field transmission trials showed that the window for transmission of CGMMV by foraging bees from a hive that has been recently exposed to CGMMV positive plants is less than 24 hours.

A short window of possibility for transmission has been reported for other honey bee transmitted pathogens, although the length of the time for each specific pathogen varies (from hours to weeks).

Resting site hive trials showed that

CGMMV was no longer detectable on honey bee bodies after one month. Therefore, it is recommended at least one month resting of CGMMV positive bee hives at a CGMMV free location to stop virus transmission of CGMMV by honey bees from positive hives.

Also, avoid bee hive management practices – such as hive splitting and honey extraction – while hives are present at a site of cucurbit production. This is because it could be possible to physically infect living cucurbits with viable CGMMV still contained in bee hive materials (such as wax frames or honey) when they are removed from the hive.



Therefore, the recommended management strategies to reduce CGMMV transmission via foraging bees and positive bee hives are:

- Proper and early removal of infected plant material from the property.
- At least one month break for hives • that have had a known or presumed exposure to CGMMV positive plants before introducing them to another cucurbit crop.
- Avoid conducting hive management practices for suspected CGMMV positive hives on cucurbit producing properties.

Honey bees that have been exposed to CGMMV are not the most significant source of CGMMV. It is a plant virus that is most frequently introduced in seed/infected planting material and can be moved in soil, plant material or on contaminated equipment.

Apiary equipment (boxes, hive stands) and vehicles could carry CGMMVinfected soil/plant material and need to be managed. These management recommendations should be incorporated into on-farm biosecurity plans, apiary biosecurity plans and communicated to farm staff and visitors.

Open communication between cucurbit producers and apiarists is necessary for these management strategies to be effective. Please read the below boxout Managing on-farm biosecurity during managed pollination



for more specific management practices to avoid CGMMV transmission via bees and positive bee hives.

Industry feedback

The results from this research do not necessitate a significant change in practice for melon growers or apiarists in most jurisdictions.

The Australian Honey Bee Industry Council (AHBIC) has prepared a special edition of its newsletter with the results of this project, which have been distributed to apiarists nationally.

AHBIC Chair Trevor Weatherhead said the results were reassuring for the managed pollination industry. However, he did highlight that there may be some challenges in the Burdekin region in north Queensland, where apiarists provide pollination services to melons and then move their hives directly on to pumpkins - both of which are cucurbit species. This region has been identified as an important area for further education and extension of these project results in the future by the Australian Melon Association's Biosecurity Officer, Joanna Embry.

The project results emphasise the importance of good biosecurity management, within the farm or apiary, and provide demonstrated evidence to underpin business decisions that producers affected by CGMMV are already making.



Find out more R&D

Please contact Brian Thistleton by emailing brian.thistleton@nt.gov.au.

The final report and factsheets for this project has been made available on the Hort Innovation website. Readers can search 'VM18008' on the website's search engine: horticulture.com.au.

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

Project Number: VM18008







Fast facts: Cucumber green mottle mosaic virus

- *Cucumber green mottle mosaic virus* (CGMMV) is a Tobamovirus. This group of viruses is not commonly known to be insect transmitted.
- It was first detected in Australia in 2014
- Now considered established in the Northern Territory and Western Australia, and under management in Queensland, South Australia and New South Wales.
- Causes leaf mottling and mosaic, yellowing and distortion.
- Affected fruit is unmarketable.
 For more information, please visit horticulture.com.au and search for the

factsheet Virus diseases of cucurbits in Australia. This has been produced by Area wide management of vegetable diseases: viruses and bacteria (VG16086).

Managing on-farm biosecurity during managed pollination

For growers:

- Manage your farm biosecurity. Contact your industry representative or local state agency for advice.
- Discuss the CGMMV status of your crop with your apiarist.
- Discuss the CGMMV status of any bee hives that you bring onto your property.
- Ensure hives used on your property have not been exposed to CGMMV within the past month.
- Ensure that hive materials (wax frames, honey) are not discarded in your cucurbit production areas.

For apiarists:

- CGMMV is not known to affect bee health or hive strength.
- Ensure you understand how bees and hives are exposed to CGMMV.
- Discuss the CGMMV status of the crops you pollinate with the grower.
- Ensure clear permanent marking and identification of hives (individually or in loads) and their components.
- Keep accurate and concise records for all apiary activities.
- If a hive has been exposed to CGMMV within the past month, the bees may be able to transfer CGMMV to other cucurbit plants when visiting flowers.
- If a hive has been exposed to CGMMV do not conduct hive maintenance on that hive in a cucurbit production area.
- Physically separate loads based on the sites they have worked, particularly if sites may have been CGMMV positive.
- Attend to hives suspected to contain CGMMV last in the workflow, and use separate hive tools and bee-keeping gear for these hives.
- Clean hive equipment between loads to ensure all wax and honey debris is removed, typically by using hot water or steam cleaning. Note that although these techniques will remove honey and wax – which may be carrying CGMMV – they have not been demonstrated to decontaminate CGMMV. If possible, have separate equipment for different loads.







and Regional Development Bee Team and an industry collaborator pictured inspecting hives at a seaport. Image courtesy of Jenny Shanks, Plant Health Australia.

Protecting Australia's honey bee population through enhanced surveillance

From 2016 to 2021, the *Enhanced National Bee Pest Surveillance Program* (NBPSP) a multi-industry project, delivered nationally coordinated bee pest surveillance activities to help safeguard honey bee and pollinator-dependent industries in Australia. The objective of this program was to act as an early warning system to detect new bee pest or disease incursions to provide the best chance of containment or eradication. *Vegetables Australia* spoke to one of the project leaders from Plant Health Australia, Dr Sharyn Taylor, about the project and its outcomes.

A five-year project that was part of the Hort Frontiers Pollination Fund, Enhanced National Bee Pest Surveillance Program (NBPSP), was a significant partnership between industry and government, with investment through Hort Innovation and delivery and expertise provided by state and territory governments.

The program operated at ports of entry around Australia, undertaking surveillance aimed at detecting new bee pest or disease incursions as soon as possible after they entered the country.

This work provided regular collection and national collation of surveillance data relating to honey bee pests, and tested a range of new techniques to improve the efficiency and efficacy of surveillance methods.

In a first for an industry/government program, data were collected into the national surveillance data system, AUSPest*Check*[™]. This system supports national visualisation of these important data sets to give industry and governments a national view of surveillance being undertaken.

Surveillance was undertaken for 18 pests and project activities included national coordination, deployment of sentinel hives (hives containing live bees) and floral sweeping for bees at key ports around Australia. For ports in Western Australia, Tasmania and Queensland, beekeepers actively supported maintenance of the sentinel hives used in the NBPSP, bolstering expertise and capacity to the program, ensuring surveillance could be undertaken at a larger number of ports.

The project developed a range of new techniques and tools including prototype catchboxes to support detection of swarms at remote locations, systems for enhanced data management, and diagnostic protocols.

Plant Health Australia's National Manager, Surveillance Dr Sharyn Taylor led the project alongside Manager, Bee Biosecurity and Surveillance Dr Jenny Shanks.

Dr Taylor said the economic value of

European honey bees (*Apis mellifera*; EHB) as both managed hives and unmanaged (feral) colonies, has been difficult to estimate.

"However, figures from 2014-2015 have calculated their contribution to the Australian economy to be between \$8.35 billion and \$19.97 billion, largely through pollination services," she said.

The impact of EHB on pollination varies across vegetable crops, with crops such as pumpkin, squash and zucchini much more reliant on honey bees to increase production, while others such as carrots and brassicas require pollination for seed set.

"Australia holds the enviable status of being free from many significant pests and diseases of honey bees that pose a major threat to bee populations worldwide with our honey bees among the healthiest in the world," Dr Taylor said.

"In order to protect the profitability of key industries, the program focused on activities that assist Australia maintain freedom from this range of pests and





a pellet that may contain bee wings. Image courtesy of Hayley Alexander.

diseases with surveillance in areas considered to be of highest risk for the entry and establishment of exotic bee

The NBPSP was established to undertake consistent and timely eradication of a new pest."

Major findings

As a result of this project, the NBPSP - differing surveillance techniques and

"The NBPSP identified that due to the and the pests they may carry – entering ports in northern Australia, specific

sentinel hives of EHB was far less suitable for detecting pest bees.

"Improvements to data collation across the program was also a major to be assessed and accessed in a timely, effective and efficient way."

Further surveillance

Dr Taylor outlined that in recognition of

"The National Bee Pest Surveillance Program 2021-2024: Transition program activities at the highest risk ports of entry of pests and using techniques that are most

awareness of the importance of surveillance for early detection of bee pests to protect plant industries."

This three-year project is being funded



The importance of honey bees in vegetable crops

The vegetable industry is made up of many crop types that are reliant on honey bees, and Plant Health Australia's Dr Sharyn Taylor said that the protection of honey bee populations – either as a managed resource or as feral populations provides benefits in yield or seed production.

"Overseas, pests such as Varroa mite, have contributed to honey bee colony collapse, significantly increasing the cost and decreasing the availability of pollination services," she said.

"This program provides the best chance of detecting bee pests early, with the greater likelihood of eradication, containment or improved early and effective management of new pests."

Find out more R&D





A project was completed in 2021 that examined a range of high technology systems and assessed their applicability to urban Australia. The project team provided recommendations on how the Australian horticulture industry can realise opportunities surrounding high technology horticulture production in urban environments and build the capacity of this sector. Vegetables Australia spoke to Project Lead Kristen Stirling from RM Consulting Group about the findings.

High-technology horticulture *n*

'Production of plants within a growing structure (generally a building or greenhouse) using technology that optimises the use of resources such as water, energy, space and labour. Typically intended for intensive production to maximise yields.'

In 2020, RM Consulting Group (RMCG) was commissioned by Hort Innovation to look at the financial (economic), social and environmental aspects of high-technology horticulture and what was happening around the world in this sector.

United States-based urban farming

consultancy Agritecture provided modelling of the inputs and outputs of the high-tech systems, while the University of Technology Sydney undertook a literature review. Graeme Smith from Graeme Smith Consulting also advised on protected cropping systems.

RMCG's Dr Kristen Stirling led the project and she explained that high-tech technology won't replace field-based systems or large-scale glass house production, but instead compliment these horticultural growing practices.

"Some of the discussion we had when undertaking this project was if this is the new system for production of horticultural crops. It's not – and it never will be, but it is a compliment to some of the existing types of production that we do," Dr Stirling explained.

"We looked at some of the drivers around that. We are very lucky in Australia; we have a lot of land. Countries where this type of production has really taken off is heavily constrained when it comes to land and that's why they invest in these types of systems.

"We don't have that issue here, but we are a very water scarce country. We also have a very variable climate and that can be problematic at times for field-based production. Some of the advantages of these types of systems are you can grow produce all-year round – you're not constrained by climate and climate variability."

Dr Stirling also pointed to COVID-19 as a factor in driving these high-tech systems.

"We were completing this project in a

time of COVID, and people are looking at things in a different way. We saw the direct impact of disruption to supply chains and logistics, and we were all confined to very small radiuses. As a result, people are starting to look at the opportunities to have our food grown closer to home."

Key recommendations

Dr Stirling outlined what was needed to build the high-tech horticulture sector in Australia, including providing support to growing businesses.

"In countries where it has worked well, such as Singapore, the Netherlands, France and Japan, there have been policies and regulations put in place to try and support start-ups and people beginning these types of enterprises – providing space within urban environments, grants and financial support," she said.

"There is also collaboration between universities, government agencies and private businesses to provide an environment that will foster this type of enterprise."

Another factor is urban planning, and space for horticultural growing isn't being considered when building in the city.

"Urban planners don't really think about agriculture because they don't have to; it's not part of the normal set-up. I think we need greater communication to raise awareness among urban planners, and make sure it's included in planning regulations – that you can have these types of production systems alongside buildings where people are living and working," Dr Stirling said.

"It is starting to happen in New South Wales – there are a number of urban greening projects being undertaken. It is happening from a greening perspective, but we need to go the next step in terms of food production."

Also taken into consideration was the systems' location.

"If you've got a glasshouse on top of a roof top – can you incorporate waste from the building into the glasshouse? Things such as wastewater and waste heat from the building may be used to help drive production," Dr Stirling said.

"This is being looked at; but again, some of the planning regulations are a barrier.

Dr Stirling also explained that there is scope for further research into advanced LED lighting systems and genetic improvement in the crops, so plants can be grown quicker.

Planning ahead

Dr Stirling said that high-tech production systems are an exciting opportunity for

careers in agriculture, especially for the next generation.

"We have a problem getting younger people into agriculture and horticulture. I think because this is tech heavy, younger people may be more interested in it," she said.

But, she added, a level of technical understanding of how to grow plants and good business planning is needed.

"You need to know how you're going to market your produce. Because some of the production costs are quite high, you need to have a strong marketing model. You need to be targeting high-value, premium crops – such as micro herbs or high-value leafy vegetables – that you can sell at a premium price."



Please contact Dr Kristen Stirling on (03) 9882 2670 or email kristens@rmcg.com.au.

Feasibility study into opportunities for hightechnology horticulture production in urban environments was a whole-of-horticulture project funded by Hort Innovation with contributions from the Australian Government.

Project Number: HA19005

Hort Innovation

Project summary available online

A whole-of-horticulture investment, HA19005 identified several areas where further work is required to enable the use of high technology urban horticulture in Australia. It looked at the economic, planning and government support, environment, and social aspects.

These recommendations are outlined in the project summary entitled Opportunities for High-Technology Horticulture in Urban Australia.

To read the summary and the project's final report, please visit horticulture.com.au and search 'HA19005.'



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Hort Innovation vegetable fund investments (levy projects) Current projects

Project name	Project code	Delivery partner
Global Masterclass in Horticultural Business	LP15001	University of Tasmania
Attracting new entrants into Australian horticulture	LP15006	Rimfire Resources
National tomato potato psyllid and zebra chip	MT18008	The Department of Primary Industries and Regional Development, Western Australia in collaboration with others
Ex-post impact assessment	MT18011	AgEconPlus
Generation of data for pesticide permit applications in horticulture crops 2019/20	MT18018	Peracto
Stingless bees as effective managed pollinators for Australian horticulture	PH16000	Western Sydney University
Generation of residue, efficacy and crop safety data for pesticide applications in horticulture crops	ST16006	Eurofins Agrisearch
Generation of data for pesticide applications in horticulture crops 2018	ST17000	Eurofins Agroscience Services and Peracto (these providers run separate research projects under the same project name and code)
Generation of data for pesticide applications in horticulture crops	ST18001	Peracto
Nuffield scholarships	VG14065	Nuffield Australia Farming Scholars
Vegetable industry minor use program	VG16020	Hort Innovation
Novel topical vegetable and cotton virus protection	VG16037	The University of Queensland
Tools and interventions for increasing children's vegetable knowledge	VG16064	CSIRO
Soil wealth and integrated crop protection – phase 2	VG16078	Applied Horticultural Research
Area wide management for vegetable diseases: viruses and bacteria	VG16086	The Queensland Department of Agriculture and Fisheries
National Vegetable Protected Cropping Centre	VG17003	Western Sydney University
Internal fruit rot of capsicum	VG17012	Applied Horticultural Research
Alternative disinfestation for market access for crops affected by tomato potato psyllid	VG17015	The Department of Primary Industries and Regional Development, Western Australia

Project name	Project code	Delivery partner
National vegetable industry communications program	VG18000	AUSVEG
Advancing women's leadership across the Australian Horticultural Sector – Pool 2	LP16000	Women & Leadership Australia
Parasitoids for the management of fruit flies in Australia	MT19003	Victorian Department of Jobs, Precincts and Regions
Horticulture Trade Data	MT19005	IHS Global
Across horticulture support for export MRL compliance	MT19006	Bryant Christine Incorporated
Field-based testing for fall armyworm, Spodoptera frugiperda	MT19014	Victorian Department of Jobs, Precincts and Regions
Identifying potential parasitoids of the fall armyworm, <i>Spodoptera frugiperda,</i> and the risk to Australian horticulture	MT19015	Queensland Department of Agriculture and Fisheries
Management strategy for serpentine leafminer, Liriomyza huidobrensis	MT20005	Queensland Department of Agriculture and Fisheries
Regulatory Support & Response Co-ordination	MT20007	AKC Consulting Pty Ltd
Consumer demand spaces for horticulture	MT21003	Kantar Insights
National Bee Pest Surveillance Program: Transition Program	MT21008	Plant Health Australia Limited
Co-developing and extending integrated <i>Spodoptera frugiperda</i> (fall armyworm) management systems for the Australian vegetable industry		Queensland Department of Agriculture and Fisheries
VegNET 3.0	VG21000	AUSVEG
Demonstrating the benefits of building capability and capacity in extension delivery in the vegetable industry		University of Melbourne
Consumer usage, attitude and brand tracking (pilot program)	MT21201	Fifty-Five Five
Consumer behavioural data program		
Economic contribution of Australian horticulture	MT21010	Centre for International Economics

Commodity profile: Cauliflower

For the year ending June 2021, the wholesale value of fresh cauliflower supply was

\$72 million,

with \$64.5 million distributed into retail and \$7.4 million into food service. *Source: Australian Horticulture Statistics Handbook 2020/21*

Veggycation[®] recommends that the optimum storage of cauliflower is 0°C. Wilting, browning, yellowing of leaves and decay are likely to increase following storage beyond

3-4 weeks

or at higher than recommended storage temperatures.

The Australian Horticulture Statistics Handbook 2020/21 reports that 51 per cent of Australian households purchased cauliflowers, buying an average of

971 grams

of the vegetable per shopping trip. The supply per capita was three kilograms, based on the volume supplied. Pre-harvest practices that will increase the shelf-life and freshness of vegetables involved a comprehensive review aimed to compile current knowledge on the effects of pre-harvest factors on shelf-life and quality of vegetables, including cauliflower. It also developed an information package to increase grower awareness, foster adoption of practices that can enhance quality across the industry, and potentially add value to Australian vegetables. To read the final report, search 'VG14025' on the InfoVeg database: ausveg.com.au/infoveg/infoveg-database.

The Good Mood Food explains that half a cup of cooked cauliflower (75 grams) counts as one serve of vegetables. The recommended amount of vegetables you should eat is five serves per day. *Source: Australian Dietary Guidelines, 2013*

Diseases are an important source of postharvest loss, particularly in combination with rough handling and poor temperature control. A number of different bacterial and fungal pathogens cause postharvest losses in transit, storage and to the consumer. Bacterial soft rot, black spot, grey mould and cladosporium rot are common disorders. *Source: Veggycation*[®]

Did you know? Cauliflower belongs to the plant species called Brassica oleracea. It includes others like kale, broccoli, and Brussels sprouts. Source: The Good Mood Food (thegoodmoodfood.com.au)

The Australian Horticulture Statistics Handbook 2020/21 states that Victoria is the largest producer of cauliflower in Australia, growing 44 per cent of the vegetable for the year ending June 2021. Queensland is the next largest at 19 per cent. Werribee, Victoria and Lockyer Valley in Queensland are major production areas.

An organic partnership set to go the distance

Sometimes it's not just about the quality of the product, but the customer service experience. In this article, Victorian fruit and vegetable grower Adam Bremner (pictured) discusses his positive experience with Kubota following the purchase of a new reversible plough.

Adam Bremner is a sixth-generation farmer at Wombat Forest Organics, near Daylesford in Central Victoria. The 740acre organic farm primarily produces potatoes, namely Dutch Cream and Sebago, as well as strawberries and carroi

Organic farming comes with a separate set of guidelines to conventional farming and has different needs and priorities.

Adam said soil is the foundation of organic farming and all farms must pass stringent testing requirements to ensure the soil is clean, with no chemical residue

"You have to get everything right in the soil first before you even plant a crop," he explained.

"In an organic system, it takes time to get the correct soil fertility levels and disease instances down, if you have healthy soil you'll end up with a successful crop.

"In conventional farming, there are a lot of tools available to change nutrient levels in soil without necessarily changing the soil health – in an organic system you have to work from the ground up."

Positive outcomes

To help manage the health of the farm's soil, Adam purchased a Kubota RM3005V 3 furrow reversible plough – ensuring topsoil remains at the top of the slope instead of going with gravity and falling underneath.

"I always get the best quality products because then you only have to buy it once, and Kubota makes the superior product," Adam said.

"In our operation, the reversible plough pays us back in time efficiency. It allows



you to start at one end of the paddock and keep going to the end, you don't have to strike out as you go along – which saves time and money.

"The plough turns the sod well and does a nice, neat job. You get good coverage and good burial. It's very solidly built, it's strong – it's the sort of plough you buy that you know is going to last a lifetime."

The product is not the only benefit to Adam; the service provided has ensured he remains loyal.

"While I already knew about reversible ploughs because I've had one previously, Kubota still take the time to come out, set it up and run through it to make sure you're happy with it – and then contacts you again to check everything is still going okay. And leaves the line of contact open," Adam said.

While only new to the brand, Adam already has plans to expand his collection with a small excavator to help with odd jobs on the farm.

"My Kubota plough is everything I could hope for," he said.

Find out more

For more information on ploughs and to find out where your nearest dealer is, please visit kubota.com.au.

About Kubota

Kubota Australia Pty Ltd has been Australia's leading supplier of agriculture, construction, and power equipment for more than 40 years. All Kubota equipment is distributed and serviced through the company's authorised dealer network, consisting of more than 140 dealers Australia-wide.

Kubota Australia is a subsidiary of Kubota Corporation, a multi-national company headquartered in Osaka, Japan. Kubota Corporation is the world-leading manufacturer of compact engines, dedicated to the research of advanced technologies that set the benchmark for the industry. Kubota Corporation employs more than 35,000 people worldwide and its products are distributed across 31 countries.

The Vegetable Industry Strategic Investment Plan: Performance review results released

Hort Innovation undertook a performance report to review the performance of levy investments delivered against the Vegetable Industry Strategic Investment Plan, which was active for the five-year period from 2016/17 to 2020/21. The plan was developed to strategically guide research and development levy investment in accordance with core industry priorities.



Outcome 1. Domestic demand

Strategic area

Increased demand and value of the domestic vegetable industry.

Increase knowledge to better understand consumer trends and segments	Achieved
Identify value-adding opportunities such as pre-cut and improved packaging to achieve price premiums	Achieved
Support product differentiation that align with Australian consumer needs	Achieved
Improve stakeholder education for vegetables such as the identification and extension of the health benefits associated with vegetables	Achieved
Increase the market share for vegetables in foodservice such as the identification of potential product offerings specific to the sector	Not achieved
Improved food safety standards and traceability	In progress

Status

Outcome 2. Export demand

Export markets grown through increased understanding of opportunities available, improved market access, improved export capabilities, improved reputation and competitive advantage.

Strategic area	Status
Facilitate a united representation of the vegetable industry to international markets	Achieved
Better understand the export opportunities available to the vegetable industry	Achieved
Improve market access in priority markets for vegetables	In progress
Improve the export capability of Australian vegetable growers	Achieved
Improve and capitalise on the opportunities available for inbound and outbound trade linkages	Achieved
Improve and capitalise on the use of e-commerce to export produce to existing priority markets	Not achieved
Capitalise on Australia's geographic advantage to Asia and realise the export potential available in regional areas	In progress

Outcome 3. Productivity

Increased farm productivity and decreased production costs through better utilisation of resources, adaptation to climate, reduced impact of pests and diseases and better utilisation of advanced technologies on the farm.

Strategic area	Status
Reduce on-farm food waste, including other uses such as value-added foods and beverages, biofuels and nutraceuticals	In progress
Reduce major production costs through initiatives such as precision agriculture	In progress
Adapt and improve current protected cropping and intensive production technologies to the Australian environment	In progress
Protect the vegetable industry from endemic and exotic pests and diseases that significantly damage the industry	Achieved
Introduce new cultivars that have favourable production-related traits, such as resistance to pests and diseases, severe weather conditions, and varieties that allow for automation	In progress
Enhance the sustainability of the industry to help growers prepare for and mitigate against the cost of climate change	Achieved
Improve the use and management of soil and water - critical inputs to commercial vegetable production	Achieved
Increase use of advanced technologies to improve farm productivity and/or cut input costs for growers	Achieved

Outcome 4. Supply chain

Increased supply chain integration and development through improved supply chain management, development of collaborative models and partnerships.

Strategic area	Status
Improve supply chain integration and efficiencies	Achieved
Improve the product quality along the supply chain with the aim to increase returns for growers	Not achieved
Support collaboration between growers and stakeholders along the supply chain to improve its efficiency	Not achieved

Outcome 5. Industry capability

Improved capability of levy payers to adopt improved practices and new innovation through improved communication and extension programs, grower innovation support, professional development and workforce building programs, and through improved farm management and information systems.

Strategic area	Status
Improve communication and extension of research outputs to address a geographically and culturally diverse vegetable industry	Achieved
Support innovations that advance and grow the vegetable industry	Achieved
Improve grower skills in all areas associated with commercial vegetable production	Achieved
Improve farm management practices and systems to help growers in efficient and effective decision-making	Achieved
Build skills in the vegetable industry workforce and attract new people to the industry	In progress



Please visit horticulture.com.au/hort-innovation/funding-consultation-and-investing/investment-documents/strategic-investment-plan-2017-2021-performance-reports/ to read the SIP performance reports for each industry.



Peri-urban events are back in 2022!

Following a mix of in-person and virtual engagement activities in 2021, the peri-urban project has hit the ground running in 2022. AUSVEG Project Coordinator Maddy Quirk is working with vegetable growers, consultants, agronomists, and the state governments to investigate periurban biosecurity across Virginia in South Australia, Werribee (Victoria) and Sydney Basin (New South Wales) before the project ends mid-year.

The AUSVEG-led *Peri-Urban Biosecurity Pilot Program* is an 18-month vegetable industry-focused program that commenced in January 2021. It is funded by the Department of Agriculture, Water and the Environment.

With COVID-19 lockdowns ending in Victoria in late 2021, Project Coordinator Maddy Quirk was able to travel to Virginia, Werribee and the Sydney Basin to explore the concept of pest and disease management across the peri-urban landscape, obtaining insight from growers and industry alike.

Planning large group events had its challenges due to differing state COVID restrictions, and the project team needed to get creative in the ways it engaged. From one-on-one visits to agronomist workshops and outdoor open houses, the project team has achieved a number of successful outcomes over the past 12 months.

Grower visits and training workshop: Virginia, South Australia

In early 2022, AUSVEG and Primary Industries and Regions South Australia – South Australia Research and Development Institute (PIRSA-SARDI) undertook a grower roadshow, visiting a consortium of hydroponic and greenhouse vegetable producers in Virginia.

During these visits, the project team collected cucumber, capsicum, and tomato samples for free diagnostic testing and spoke with growers about endemic pest and disease management practices. Their invaluable insight gave the team a deeper understanding of not only their cropping programs but the wider region.

The following day, AUSVEG and PIRSA-SARDI facilitated an interactive session with a registered training organisation based in Virginia, which employs agronomists working closely with vegetable growers in the region. The session was centred around discussions on practical management of endemic pests and diseases, biosecurity, and sample submission.

There was also a hands-on disease identification session and a competition to guess the correct amount of soil needed for testing.

Werribee open house

The following week, AUSVEG facilitated an open house in Werribee. Growers, agronomists and vegetable industry members in attendance learnt about native vegetation insectaries and pest and disease management.

Agriculture Victoria researchers presented on sampling for key viral and bacterial diseases. Sample bags and forms were distributed to attendees, who were encouraged to return to Agriculture Victoria's Crop Health Services for testing.

Sydney grower visits

In early April, AUSVEG worked with consultants around Kemps Creek in the Sydney Basin and visited seven vegetable growers whose crops included cucumber, tomato and eggplant.

Examining each crop for signs of diseases, samples were collected for diagnostics to support practical management strategies and decisionmaking on-farm.

Surveillance updates

Over the past 12 months, AUSVEG has developed and refined a pest and disease surveillance program that captures key information on endemic pests and diseases.

Working with crop consultants from the three pilot locations, AUSVEG receives reports of key pests and diseases that are being observed each week. Using this information, AUSVEG develops a traffic light system for key issues to watch out for.

The aim of these guides is to indicate

the current issues within a region at a given time, based on expert advice. The surveillance updates also provide information on high priority plant pests.

As this project comes to a close, growers and consultants across Werribee, the Sydney Basin and Virginia are encouraged to contact Maddy to express their interest and provide feedback on the program.

Find out more

Please contact AUSVEG on 03 9882 0277 or email science@ausveg.com.au. Further information can be found by visiting ausveg. com.au/ausveg-peri-urban-biosecurity-pilotprogram.

The Peri-Urban Biosecurity Pilot Program is funded through the Department of Agriculture, Water and the Environment – Plant Biosecurity and Response Reform.

Invaluable project support

AUSVEG would like to thank the Agronomist Advisory Group and Project Steering Committee for providing their support, time and expertise on this project for the advancement of the vegetable industry.

The peri-urban biosecurity pilot project would not have been possible without the involvement of these groups.

Webinar recordings now available

Did you miss out on attending a peri-urban event?

In 2021, AUSVEG recorded webinars on key pests and diseases including fungal and bacterial diseases, tospoviruses, cucurbit diseases and exotic leafminers.

Recordings are available on AUSVEG's YouTube channel: youtube.com/ausveg.





Latest irrigation solution improving clog-resistance and crop uniformity

Drip irrigation is a mainstream technology in dozens of crop production systems throughout the world. This technology is ever evolving, with the latest innovation in drip tape now available to Australian vegetable growers. Vegetables Australia reports.

Market demands, weather patterns and resource availability change every day, so precision agriculture practices must evolve to help growers stay ahead.

From increasing yield and improving quality to making the best use of available resources, irrigation technology is evolving too. Each step gives you more precise control over the time, energy and water you invest in your crop.

Toro Australia is pleased to announce the introduction of the new Aqua-Traxx[®] Azul[™] drip tape. This tape features an innovative flow path design in the emitter and is more effective in resisting clogging than ever before.

The key to reducing drip tape clogging is to protect the flow path labyrinth from debris. The drip tape uses an innovative emitter design that protects the labyrinth from debris and maximises clog resistance and performance.

Patent-pending multi-stage filters

protect the emitter from different sizes of debris and therefore the tape only has a 120-mesh filtration requirement.

An optimised flow passage in the dripper further helps to resist clogging. Optimised large flow passages in the emitters ensure a consistent and uniform distribution of water and nutrients to maximise clog resistance and performance.

Grower feedback

Bruno Capogreco from Capogreco Farms in Western Australia is one of the first growers in Australia to use the Aqua-Traxx Azul drip tape.

Capogreco Farms has been using Toro's Aqua-Traxx drip tape for over a decade, and the operation has installed more than 5,000 reels over the years. The 200-hectare family farm is located in Hamel, an hour south of Perth.

The Capogrecos grow rockmelon, honeydew, watermelon and orange candy for the Australian market and export to Singapore, United Arab Emirates, Japan and Hong Kong.

Bruno's feedback on the new product has been positive. He says that maintenance and flushing of the dripline is easy.

"We use flushing valves at every end and flush once per month. Uniformity of Azul is a lot better, and we have seen

MORE CLOG RESISTANT THAN EVER

PATENT-PENDING MULTI-STAGE FILTERS PROTECT THE EMITTER FROM DIFFERENT SIZES OF DEBRIS a five per cent improvement in yield," he adds.

The new Aqua-Traxx Azul is available in 0.49 and 1.02 Lph emitter flow rates.

Options available

Other premium drip tapes in the range include Aqua-Traxx Classic and Aqua-Traxx FlowControl. The former is the original drip tape and can help to improve yield, water-use efficiency, and crop quality by putting water and fertiliser right where you need them.

You can choose emitter spacing from 10 cm to 90 cm (4" to 36") – with no cost increase – for precise placement and flexibility when designing your system.

Aqua-Traxx FlowControl premium drip tape is the only flow-regulating drip-tape available – giving you more control and uniformity wherever you farm.

The innovative emitter design provides flexibility to increase or decrease flow while maintaining a uniform output across changing elevations. You will have more control over how much water your crops get, especially in long runs or hilly terrain, where water pressure can vary throughout the run.

Every tape in the Aqua-Traxx range is made with PBX technology – which means it is designed and moulded with a high level of precision, resulting in manufacturing consistency over 97 percent.

Toro's free drip irrigation design software, AquaFlow[™], allows you to see how the different products in the range will perform for your unique application.

It will calculate emission uniformity and generate colour-coded Uniformity Maps to help illustrate how each product will perform. This helps you to select the right product for each application.

Find out more

Please visit toroirrigationsolutions.com.au.

Using multiple streams of sensor data to make smarter decisions

A pilot 'Smart Farm' is using novel sensors and multiple streams of data to develop a system to help vegetable growers farm more efficiently, maintain records for certification and better understand their crops. The trial is located in Bundaberg at the property of Australia's largest chilli producer, Austchilli. Ian Thomas reports.

The pilot 'Smart Farm' at Austchilli is a hive of activity, and systems are being developed to deliver information to the farm managers in real time. This replaces the need to manually collect sensor data.

This trial is part of the *Digital remote* monitoring to improve horticulture's environmental performance, a strategic levy investment under the Hort Innovation Nursery Fund with contributions from the Australian Government's Landcare Smart Farming Partnerships program.

The project is a collaboration between Applied Horticultural Research (AHR), Hitachi, Freshcare, Growcom, Greenlife Industry Australia, the Australian Banana Growers Council, Avocados Australia, AUSVEG and Austchilli.

While researchers at AHR are assisting the farm managers with the installation and operation of the sensors, a team of developers at Hitachi are incorporating the data outputs into a unified easy to understand digital dashboard.

The goal of the project to create a system where farm management decisions are not made based on one single metric or source of data. As Austchilli owner David De Paoli says, it's not about any one sensor – but the complete system.

"Each unit plays its part in data gathering to give you the whole picture. This then drives the automation," he says.

Austchilli is one of the pilot farms participating in the investigation and use of various digital monitoring methods, and David and his technical staff have been pivotal in ensuring this project is pointed to deliver commercial outcomes for the avocado and vegetable industries.

How it works

Current sensors operating on the Smart Farm include soil moisture, pH and electrical conductivity, a weather station, and in-field high-definition cameras to monitor vital crop growth stages. A variety of new sensors have recently been added to measure leaching of nutrients and ground run-off.

New, and sometimes novel, sensors have been integrated into the system since the establishment of the farm. A notable new inclusion is a dendrometer, which typically is used to measure miniscule contraction and expansions in the trunks of tree crops, placed onto a growing chilli fruit.

The data from this sensor will provide a better understanding and record of plant transpiration and growth rates and assist in irrigation and nutrient applications. As the sensor data is collected over multiple crops, the record will provide an in valuable record for understanding yearly differences in crop performance and yield.

Sustainability focus

The project is also looking into ways of automating recording keeping for certification systems, such as Freshcare Environmental and the Hort 360 Reef Certification.

Automating the complicated process of record keeping for environmental recordkeeping will likely become an important cost-saving tool as more growers look to do their part in maintaining Australia's environmental standards.

David is hopeful that the system being



developed will begin being used in real-time farm decision making within the year.

An audit of the efficiency of the pilot Smart Farm inputs will be conducted once all the monitoring system have been integrated into the digital dashboard. However, the project still has a long way to go before reaching its goals.

"My staff are currently using the data now but there is still human decisionmaking in the delivery of inputs," David says.

"It's now not a guess – it's real data in real time. With the automation controlling the inputs, I can rest easy knowing that if its Friday afternoon or the weekend, attention to detail will continue and I won't get fruit drop or blossom end rot."



Please contact AUSVEG Project Officer Ian Thomas at ian.thomas@ausveg.com.au or phone 03 9882 0277.

This project is funded by Hort Innovation using the nursery research and development levy and contributions from the Australian Government.

Project Number: ST19024



Forensic provenance testing: A weapon against counterfeit product

In recent years, cherry exporter Reid Fruits has had to battle against copycats who rip-off its branding and try to sell produce at the premium price that it commands. However, the Tasmanian-based growing operation is fighting back – and it's using provenance verification technology to do so. Vegetables Australia reports.

During the 2020-2021 season, Reid Fruits partnered with Source Certain to help verify the provenance of its branded cherries in export markets.

Reid Fruits became the first Australian horticultural exporter to combine Source Certain's provenance verification technology with Laava Smart Fingerprint scannable technology, and e-Commerce and digital marketing company RooLife Group's consumer engagement and social commerce platform.

Project details

Source Certain collected samples of all Reid Fruits cherry varieties from each of the three orchards. The team was able to confidently distinguish between fruit originating from the three different production sites using their scientific provenance verification technology, TSW Trace[®].

TSW Trace determines the chemical profile of a produce, which reflects the geographical location of where that product was grown. It analyses chemical, molecular, elemental and isotopic indicators that products naturally absorb from their environment.

Source Certain has also completed analysis of samples collected from a number of different retail locations in



Cameron Scadding, MD and Rachel Scadding, COO at Source Certain lab

the export market to verify that they have come from the three Reid Fruits production sites.

The challenges

The Reid Fruits brand for Premium Tasmanian cherries is well-known in the export market and for a number of years, the operation has had issues with bad actors trying to capitalise on its brand and the premium prices it attracts in the marketplace.

This counterfeit product in the past has entailed increasingly sophisticated attempts to copy Reid Fruits-branded packaging and substitute product with lower quality cherries from other countries.

Reid Fruits was looking at options to add another layer of protection to its brand and product. Source Certain's forensic provenance testing offered them the ability to identify cherries grown on their company orchards in Tasmania and if necessary, scientifically prove that cherries in suspected counterfeit product claiming to be Reid Fruits brand are not genuine.

"We are now in the second year of our program with Source Certain and our experience with the Source Certain team and program has been great," Reid Fruits Manager Marketing and Sales, Tony Coad, said.

"Source Certain has worked closely with us and has been flexible on developing and organising the sampling schedule which has not had any impact on our normal daily operations at all.

"The sampling analysis reports were fascinating for us and easy to follow. We were able to identify and verify the provenance of cherries to the orchard of origin."

The project has seen engagement from senior management and all the growers.

"They care passionately about their produce and protecting the value of their Tasmanian grown fruit," Source Certain Head of Sales in Australia, Nathan Dubrich, said.

Key benefits

The implementation of this technology can reduce the likelihood of substitution and increases Reid Fruits' ability to accurately identify potential substitutions to a scientific standard, as well as offering scientific evidence in counterfeit investigations.

There is also seamless integration with Laava and RooLife technology and services, and the Reid Fruits' team was pleased with the outcome.

"With cherry samples taken from orchards, Source Certain was able to confidently distinguish between fruit originating from our three different production sites. Then, through analysis of samples from different market locations, were able to verify these had come from our orchards," Nathan said.

"We have really enjoyed working with the team, and the implementation of this technology gives us the ability to scientifically verify the provenance and authenticity of Reid Fruits branded cherries in our overseas markets."

Interesting fact

Approximately 13 kilograms of cherries have come through the Source Certain laboratory over the past two seasons.

Find out more

Please contact Source Certain on (08) 6191 0608, visit sourcecertain.com o email Head of Sales Nathan Dubrich at nathan.dubrich@sourcecertain.com.

Serpentine leafminer: Sharing knowledge with growers and stakeholders

A multi-industry project is underway to educate horticultural growers about the identification and management of serpentine leafminer. Part of this project is developing an industry communication program, which is being led by AUSVEG and facilitated by Project Officer Cherry Emerick.

Management strategy for serpentine leafminer, Liriomyza huidobrensis is a strategic levy investment under the Hort Innovation Potato – Fresh, Potato – Processing, Melon, Onion and Vegetable Funds.

This project is developing and delivering targeted R&D specifically for serpentine leafminer in response to the incursions detected in Australia in late 2020. It is building on the initial work of recently completed *RD&E* program for control, eradication and preparedness for vegetable leafminer (MT16004).

Areas of work include:

- Identifying and monitoring parasitoids.
- Refining development and validation of surveillance and diagnostic protocols.
- Using predictive forecasting to manage and assess the risk of serpentine leafminer.
- Delivering an industry communication program.
- Developing an industry management plan, grower guides and industry focused workshops.

AUSVEG is delivering the industry communication component, and recently appointed Cherry Emerick to assist with the project.

Grower workshops

AUSVEG Project Officer Cherry Emerick will be leading a series of workshops as part of MT20005. These will be targeting growing districts that are vulnerable to serpentine leafminer incursion.

Dates are to be confirmed. However, workshops are planned across three states (see below table). Cherry will work in collaboration with growers and stakeholders to publish three grower guides suitable for on-farm use. The guides will be for melon, onion and vegetable crops. Cherry is a former grower and spent over 10 years with one of Australia's largest vegetable producers. She has extensive experience as an industry development officer in the horticultural and natural resource management industries in north Queensland.

Leafminers: A snapshot

Leafminers are best identified by what they leave behind – tiny snake like trails on the underside of young leaves. The pest leaves white or grey lines on leaves with dampened black and dried brown areas. These are created by the newly hatched larvae that feed by 'mining' into the upper surface of the leaf tissue.

High levels of infestation affect the plant's ability to photosynthesis which reduces plant growth and crop yields.

As outlined in Vegetables Australia – Autumn 2022, serpentine leafminer is in New South Wales, Queensland, Western Australia and the Northern Territory, and is causing significant problems for growers in these regions.

Project MT16004 developed a number of potential options for growers to effectively manage infestations. Using

Region	State
Bowen	Queensland
	Queensland
Mareeba	Queensland
Cairns	Queensland
Carnarvon	Western Australia
Kununurra	Western Australia
Broome	Western Australia
Katherine	Northern Territory
Darwin	Northern Territory
Shepparton	Victoria





an Integrated Pest Management (IPM) approach on-farm has produced encouraging results. This is combining naturally occurring parasitic wasps and recommended insecticides.

Serpentine leafminer is usually seen from autumn until spring, so it is important to remain vigilant. Good management practices on-farm will assist in minimising any possible future impacts to your crops.

Please visit ausveg.com.au/mt20005 for further information and to access useful resources.

Find out more R&D

Please contact Cherry Emerick on 0418 389 680 or email cherry.emerick@ausveg.com.au.

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

Project Number: MT20005

Hort Innovation Strategic levy investment

Improving harvest yields and quality with biostimulants

There is a new biostimulant now available to Australian vegetable growers. It is a 100 per cent cold-pressed super-concentrated extract of Ascophyllum nodosum filtrate, which is delivering yield benefits as a foliar product in horticultural and orchard crops. Vegetables Australia reports.

Seaweed extracts aren't a recent addition in horticulture, but the latest release from UPL Australia is setting a new benchmark

Ascophyllum nodosum filtered extract,

This unique process of extraction, filtration and evaporation preserves high quality, purity and integrity of this concentrated extract.

lower application rates and excellent compatibility with tank mixing products BioSolutions Manager Neil Innes said.

A cool temperature manufacturing of the raw material is used, and all the physiologically active characteristics of the fresh seaweed are retained. The consistent and high-quality product.

This unique patented process also removes unwanted material such as alginates and cellulose from the formulation, allowing for a high concentration of biologically active molecules in the finished product.

The seaweed filtrate stimulates plant

nutrition and polyamines synthesis to improve fruit set and the quality of

How it works

up the kelp extraction process, GAXY is unique in its mild process technology. Alkaline extracted biostimulants – when mixed into the spray tank – may lead to incompatibility reactions with crop

"Fewer spray applications at lowapplications more readily all contribute

'But the greater benefits are in the improved fruit set and produce quantity and quality that can be achieved by

The biologically active molecules help to stimulate plants to increase moisture in achieving optimum yield and quality of the crop.

current market for nutrients, you want to make sure you're utilising and maximising

A key mode of action of GAXY is the



Bowen

Foliar application applied in 400L water/Ha. Transplanted 6 July 2021 ROI assumsing rockmelon market price of \$0.90/kg for 18kg tray



Foliar application applied in 400L water/Ha. Planted 28 May 2021 ROI assumsing tomato market price of \$2.00/kg * T/Ha equivalent from kg/plant yield

of polyamine synthesis.

wall integrity and seed germination," Neil

correlates to the plant's polyamine content. The end result is improved yields results in less waste produce."

UPL is a leading global provider of

"Our BioSolutions range is tried and tested overseas, and has decades of

"We're looking forward to bringing

Trials produce positive results

UPL has been trialing GAXY extensively in Australia, and the company's BioSolutions Manager Neil Innes says the results are very pleasing.

Trial results in 2021 winter season of cucurbits applied at the key growth stage of BBCH13 (3 true leaf) showed yield increases from oneor two-timed applications, to the extent of 40:1 return in zucchini and 100:1 in melons*.

"More recent trials in tomatoes reinforced one or two applications are doing the positive 'grunt work' for yield, with the extra vigour resulting in increased fruit fill and maturity of fruit," UPL Australia's Neil Innes said.

"GAXY treatments gave 27.5 per cent more yield than the control (that received no biostimulant application), which was an average of 5.6 more pieces of fruit per plant."

* Returns assuming rockmelon market price of \$0.90/kg for 18kg tray; zucchini market price S/M @ \$2/kg; M @ \$1.80/kg; M/L @ \$1.40/kg; & tomato market price of \$2.00/kg

Celebrating a successful career in horticultural research and extension

Dr Jenny Ekman has over two decades of experience in vegetable industry research. Currently working at Sydney-based Applied Horticultural Research, Jenny ultilises her strong writing and communication skills to effectively translate scientific language into information that is readily understood and used by growers. In this edition, Michelle De'Lisle speaks to Jenny about her work, which was recognised in 2021 when she received the Bayer Researcher of the Year.

Dr Jenny Ekman was involved in the printing industry when she decided to give working with computers a miss, and instead concentrate on her love for horticulture.

Jenny studied a Bachelor of Horticultural Science (with Honours) at Western Sydney University and completed a PhD through CSIRO at North Ryde, investigating the link between respiration rate and storage life of fresh produce. Jenny's PhD studies took her to France, where she spent several months. She subsequently completed a post-doctorate at the University of California in Davis, which is renowned for its postharvest research.

Jenny returned to Australia and joined the New South Wales Department of Primary Industries' Market Access Group, which was based on the Central Coast. She spent 11 years there before crossing to Applied Horticultural Research (AHR) in early 2013. Jenny's job title is Research Scientist and it's a varied role, which can present challenges.

"When you think of most researchers, they specialise in something such as fruit fly management or Phytophthora or a particular disorder," Jenny says.

"Whereas we at AHR work across so many different crops and parts of the value chain as well as looking at different organisms. We have to be flexible and responsive, focusing on whatever the problems are in industry."

Jenny's role focuses on not just research, but a plethora of extension and communication activities.

"What we do is constantly interesting and challenging. I'm spending some of my time as a researcher and quite a lot of the rest of the time as a science communicator more than anything. I wear a wide selection of hats."

Over the years, Jenny has worked in the postharvest space along with pathogen

management and agronomy; however, more recently her focus has been on potatoes.

Jenny's working on the Australian potato industry communication and extension project (PT20000), a strategic levy investment under the Hort Innovation Potato – Fresh and Potato – Processing Funds. She is also the project lead of Internal fruit rot of capsicum (VG17012), a strategic levy investment under the Hort Innovation Vegetable Fund.

Reward for effort

In 2021, Jenny was recognised for over 20 years of tireless research and extension when she took home the Bayer Researcher of the Year award at the National Awards for Excellence.

It was a proud moment, one that Jenny says was "very gratifying."

"I've worked hard on vegetable research and extension activities. At DPI, I worked


a lot with veggies and again with AHR – I've invested in it and it's an industry that I really believe in; the importance of it and the importance of what we do.

"Receiving the Bayer Researcher of The Year award was a combination of all of that, and to be recognised by one's peers in that way – as having contributed something to the industry – is incredibly satisfying and rewarding.

"It's like receiving an Olympic medal for research. You feel you've succeeded in achieving something and then giving something back that is worthwhile for the industry."

Research reflection

Following years of undertaking various forms of research, there are a couple of projects that stick in Jenny's mind as being interesting and beneficial to the vegetable industry.

One was Identifying and sharing postharvest best practice on-farm and online (VG13083).

"That project was a great experience because it involved basic research on post-harvest storage, which people think has been done and we know all this stuff – but we don't," Jenny explains.

"It was nice to revisit some of this work that had been done back in the fifties, which is what we'd been basing recommendations on. We did a bit of ground-truth on those and found that many of them were not right anymore, probably because of new varieties and new storage technology and so on.

"However, the best part was running workshops around the country where we met lots of vegetable growers and talked to them about postharvest. We found that people found it interesting even when they didn't expect it to be. Getting that engagement between growers and science, and seeing their faces light up at some new thing that we were able to share with them, was most satisfying.

"We wrote a little book (*Postharvest* management of vegetables: Australian supply chain handbook), which I still feel was a total brain dump of all my experience and everything I've learned over the years. I felt quite proud of that little book that we made (and still am). That was a great project for the vegetable

ndustry.

For pure interest, Jenny says *Review* of issues and options for preventing and removing redback spiders in broccoli (VG17014) was a standout.

With an increase in redback spider numbers being reported in broccoli, VG17014 reviewed all available information on the problem. It examined factors that may be contributing to the spiders entering broccoli crops, or contaminating broccoli after harvest, and produced key findings to help explain the situation.

"I felt like a detective, trying to figure out how these spiders are getting in the broccoli. Where were they coming from? Why was this happening? It was very interesting," Jenny reflects.

Further investigation

Jenny believes further research needs to be undertaken in waste and sustainability, particularly replacing plastic packaging – which she says has got to be a top priority for the industry, because there's so much public feeling about wanting to reduce use of plastics.

"From a postharvest point of view, plastic is fantastic. But getting rid of it is hard. I think finding commercially viable alternatives to plastics is one key thing. And the second thing is reducing waste in the supply chain and value chain in terms of better the postharvest management, making sure that products get to the consumers with plenty of storage life, so that they're able and encouraged to eat them," Jenny explains.

"There are so many complaints about the quality of produce in general. So, if we can manage to get products to consumers in top condition, that will encourage them to eat more and the waste less."

Meanwhile, Jenny is enjoying the extension and communication components of the potato project, and she sees herself moving further into the science/communication space.

"Growers pay for this research and unless they can understand and use it, then what's the point? There is no point,' she says.

"This is an area which isn't given enough importance. It's so easy to fund



Dr Jenny Ekman has worked on a range of vegetable research and extension projects, including investigating redback spiders in broccoli.

the project and then you produce a report and a webinar – but that's not really extending the results or explaining it and making sure that people can use the findings."

Opportunities for women in hort

Jenny lectures at Sydney University, and she says lot of the top students in the horticulture course are women.

"Horticulture used to be a physical thing – you had to be strong and able to lift every box. But the industry's not like that anymore, so that's made it more accessible to women," Jenny says.

AHR recently employed 2019 Corteva Young Grower of the Year nominee, Stephanie Tabone, who was a Sydney University graduate and has previously worked at Queensland vegetable growing operation, Kalfresh.

"We're very pleased to have Stephanie as a bright and enthusiastic young woman working in research. She's got horticulture industry knowledge as well as a good science background – bringing those two together is going to be fantastic," Jenny says.

"There are lots of opportunities for women in horticulture. I see many young women with organisations like wholesalers and with growers that are coming through now – it's a great time to be in this sector.

"I think that in the future, we're going to see a many more women in involved in the industry and doing a great job." Spotting the difference between plant pathogen infections

Guess the pathogens on the next page – what can you see?

How well do you know vegetable diseases? In this edition of *The Front Line,* join AUSVEG Biosecurity Officer Zali Mahony as she learns how to improve her disease recognition skills.

Vegetable diseases can be difficult to spot as they can look almost identical to plant disorders such as abiotic stress, nutrient imbalance, herbicide damage, poor light, and water logging.

Signs and symptoms can be used to spot the difference between plant diseases and plant disorders.

A 'sign' is the physical aspect of what causes a disease. Signs differ depending on whether a plant is infected with a virus, bacteria or a fungus.

This can be the white powder on the back of a pumpkin leaf, which is the spores of the fungus that causes powdery mildew. Or it might be galls on roots from infection by nematodes or insects that spread viruses and bacteria, which can cause disease.

A 'symptom' is the physical outcome from the pathogen infecting the plant. Symptoms differ depending on whether a plant is infected with a virus, bacteria or a fungus.

This can include mottling, yellowing (chlorosis), curling of leaves, fruit distortion, wilting, rotting, dead cells (necrosis), tumors, leaf spots and lesions. See answers on page 76.







Image

Virus (Cucumber Green Mottle Mosaic Virus)

Image A shows a zucchini plant infected with *Cucumber Green Mottle Mosaic Virus* (CGMMV), a virus known for causing significant damage to the cucurbit family.

Without doing any diagnostics, what signs and symptoms tell us that it is a virus infection?

The mottled, mosaic leaf pattern and leaf rolling are the two biggest indicators that this plant is infected with a virus.

S Fungus (*Sclerotinia* specie

Image B shows iceberg lettuce infected with a fungus called *Sclerotinia*. This fungus is spread through air and wind when conditions are favourable.

But how do we know it is a fungus that is impacting this iceberg lettuce crop?

These plants are suffering from wilt and plant collapse, which can be indicative of infection by a fungus. Often there are signs of the *Sclerotinia* fungus at the base of the lettuce, fluffy grey or white material and hard, dark spores can be present.

mage 🚺

Bacteria (*Ralstonia* species)

Image C shows a tomato plant infected with a bacteria called *Ralstonia*. Bacteria infects plants via natural openings on plants or via mechanical wounds, often aided by free water.

But what signs and symptoms tell us that it is a bacterial infection?

The plant is most notably experiencing vascular wilt, meaning its ability to transport water from roots to leaves is being impacted. This is often telltale sign that a plant is infected by a bacterium — although fungi can also cause stem wilts on plants.

Did you guess the right pathogen for each plant?

Diagnosing plants in-field without molecular diagnostics can be incredibly difficult as there many signs and symptoms that can occur when plants are infected by different pathogens.

Australia is free from many pests and diseases that plague the rest of the world. This absence – and our ability to prove it – allows Australian growers access to markets all over the world. Plant diagnostics are incredibly important and provide strong scientific evidence that our growing regions are free from certain pests and diseases.

If you are unsure of signs and symptoms of a pest or disease that you're seeing in a crop, then modern, quick and accurate diagnostics can ensure good crop management and help you stay on top of good farm hygiene practices and prevent incursions.

Find out more

Please contact Zali Mahony on 03 9882 0277 or email science@ausveg.com.au.

Area wide management

A multi-million-dollar project responsible for developing an 'area wide management' strategy commenced in 2018 to address high-priority viral and bacterial diseases affecting vegetable crops.

This strategy included viral diseases transmitted by thrips, aphid and whitefly pests, and phytoplasmas transmitted by leafhoppers, and involved pest management approaches.

The second major focus of the project was on managing foliar bacterial diseases and work also involved developing rapid diagnostic test for key bacterial and viral pathogens.

Area Wide Management of Vegetable Diseases: viruses and bacteria (VG16086) is a strategic levy investment under the Hort Innovation Vegetable Fund, and is set to be completed in May 2022.

For further details about the project, please contact Dr Cherie Gambley from the Queensland Department of Agriculture and Fisheries on 0423 200 211 or email cherie.gambley@daf.qld.gov.au.







Pest and disease preparedness: How to protect your farm

The best defence against harmful pests, diseases, viruses and weeds for your farm is to implement good farm hygiene. AUSVEG has recently developed a new management guide on how to protect and prepare your farm for pests and diseases.

Farm biosecurity is the prevention and seasonally or through natural spread (e.g. wind). Good biosecurity practices imposed farm guarantine and be used

Six main pathways for pest and disease spread

identify these pathways on your own

- Vehicles and equipment.

- Waste and weeds.

involved. Where this guide differs from other resources is that it provides ways



actions you can take to ensure you are managing them appropriately for your

here are biosecurity measures in place. Free curity signs are available from AUSVEG* mits and conditions apply). Image courtesy of Plant alth Australia

Yellow sticky traps or similar can provide indications into pest and beneficial insect levels in crops

- 1. Review your farm's current biosecurity
- management guide.
- 3. If you are managing all pathways well, create a farm biosecurity plan for your

Find out more

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Protected Cropping Australia Conference a success despite heavy rains

It is rare that the circumstances surrounding a conference highlight the need for its subject matter. However, there is possibly no greater example of the need for increased knowledge of protected cropping systems than the almost 300 millimetres of rain that fell on Protected Cropping Australia's conference in March. Ian Thomas reports.

Protected Cropping Australia (PCA) is the peak industry body representing Australia's commercial hydroponic and greenhouse growers. PCA members also include equipment and installation suppliers, specialist consultants and advisors, researchers and educators.

The annual PCA Conference was held in Coffs Harbour, New South Wales, from 28-31 March and – despite the torrential downpour – was a roaring success. Attendees were treated to presentations covering the latest research and developments in pollination, irrigation and climate control, and integrated pest and disease management, among many other topics.

Conference organiser and PCA Chair Matthew Plunkett was thrilled to see the conference go ahead after what has been a difficult couple of years for the industry.

"Connecting with our growers and allied trade – after all the challenges with COVID – has been great. We have not run a conference since 2019 and reuniting with our tight-knit protected cropping family has been very important," Matthew said.

Highlights from the conference included grower training workshops, a trade show with over 60 exhibitors, and a gala dinner with awards given to individuals achieving great things in the industry.

Veg growers honoured

There were vegetable industry members recognised at the awards night, including Nicky Mann from Family Fresh Farms. Nicky was awarded the PCA Outstanding Contribution award and was made a PCA life member.

Andrew McIlwain from Green Camel took home the Grower of the Year award. Amy Rees from Flavorite claimed the Young Achiever of the Year Award and a number of students also received awards.

Matthew noted the interesting work being done in the sustainability area, particularly around waste management and the interest from soil-based vegetable growers looking at moving into some form of protected cropping.

"There are so many individuals and businesses doing amazing things in the protected cropping sector," he said.

With its conference completed for another year, PCA is now planning activities for the rest of 2022.

These include developing a series of regional tours and grower training workshops to be held around the country; continuing to engage growers and industry to develop a National Map of Protected Cropping Systems; and convening a national summit to help ensure funding for targeted and relevant research in the areas of most need for growers. PCA also looks forward to supporting AUSVEG and partners to deliver the Annual Vegetable Industry Seminar at Hort Connections 2022.

PCA2023 – Save the date!

Protected Cropping Australia's next conference, PCA2023, will be held in Brisbane from the 17-30 July 2023.

For more information on either the 2022 or 2023 conferences or to learn more about protected cropping in Australia, please visit the PCA website: protectedcropping.net.au.

Find out more

Please contact Matthew Plunkett at matthew.plunkett@protectedcropping.net.au.



Protected Cropping Australia welcomes any growers who would like to contribute to the Industry Advisory Council to get in touch via its website. This Council advises the Board on matters of importance and helps to promote the protected cropping industry.





New products a win for whole of horticulture

Product launches are a reason for everyone in agriculture to celebrate. For the company that has brought the product to market, it is the culmination of decades of research and development. For other companies in the market, it can bring relief when there is a new mode of action that may relieve pressure on their existing chemistry. For advisors and growers, having another tool in their arsenal is often critical.

The past few years has seen a string of new horticultural product launches from Syngenta. These are products that have been ground-breaking in isolation, impressive as a portfolio and surprising in their unusual fit for both southern and northern markets.

"In my many years in this industry, I have never seen so many products that provide northern horticulturalists with solutions as what we've been able to bring to market in the past few years," Syngenta Portfolio Lead Peter Werbenec said.

"Usually, southern markets dominate the focus for research and then products or uses are retrofitted for the north. But our portfolio has been remarkable in providing solutions for all of Australia."

Most recently, MIRAVIS[®] Prime fungicide was registered to control botrytis and Sclerotinia across a range of fruit and vegetable crops.

First sales happened in Victoria – but as the season warmed up, it became a solid solution for northern growers, with some remarkable results in both leafy vegetables and berries.

It followed the release of MINECTO®

Forte insecticide in 2020, and ORONDIS[®] Flexi fungicide and PROCLAIM[®] Opti insecticide in 2019.

A fit in the north

MINECTO[®] Forte insecticide offers two active ingredients, providing a wide spectrum of defence against chewing and sucking insect pests.

"It has brought a new mode of action (Group 12A) to fruiting vegetable and cucurbit growers offering a much-needed new tool to manage resistant whiteflies and aphids as well as protection from mites and caterpillars," Mr Werbenec said.

"This has been a huge benefit to growers in the north who have had several wet seasons, where pest pressure has been really challenging.

"Similarly, ORONDIS[®] Flexi – which has become a mainstay for vegetable growers in the south – has really surprised advisors this past season in the north."

This is a fungicide that controls downy mildew and other diseases in leafy and bulb vegetables, brassicas and cucurbits.

"The level of protection provided through these wetter seasons up north has really brought ORONDIS® Flexi to the forefront of disease prevention programs," Mr Werbenec said.

PROCLAIM[®] Opti is the new formulation of PROCLAIM[®], the Lepidopteran specialist insecticide. With an optimised formulation to assist with mixing and application, this latest insecticide also has additional registrations for a suite of smaller horticultural crops.

Upcoming products

With this string of new registrations, it may surprise some to learn of further pending registrations in 2022 and 2023 from Syngenta.

"In the next few months, we anticipate the release of MIRAVIS[®] Duo fungicide* to cucurbit, fruiting vegetable, root and tuber vegetables, celery and peanut growers. It is a dual mode of action, bestin-class fungicide that will have a great fit across Australia," Mr Werbenec said.

"Later in the year, we hope to launch SIMODIS[®] insecticide* that will provide a robust new mode of action for control of key pests in brassicas, cucurbits, fruiting vegetables and onions. Following it in 2023 will be hopefully VANIVA[®] nematicide*."

With a portfolio of solutions with a strong fit in northern crops, Syngenta is again hosting a GrowMore event in the Queensland, after the success of the Bowen event in 2021.

"These events are the best way to learn about our new products, see them in action and challenge our team of specialists with your questions," Mr Werbenec concluded.

Find out more

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

The 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.

*MIRAVIS® Duo fungicide, SIMODIS® insecticide and VANIVA® nematicide are not registered. Applications have been submitted to the APVMA

[®]Registered trademark of a Syngenta Group Company

How does the vegetable R&D levy work?



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

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Minor use permits

Permit Number	Crop	Pesticide Group	Active	Pest/Plant disease/ Target weed	Date Issued	Expiry Date	Permit Holder	States
PER13322 Version 3	Kang kong, Ceylon spinach, amaranth, taro (leaves) and watercress	Insecticide	Spinetoram	Potato moth (Phthorimaea operculella)	21- Jun- 2012	31- Mar- 27	Hort Innovation	All states and territories, except VIC
PER81244 Version 4	Brassica leafy vegetables, chicory, coriander, endive parsley, radicchio, silverbeet, spinach, swede, turnip	Herbicide	Fluazifop-P- Butyl	Grass weeds	01- Jul- 13	30- Apr- 25	Hort Innovation	All states and territories, except VIC
PER14184 Version 3	Beetroot, carrots, parsnips; brassica leafy vegetables (refer to APVMA website for full list)	Systemic fungicide	Potassium phosphonate	Beetroot, carrots, parsnips: damping off. Brassica leafy vegetables: downy mildew.	01- Jul- 13	30- Apr- 25	Hort Innovation	All states and territories, except VIC
*PER89259 Version 2	Various horticultural and agricultural crops (refer to APVMA website for full list)	Insecticide	Chlorantrani- liprole	Fall armyworm (Spodoptera frugiperda)	06- Mar- 20	31- Mar- 23	Hort Innovation	All states and territories, except VIC
*PER89353 Version 3	Fruit: strawberries and rubus spp. (field and protected). Tree nuts: tree nuts (except almonds). Vegetables: root and tuber vegetables (except potatoes). Herbs: parsley (field and protected)	Insecticide	Chlorantrani- liprole	Fall armyworm (Spodoptera frugiperda)	05- May- 20	31- May- 23	Hort Innovation	All states and territories, except VIC
^PER80344 Version 3		Insecticide	Chlorpyrifos	African black beetle and red legged earth mite				
PER14892 Version 5	Snow peas and sugar snap peas	Insecticide	Pymetrozine	Green peach aphid, cowpea aphid, pea aphid and potato aphid	06- Jan-15	31- May- 27	Hort Innovation	All states and territories, except VIC

*Note: There will be no further renewals of the Fall Armyworm (FAW) Emergency Use Permits past the 2023 expiry dates unless the need is warranted and justified for each commodity, and there is no suitable registered label in place for FAW prior to the permit expiry dates for the commodities impacted by FAW.

[^]Continued issuance of this permit is subject to the outcomes of the current APVMA review of chlorpyrifos. This permit may be impacted by the outcomes of this review.



Shining a light on careers in Australian horticulture

AUSVEG has launched the Grow Your Career in Horticulture video series, which highlights the diverse range of careers in the Australian horticulture industry. AUSVEG Communications Officer Sophie Burge reports.

The Grow Your Career in Horticulture series features video interviews with employees from nut, fruit and vegetable businesses across Australia to gain an understanding of those vital 'behind-thescenes' roles in the industry. These videos show the daily tasks, responsibilities, and pathways of current employees on Australian farms.

AUSVEG National Public Affairs Manager Tyson Cattle said that the series is designed to highlight the technical and skilled opportunities that are available on fruit and vegetable farms across Australia.

"The horticulture sector is a large, developed and diverse industry that employs a wide range of skilled people. While much of the media attention is focused on harvest labour within the sector, it is often forgotten that the industry requires a range of skillsets to manage and operate their farm business," Mr Cattle said.

"The horticulture industry has many opportunities for workers to upskill and access on the job training further their career in horticulture. While there are many harvesting opportunities on the Harvest Trail, there is also a range of other essential roles to be found on farm and production line."

Showcasing opportunities

Many of the roles highlighted in the video series are in the highest demand in businesses across the horticulture sector and align with the approved 31

occupations under the Horticulture Industry Labour Agreement – supporting growers to sponsor skilled and semiskilled workers from overseas to fill these critical occupations.

"Growers' preference is always to employ locals first where possible, when they have the right skills and attitude," Mr Cattle said.

"These videos aim to showcase the many varied career opportunities for local workers in the exciting \$15 billion Australian horticulture industry to entice people to give the industry a go.

"Many people we interviewed for these videos did not intend on a career in horticulture, but discovered a passion for it after working on the farm. They have each come from various backgrounds and landed in horticulture through different avenues by transferring key skills from seemingly unrelated courses and past careers to start successful careers in horticulture.

"A job in horticulture can be the start of a lifelong, satisfying career with plenty of opportunities for upward growth. Putting food on the table for millions of families in Australia and abroad makes it a worthwhile and fulfilling career."



Scan this QR code to access the 'Grow Your Career in Horticulture' series.



At a glance

Name: Olivia De La Mare

Age: 21

Former role: Integrated Pest Management (IPM) Officer at Green Camel Organic Produce

Produce/growing method: Greenhouse growers of organically certified tomatoes, mini snacking cucumbers, as well as premium barramundi in in state-of-the-art high-tech glasshouses

Location: Cobbitty, New South Wales

Introducing Olivia De La Mare

As an Integrated Pest Management (IPM) Officer, Olivia De La Mare was responsible for controlling plant diseases and pests using a non-conventional approach.

Olivia worked in the high-tech glasshouses at Green Camel Organic Produce, helping produce organic tomatoes and cucumbers.

At its New South Wales operation, Green Camel delivers an organic- and pesticide-free product range that is offered in the major Australian food retailers.

IPM is vital for this type of operation and involves strategic releasing of beneficial insects to naturally control pests along with organic spray applications.

It relies heavily on strict biosecurity to prevent pest incursions. Regular and thorough monitoring of plants and planning ahead of time controls pests in a timely manner.

The benefit of IPM is that it reduces the reliance on harsh residual-systemic chemicals to control a disease or pest. Instead, an integrated and layered approach is used to prevent, identify and control pests before reaching an economic threshold. It looks closely at the lifecycle of each pest and uses natural predators and systems to prevent and eradicate problems. Green Camel operates 2.4 hectares of glasshouses and an integrated barramundi farm, producing 600,000kg Truss tomatoes, 300,000kg snacking tomatoes, 190,000kg of baby cucumbers and 35,000kg of live barramundi.

These sites use Green Camel's food production system to grow organically certified tomatoes and cucumbers, as well as premium live barramundi.

Green Camel's goal is to make organic and pesticide-free produce consumption mainstream in Australia by delivering high quality commercially feasible products.

Its key partner, Perfection Fresh, is one of the leading growers and marketers of produce in Australia, possessing excellent relationships with the major retailers and access to a wholesale channel.

Perfection Fresh supplies supermarkets including Woolworths, Coles, Aldi and Costco, independent retailers, fast food chains and an expanding number of export markets.

AUSVEG spoke to Olivia as part of the 'Grow Your Career in Horticulture' series. Since then, Olivia has departed Green Camel and is now completing a Bachelor of Agricultural Science at Charles Stuart University in Wagga Wagga.



Olivia, can you please describe your role at Green Camel Organic Produce and what it involved?

My role in Integrated Pest Management (IPM) involved a lot of different ways of controlling plant pests and diseases within our high-tech glasshouses, rather than the conventional methods using chemical sprays.

My job involved a lot of monitoring for pests, watching numbers, as well as doing organic sprays and releasing beneficial bugs to control the pests that we do have in our crops.

The beneficial bugs came to us packaged either on cards, in vials or in bottles from our suppliers. From there, we released the bugs into the crop where – as predators – they ate or laid eggs to destroy or control the pest that we had in the crop.

We also had a variety of sticky traps installed in and around the crop that revealed if we have pests, such as white fly or thrips.

I also did trap counts and controlled all of the sprays to make sure the spray patterns are applied correctly.

Tell us about your journey into horticulture?

I started in agriculture at a very young age because my whole family was involved in it. As I got older, I started studying agriculture in high school. By age 16 or 17 (when I got into year 11 and 12), I started studying a Certificate II in Agriculture, in a class called primary industries.

When I left high school, I was looking for jobs in agriculture and an opportunity to harvest in a high-tech glasshouse came up at Green Camel. So, I came in and had look around the Cobbitty site and they hired me on the spot. I worked in harvest for a few months before progressing into the IPM space.

Every single one of us are given the

opportunity to progress into different roles. In my case, I moved from harvesting into IPM.

When I first started working at Green Camel, I had no experience in horticulture. I was very much animalbased, but I came into horticulture with an open mind. As I began working and started asking questions, new opportunities started opening up.

Why do you like working in horticulture?

I really love working in nature and especially in organic horticulture, you are watching how nature fights nature within our beneficial bugs, and with our natural pesticides.

I worked with about 50 people in the crop in Green Camel, who were a mix of crops workers, growers, IPM and so on and so forth.

What was it like working in IPM at the beginning?

When I started in IPM, I did a lot of onthe-job training. For my role, I found there actually were not any specific courses that I could take, so I learned everything working on the ground. I learnt how to identify bugs, pests, and diseases, and anything else that might be different in the crop.

A big part of this job was always learning. You were always looking for something new and different, and how to identify and control it.

What advice do you have for someone considering a career in horticulture/IPM?

Getting into horticulture does not really require that much prior training. A lot of training is done on-site and in its own unique way for each individual site, because everything changes so dramatically.

A few things that you can get that might

help you along are chemical certificates so that you can handle any sort of chemicals, and forklift licences, which are commonly used on-site. As soon as I started working in horticulture, I was obsessed. I started working in fruit growing and became obsessed with house plants at home. So, a work-life balance for me never really works because it is my life.

It is such a beautiful environment to work in. Working with plants all the time is great for your mental health.

What are some common misconceptions about careers in horticulture?

A big misconception about working in horticulture is that it is very labourintensive where people think you are just picking or weeding, and that you do not really see anything from the crop. However, it is a lot more involved than that.

Yes, we had crop workers who were twisting, de-suckering, and taking care of the plants – but in my role, I got to see every stage of the plant. Rather than just coming in, picking a few things and leaving again, you got invested in the crop.

Another misconception in horticulture is that the days are always long and always hard work. There are a lot of opportunities out there in the horticulture industry where you can have a great work-life balance.

I worked from 6.30am until 2.30pm each day, so my afternoons were completely free and for me it was like that all season.

Horticulture is something that you can see directly affects the world. It is designed to feed people. You are feeding the masses, and you never really realise it until you see the amount of fruit that comes off the crop.

What I did in IPM is at the very start of the train. It was making sure that those plants are healthy and ready to produce fruit.

There is always a need for people in horticulture. If it is something that you want to do, you just go for it. Get in the crops, work hard, and ask questions – and so many opportunities will open up for you.

Find out more

For more information about the Grow Your Career in Horticulture series, please visit ausveg.com.au/ grow-your-career.

The Grow Your Career in Horticulture series is funded by the Federal Department of Education, Skills and Employment through the Harvest Trail Services Industry Collaboration Trial.



Fair Farms delivers wide-ranging benefits to Australian growers

Growcom's Fair Farms is an industry-led, national training and certification initiative that is cultivating fair and responsible employment practices in Australian horticulture. The team spoke to Brialey Brightwell from Nerrigundah Berries about the business' decision to become Fair Farms-certified and the process behind it.

A family-owned and operated berry farm in Victoria's Yarra Valley, Nerrigundah Berries grows a delicious variety of berries including boysenberry, blueberries, and raspberries.

Nerrigundah Berries has been managed by Brialey Brightwell's family for four generations. The operation made the move to become Fair Farms-certified this year, which was straightforward and simple.

Brialey decided to become certified after finding out about the social compliance program a couple of years ago at an industry event on Queensland's Gold Coast.

"We were at this industry event, and we found out about Fair Farms there and were genuinely interested in it," Brialey said.

"We listened and asked questions, and found it was very relevant to us. We were already with another social compliance program at the time but decided that we would look to Fair Farms after hearing about it at this event.

"Fair Farms just makes sense for Australian growers."

When it came time to audit, Brialey said that the Fair Farms process was easy to understand and the resources available assured them that they were ready for audit when the time came.

"We decided to go with Fair Farms because it just makes more sense – it was more relevant to who we are and how we do things," she said.

"We had been with a previous social compliance program and some of their questions on audit were just not relevant to us, or to any Australian farmer I know."

Tailored for business

Brialey said that Fair Farm's emphasis on worker wellbeing aligned with how she treats her employees on a day-to-day basis.

"We're on a first name basis with our employees and I recognise them – in recent times we've got to know our employees better because we have to do daily health checks due to COVID," Brialey said.

The realities of managing a familyowned farm means that Brialey is constantly donning different business hats.

At times, she'll function as human resources and when the farm is short on pickers, you can find her out with her team harvesting. This means being a part of a straightforward program like Fair Farms makes farming life a little easier.

"I love farming, it is a constant challenge of production and the elements," Brialey said.

"We were one of the first farms to start early with hydroponics, which was a game changer.

"Every year we look at what we do and what we want to improve, and Fair Farms has been part of that.

"I would tell people who are thinking about joining Fair Farms that it is a good system and covers everything you should be doing in farming."

Fair Farms National Program Manager, Sachin Ayachit, said that it wasn't a surprise that the program resonated with farms like Nerrigundah Berries.

"Fair Farms was developed for Australian growers by Australian growers – that is why farms find it so relevant to what they do," he said.

"Fair Farms is also about acknowledging the outstanding work Australian horticulture farmers are already doing.

"Moving forward, we will always keep growers like Brialey at the forefront of what we do."

Fair Farms: What it offers industry

Recently, Fair Farms was officially endorsed by the National Farmers' Federation Horticulture Council.

Join Fair Farms today to access an Australian-centric training and certification program including online training modules, one-on-one training and over-the-phone support that helps your business showcase ethical employment practices to the supply chain.

For more information, please visit fairfarms.com.au/news.

Find out more

To find out more about Growcom's Fair Farms program and any special offers it may be offering, please visit fairfarms.com.au.

Visit fairwork.gov.au and growcom.com.au for more information regarding your obligations as an employer.

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







Friends supporting each other through the veg growing journey

Name:	Neco Vo and Simon Vu
Age:	Neco: 28
Location:	Neco: Carabooda, Western Australia
Works:	Neco: Thinh Van Pty LTD
Grows:	Neco: Asian veg and spring onion

Neco and Simon, how did you first become involved in the vegetable industry?

Neco: I have been in the industry ever since I can remember as a young boy at the age of around seven. I grew up in Carnarvon, Western Australia and was there until I reached high school, before moving to Perth to pursue a higher education. However, as fate has it the vegetable industry has pulled me back to my childhood roots.

Simon: I have been in involved in farming since I was about eight and have been coming up to the farm during weekends, school holidays and working weekends outside of my office job. About two years ago, I resigned from my role to commit to being full-time on the farm.

What are your roles in your respective businesses? And what are your responsibilities connected to those roles?

Neco: My role changes every day to suit the flow of the business. I'm mainly in charge of cultivating; for example, tractor work, seeding and ploughing. My work does require me to be flexible and work around conditions outside my control, such as the weather, humidity and rain – which affects many areas of

production.

What are the biggest challenges that you have faced working in the industry so far, and how do you overcome them?

Simon: 22

Simon: KM Vegetables

Simon: Neerabup, Western Australia

Simon: Asian veg, lettuce variety, herbs

Neco: My biggest challenge would be finding new and progressive ways of running the business that reflects the current market better. With new technology and research, it can be hard to not only keep up – but implement it in a business that was founded 20 years ago.

You're friends outside of the vegetable industry. How have you supported each other during this time of transition?

Neco: It is important to have a supportive network. I have friends who are understanding of my situation and supportive of my goals.

Regardless of being time-poor and heavily involved in the business, I've learnt that maintaining friendships, family time and creating a work-life balance is just as important.

Simon: Our role and our line of work can be demanding in many aspects. Some days we just have to accept that we can't do everything by ourselves.

The beauty of having a friend who

shares the same responsibilities as me is that we can support one another during difficult situations.

An example is: as we grow similar lines, we can supply stock to the other when needed and vice versa. Both sides have an ever-expanding network of contacts, and we are also able to share or refer one another to a group that could assist with a specific situation.

General things like tips, advice information and/or personal experiences all come a long way helping both parties grow as individuals.

Where do you receive your on-farm practice advice and information from?

Neco: Most of my on-farm practice advice is from my father. The information is not written down anywhere, but all in his head. He has a wealth of knowledge. I always have a pen and notebook ready when spending time with him.

Simon: My initial practice for all field work activities were provided by my dad. He has been in the industry for about 20 years, so he has plenty of experience under his belt.

Although a little old-fashioned and stern, he has supported me in many ways and given me many opportunities to grow. Most information and advice



I seek is provided by external parties (agronomist, machinery specialist, Neco etc.).

What new innovations, research and/or practices have your businesses implemented recently? What are you doing differently to other growing operations?

Neco: As research and innovation continues in the chemistry department, I am always trying new programs to better the yield and safety of crops, testing soil compositions for environmental impact and providing feedback to the companies to better their products.

What do you both enjoy most about working in the vegetable industry, and how do you maintain your enthusiasm?

Neco: "You reap what you sow."

Taking that quote literally describes the enjoyment I feel about working in the vegetable industry. All my efforts – as well as everyone else's hard work – is rewarded at the end of each harvest.

Simon: From being heavily involved with colleagues, clients, buyers, agents and suppliers, to conducting individual field work throughout the day – I find that farming is a great mixed setting for my social introverted personality.

Being in control of my own work means I can excel at my own pace, but I am also accountable for my actions.

Maintaining enthusiasm is difficult. There are days where so many things go wrong and a lot of the time, they are caused by factors outside of our control.

Personally, I find motivation in accomplishments and small wins. The knowledge gained after facing challenges can often be extremely rewarding.

Where do you see yourselves in five years' time?

Neco: I still see myself shadowing my father because he still has so much for me to learn from for the business and in life.

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

Neco: Having more opportunities and programs out there informing people that the vegetable industry needs more young minds. There are many areas in the industry that have yet to be reengineered.

Simon: I believe there are curricular activities and events out there for young minds to participate in that helps to introduce them to the vegetable industry.

My school did not offer these, but if horticultural and agricultural studies were made more available to students in high schools, I would like to think that it could create opportunities for many individuals to engage in higher studies.

This would ultimately lead to research of more efficient practices, accurate information, money saving and overall better conditions for workers and produce.





Raising awareness of mental health

Events in Australia over the past two years – such as bushfires, floods and the COVID-19 pandemic – have taken their toll on many people's mental health. Therefore, it is important to look after yourself and each other. Knowing where to go for information on mental health can be a hurdle for many people, so AUSVEG has compiled this list of resources that may help to navigate this sensitive space. In 2020/21, the Australian Bureau of Statistics conducted the first cohort of the National Study of Mental Health and Wellbeing – a component of the wider Intergenerational Health and Mental Health Study.

The figures are startling, with 3.4 million Australians seeing a health professional for their mental health in 2021/21.

- 13% of people saw a GP for their mental health.
- 8% saw a psychologist.
- 15% of Australians aged 16-85 years experienced high or very high levels of psychological distress.
- Women were more likely to experience high or very high levels of psychological distress than men (19% compared with 12%).
- One in five (20%) Australians aged 16-34 years experienced high or very high levels of psychological distress, more than twice the rate of those aged 65-85 years (9%).
- Suicide was the 15th most common cause of death overall (down from 13th in 2019), accounting for 1.9% of deaths.
- Suicide was the most common cause of death for adults aged 15-44.

The ongoing COVID-19 pandemic and traumatic events such as floods can lead to long-term psychological distress. Therefore, it is vital that we start talking more openly about the importance of discussing mental health and seeking help if you or someone you know is experiencing difficulties. There are organisations available for people who are looking for more information about mental health and they can give advice on how to deal with personal mental health issues or those that arise in your workplace, communities, friends or families.

Beyond Blue

Beyond Blue has been providing supports and services to people in Australia for 20 years.

Beyond Blue works with the community to improve mental health and prevent suicide, so that all people in Australia can achieve their best possible mental health. Through its Beyond 2020 Strategy, it's

working across three strategic priorities:

- Promoting mental health and wellbeing so people have greater knowledge, feel safe to talk openly about their issues and are supported to ask for help when they need to.
- 2. Being a trusted source of information, advice and support so we can all better understand how to maintain our mental health and take steps to recover from mental health conditions.
- 3. Working together to prevent suicide by playing a lead role in the national effort to prevent suicide through research, information, advice and support, and advocacy.

For further information on anxiety, depression or suicide visit beyondblue. org.au or call 1300 22 4636 (24 hours/7 days a week).



Someone is threatening self-harm. What can I do?

Lifeline has developed a range of free toolkits to provide information and assistance during challenging times. These include a self-help resource to help people cope with natural disasters; a self-harm factsheet; a toolkit for helping someone at risk of suicide, and much more.

Browse and download Lifeline's range of toolkits and factsheets here: lifeline.org.au/resources/toolkitdownloads/

Still unsure about what to do or need a debrief? Those who are worried about a loved one or community member who is threatening self-harm can contact Lifeline on 13 11 14 for 24/7 crisis support and further advice.

To chat to a trained mental health professional, please visit beyondblue.org. au/get-support/get-immediate-support.

Black Dog Institute

Black Dog Institute is a proudly independent not-for-profit medical research institute affiliated with The University of New South Wales.

Its focus today has expanded to address new challenges and opportunities in mental health – suicide prevention, digital innovation, lived experience, youth and workplace mental health. Its work in mood disorders continues through investigation of new and better ways to treat and prevent conditions like anxiety and depression through digital tools and novel treatments.

For more information visit blackdoginstitute.org.au.

Lifeline

Lifeline is a national charity providing all Australians experiencing emotional distress with access to 24-hour crisis support and suicide prevention services. It is committed to empowering Australians to be suicide-safe through connection, compassion and hope.

For 24/7 crisis support and suicide prevention services, call Lifeline on 13 11 14.

The online Crisis Support Chat service is also available every night at lifeline.org.au/ crisischat.

MensLine Australia

MensLine Australia is the national telephone and online support, information and referral service for men with family and relationship concerns. The service is available from anywhere in Australia and is staffed by professional counsellors, experienced in men's issues.

For more information, visit mensline.org. au or call 1300 78 99 78.

MindSpot

MindSpot is a free service for Australian adults who are experiencing difficulties with anxiety, stress, depression and low mood. It provides assessment and treatment courses or can help find local services that can help.

The MindSpot team comprises experienced and Australian Health Practitioner Regulation Agency-registered mental health professionals including psychologists, clinical psychologists and psychiatrists who are passionate about providing a free and effective service to people all over Australia. It has a dedicated IT team to ensure that this happens as securely and efficiently as possible.

For more information, please call 1800 61 44 34 or visit mindspot.org.au.

SANE Australia

SANE Australia is a national mental health charity making a real difference in the lives of people affected by complex mental health issues through support, research and advocacy.

Counsellors are available via phone, web chat or email from 10am to 10pm Monday to Friday AEST/AEDT.

For more information, please call the SANE Helpline on 1800 18 SANE (7263) or visit sane.org.

Suicide Call Back Service

Suicide Call Back Service offers free professional 24/7 telephone counselling support to people at risk of suicide, concerned about someone at risk, bereaved by suicide and people experiencing emotional or mental health issues.

It also offers free professional 24/7 online counselling support.

Call 1300 659 467 or visit suicidecallbackservice.org.au.

Further resources

These are just some examples of the mental health services available in Australia. More can be found at ausveg. com.au/mental-health-industry/ resources-2/

If you require emergency assistance, please contact 000.

Reef Certification program proving a success for sweetpotato growers

Sweetpotato growers are working with Growcom to accelerate adoption of the Hort 360 Reef Certification initiative with a focus on improving reef water quality. Hort 360 is a best management practice program for the horticulture industry that provides growers the opportunity to become certified – showcasing stewardship for the Great Barrier Reef.

In the southern region of the Grant Barrier Reef (GBR), two third generation farming families are among the first in the horticulture industry to be Reef Certified.

Rodney and Brodie Wolfenden from Wolfies Farm at Rossmoya – located in the Fitzroy Basin region –were proud to have their commitment to soil health and irrigation efficiencies recognised through the Reef Certification process. Although they were already Freshcare Environmental accredited, the couple reflected on their motivation to take the additional step of being Reef Certified.

"We've been farming sustainably because we believe that it's better for the soil and the environment," Rodney said.

"It's better for us because it gives us the best results. This program closely aligns with how we've been managing our business, and it was an easy fit for us."

The benefits of their approach to soil health – through cover cropping and encouraging soil biology –included reduced pest pressure and a reduction in reliance on chemicals.

"We have observed less pest pressure as a direct result of our approach," Rodney said.

Leading the way

Ethan and Emily Zunker from Windhum Farms at Qunaba (between Bundaberg and Bargara) were also among the first growers to come on board. They were the first growers in the horticulture industry in the Burnett Mary region to be Reef Certified.

The Zunkers took on the responsibility of getting their macadamia and sweetpotato farms Reef Certified. Emily found that the certification process undertaken with Growcom's Hort360 Facilitator was straightforward and a great opportunity to tighten up the business' record keeping processes.

When asked about the changes adopted as a result of the Reef Certification process, Emily explained that the operation had to make some minor tweaks to its existing management practices.

"I've migrated the paper-based system into online documents and incorporated the additional records required to be Reef Certified, which is calibration of fertiliser equipment and weather data," she said.

Reef Certification involves benchmarking farm management practices, working through the certification requirements with a facilitator, and then an independent thirdparty audit. The audit is only required to be undertaken every three years, and currently the cost of an audit is funded through Growcom's Hort360 GBR program.

Becoming certified

Reef Certification focuses on water quality outcomes with a strong alignment to existing food safety quality assurance and environmental systems, such as Freshcare Environmental. In fact, any growers who are Freshcare Environmental accredited can become Reef Certified without an audit.

Within the certification there are four key management practice areas – nutrient, sediment, pesticide and water. Practices of focus include soil and leaf testing techniques, nutrient budgeting, decision making tools for irrigation, calibration records and management of topsoil.

It is a voluntary certification pathway that enables growers to demonstrate a strong commitment to land stewardship through managing their farms to industry best practice standards.

Hort360 Facilitator in the southern GBR, Michelle Haase, is extremely happy with the level of interest demonstrated by growers in Reef Certification.

"It's been a tough 18 months for our industry, and I appreciate that taking on additional certifiable activities can be a real stretch," Michelle said.



"I'm here to help, and once we go through the questions of the Reef module in Hort360, the majority of growers see that they are already operating at or above best practice."

Michelle outlined the practices already commonly adopted by growers:

- Crop growth stage leaf, soil and sap testing.
- Fertigation systems.
- Accurate spray records and automated record keeping.
- Use of ag tech such as soil moisture probes, drones, weather stations.
- Grassy inter-rows, headlands, contour banks, riparian vegetation or grassed verges near waterways.
- Use of side throw slashers to mulch tree line.
- Mixed species cover cropping.
- Sediment traps and tail-water dams to capture any runoff.

The Hort360 GBR is funded through the Queensland Government's Reef Water Quality Program and delivered by Growcom. The program is free, and participation is not limited to Growcom members.

Horticultural growers interested in receiving more information on Reef Certification are encouraged to contact Growcom. The module can be undertaken online or over the phone, or in consultation with a Hort360 Facilitator.



Visit growcom.com.au to learn more about Hort 360.

Please contact Growcom's Michelle Haase – Southern GBR by emailing mhaase@growcom. com.au or phone 0428 586 890, or Scott Wallace – Hort360 GBR Queensland at swallace@ growcom.com.au or on 0408 135 002.

Tasmanian Farmers and Graziers Association

Regardless of current hurdles in the industry that do change each year, several foundations remain important. Research, education and promotion, to name a few.

Food is the necessity of life – it's in demand everyday around the world. Could the challenges we are currently facing promote change for the better? Think of the past businesses that sold whale oil lamps as an example.

Adaption to change is what farmers do best; if not, then good luck selling whale oil lamps. Is now the perfect opportunity to promote how nutritious and affordable Australian grown produce really is, in terms of the weekly spend versus a paycheque?

Is now the perfect opportunity to explore those fringe ideas for nutrients and inputs? Is now the perfect opportunity to reinvigorate our agricultural research hubs so that we can maintain food security in Australia?

Throw in to this our sovereign risk on fuel, fertiliser, chemical and machinery supply, the answer should be a very loud yes! Relative to other commodities, vegetables remain very cheap. In fact, too cheap. Anything that is cheap promotes waste – just think of packaging at any fast-food outlet.

Increase the value of any product and the subsequent uses to reduce waste and extract all possible streams of income from it. Less food will be thrown out at every part of the chain if our supply streams come under further pressure.

Ultimately, we probably produce 25 per cent too many vegetables in Australia. What is the result? Waste. Is that waste being responsible to the environment, our finite resources and our future?

What research, education and promotion is needed to show just how unimportant a blemish, indentation, differing colour, shape, diameter or size really is when it comes to eating what we grow?

The bar is set too high, and the returns are way too low for the Australian vegetable industry to continue to supply the high quality, nutritious and affordable food we currently do.

Something has to give.



Nathan Richardson

Tasmanian Farmers and Graziers Association Vegetable Council Chair 56a Charles St Launceston, TAS 7250 Phone: 03 6332 1800 Website: tfga.com.au

vegetablesWA

The impact of open borders and increased COVID-19 cases has been felt by most Western Australian horticultural businesses over the past three months.

Although there has been even more pressure on staffing resources, the industry welcomed the eased interstate and international travel requirements. Growers are looking forward to eased government restrictions and 'normalised' COVID management.

The announcement of Vietnam signing on to the Agriculture Visa has been welcomed by the WA industry, and we hope to be welcoming workers through the scheme in the coming months.

The WA vegetable industry already has strong links to Vietnam, with approximately one-third of the state's vegetable growers having Vietnamese heritage. Growers are keen to see the details of the visa arrangements and to understand how they can meet the requirements to secure a much-needed new source of labour.

It is well-recognised that rising input prices are putting the margins and profitability of vegetable businesses under great pressure. WA growers involved in the vegetablesWA-led Building Horticultural Business Capability project have been able to utilise the business analysis provided by Planfarm to identify efficiencies and cost savings in their operations.

Growers participating in the project have also had the historical information available to easily justify price increases to their customers and have successfully negotiated to maintain their profit margins. The project has delivered encouraging results for participants in its first year and there is strong interest from vegetable growers keen to fill the available places in year two.

The WA Government announced in 2020 its intentions to reduce single use plastics in the state. Part of the second phase of the program affects horticultural produce at a retail level.

Through vegetablesWA's engagement with government on the issues, we have been invited to be members of the Minister's Single Use Plastic Working Group. This will provide a great opportunity to represent the WA horticulture industry's needs and perspectives, as well as having a say on the implementation of the plastics policies.

Lastly, we are looking forward to catching up with everyone at Hort Connections in Brisbane and having a strong WA contingent at the event. Hope to see you there!



Manus Stockdale

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Growcom

The act of climbing a mountain is an apt analogy for our pursuit of an ever more sustainable horticulture industry.

The end goal – of the most sustainable farm business or agricultural sector – appears at the top of a distant mountain; far off and hard to reach, but there's no good reason to not start heading in that direction.

Sustainability, like any other challenging pursuit, will only ever be achieved by putting one foot in front of the other.

In March, Australian horticulture came together in Sydney at a sustainability summit to take important steps together toward a more sustainable sector.

Convened by industry R&D corporation Hort Innovation along with PMA–ANZ, the summit brought a range of stakeholders together to consider current challenges and sustainability opportunities both locally and internationally.

Commodities leading the ascent toward greater sustainability were profiled, including almonds – and nuts as a category more broadly – as were the efforts across agriculture, and in particular the red meat

sector.

Conversations centred around those factors driving the sustainability agenda, including the values and expectations of consumers and investors, but also the productivity and profitability to be gained by doing more with less.

For Growcom, as a business and a service provider to industry, sustainability remains one of our key strategic pillars.

For a long time now, we've been at the leading edge of sustainability for our industry, delivering tools to improve sustainability and profitability.

Our flagship best management practice program Hort360 gives growers the tools, training, and support to assess risks, capitalise on business opportunities and highlight unnecessary farm expenses.

We are also focused on increasing the wellbeing and productivity of the horticulture workforce through the Fair Farms program, our Workplace Essentials service, and the Queensland Agriculture Workforce Network (QAWN).

Growcom stands ready as a willing partner

to any horticultural body or business keen to improve practices, boost sustainability, and benchmark themselves against the new Australian-Grown Horticulture Sustainability Framework.

Depending on how you think of it, greater sustainability is not necessarily an obstacle – but can instead be the way forward. We are excited to be on this journey with growers and are committed to being with them every step of the way.



Richard Shannon

Growcom Acting Chief Executive Officer Primary Producers House Level 3, 183 North Quay Brisbane, QLD 4000 Phone: 07 3620 3844 Fax: 07 3620 3880

NT Farmers Association

As the Top End is getting ready for another growing season, NT Farmers has been busy facilitating several activities for local growers.

Information sessions were delivered by Fair Farms in Coolalinga and by migration experts about visa options for employing agriculture workers in Coolalinga and Katherine.

A team from the Bureau of Meteorology presented the climate and forecasting tool being developed specifically for agriculture; local growers provided them with insightful feedback across a range of commodities. You can find this tool at climateservicesforag.indraweb.io/

A pest, disease, and weed surveillance activity was held with Cambodian and Vietnamese growers. This was conducted by the Department of Agriculture, Water and the Environment's Northern Australia Quarantine Strategy and the Northern Territory Government's Department of Industry, Tourism and Trade biosecurity teams. Of particular focus was American serpentine leafminer and fall armyworm. Officers engaged with growers about visual pest monitoring and sticky traps; such traps will be installed on two of the farms visited. Samples were also collected, and the results will be returned to growers after laboratory analyses.

Two teacher professional development days took place in Alice Springs and Darwin to inform teachers about the agricultural industry and its importance, related educational platforms and programs to incorporate into their classroom.

Agri-tech classes were delivered to over 230 primary school students. An excursion to the Happy Farmer market garden allowed students from Ross Park in Alice Springs to learn about growing fruits and vegetables.

The NT melon season is just around the corner. The Harvest Trail team is getting a lot of interest from seasonal workers in response to various job advertisements.

Numerous positions are available on farms including packing shed supervisors, picking, sorting, packing, and trades. Placement of these workers will start as soon as the growing season gets into full swing. Soil moisture monitoring probes were set up at two vegetable sites (bitter melons, okra) and a third site (snake beans) should be completed shortly.

The growers were proactive in installing water meters on their irrigation systems to improve water use measurements. The data collected will provide baseline information on water consumption for different commodities in the NT.



Mariah Maughan NT Farmers Association Vegetable Industry Development Officer Phone: 0410 067 422 Website: ntfarmers.org.au Email: ido@ntfarmers.org.au

AUSVEG VIC

Although COVID-19 restrictions have been eased or scrapped in Victoria, it is still important to remain vigilant when it comes to hygiene in the workplace.

Earlier this year, AUSVEG VIC produced a series of instructional COVID-Safe practice videos that have been translated into multiple languages for Victorian horticultural workers. These videos aim to promote education around COVID-Safe practices in the workplace and how to communicate these messages effectively. The COVID-Safe video series has been translated in Khmer, Vietnamese, Mandarin and Bislama.

Topics covered in these videos include best hygiene practices; informational sources; how COVID-19 spreads; pandemic support options for workers; and worker safety obligations for businesses.

To view the videos, please visit ausvegvic.com.au/covidsafe. We encourage all Victorian vegetable and potato growing operations to share this link and its content with their employees. AUSVEG VIC would like to thank the Victorian Government for its support of the COVID-Safe video series. These videos were produced as a part of the Seasonal Workforce Industry Support Program, funded by the Victorian Government.

Meanwhile, the AUSVEG VIC Awards for Excellence dinner was held on Saturday 7 May at the Pullman Melbourne Albert Park.

The awards night provides the Victorian vegetable industry a unique opportunity to come together and celebrate the achievements of the industry. Among the attendees were Victorian Minister for Agriculture and Minister for Regional Development, the Hon. Mary-Anne Thomas and Victorian Senator Raff Ciccone.

AUSVEG VIC presented six awards on the night, and the winners will be announced in the next edition of *Vegetables Australia*.

For more information about the Victorian Awards for Excellence, please visit ausvegvic.com.au/awards-forexcellence.



Paul Gazzola

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VGA trading as AUSVEG VIC

AUSVEG SA

AUSVEG SA is actively engaging with the incoming South Australian Government after the election to progress a number of key industry priorities. Central to our discussions will be addressing the current state of water pricing with the Northern Adelaide Plains Irrigation Scheme to lower access prices for growers.

AUSVEG SA has been providing detailed briefing to incoming members of Parliament on this critical issue with a view to negotiating a way forward. This would see up front and ongoing costs associated with the scheme lowered for growers, and a set amount of water set aside for intensive horticulture on the Northern Adelaide Plains in the face of competition from the livestock and wine sectors.

Other priorities include engaging with the incoming Labor Government on the worker accommodation and worker attraction strategy announced during the campaign.

Additionally, we'd looking to develop a series of policy and program responses to rising costs of farm inputs and production facing our sector.

AUSVEG SA looks forward to working with the new government and has strong working relationships, particularly with the incoming Minister for Primary Industries, the Hon. Clare Scriven MLC.

In other news, AUSVEG SA has launched the new 'Hortbiz' program, which will allow growers to receive assistance in reviewing their current practices and develop strategies to grow their businesses.

This program will be delivered as a partnership with trusted not-for-profit financial advisory organisation Rural Business Support, which will be providing the industry with a number of advisors to work with our growers.

AUSVEG SA encourages growers to engage with this program that offers the opportunity

to conduct a stocktake of current practices, as well as improve their financial and business practices and understanding.



Jordan Brooke-Barnett AUSVEG SA Chief Executive Officer South Australian Produce Markets, Burma Road Pooraka, SA 5095 Phone: 08 8221 5220

NSW Farmers' Association

High rainfall and flooding continue to be a major concern for the New South Wales horticulture sector following devastating weather events in the past few months along the East Coast.

Losses have been catastrophic in the Northern Rivers on the NSW North Coast, with growers experiencing the worst flooding in decades. For many, these impacts have compounded with ongoing heavy rainfall causing back- to-back events. Many have lost their homes and access to basic utility infrastructure such as roads, power, water and internet.

Challenges for growers have also included the acute combination of damage and loss to crops, topsoil, farm infrastructure, machinery, equipment and hardcopy business records. Damage has also extended well beyond in the farm including commodity processing and packing facilities which has further led to severe supply chain disruptions.

Biosecurity, contamination and plant health issues have also emerged as a result. Impacts have not been isolated to this area and the combination of unprecedented rainfall and saturated catchments has caused havoc for growers throughout much of the state, including the Hawksbury-Nepean and South Coast areas.

In response to the scale and severity of impacts, the NSW Government has established an independent flood inquiry to examine and report on the causes, preparedness, response and recovery of the catastrophic flood event in 2022. This also helps to shine a light back to major flooding events experienced in 2021, which had huge impacts for NSW growers in other regions including the Mid Coast, Northwest and Central West.

In good news, the NSW Farmers Horticulture-elected grower representatives met for the first time in over 12 months to have their second in-person meeting in over two years of due to disruptions caused by COVID. This was a great opportunity for the committee to discuss current issues and priorities facing the sector and meet with key industry stakeholders. Core issues that arose were the continued rise of input costs and workforce challenges including shortages, piece rates and worker accommodation.

We continue to engage with the ACCC to represent NSW grower concerns around market transparency, competition and supply chain challenges for horticulture. We are also continuing conversations with representatives from quality assurance programs around fresh produce auditing requirements and the implications this has on-farm.

NSW Farmers has continued to support members through changes to piecework rate arrangements under the *Horticulture Award 2020*. Our workplace relations team has been providing members with critical information, and support to help our horticulture growers understand their obligations as employers and how to adapt their businesses to the piece rate changes.

We are excited about further developments with the Australia Agriculture Visa Program, with Vietnam as the first country to sign on. The availability of workers is a key concern that our horticulture members continue to face, and it is hoped that this will help to alleviate the persistent workforce supply pressures they're experiencing.



Elen Welch

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