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Vegetables Australia is the most widely distributed magazine in Australian horticulture.



Editorial

The world has changed dramatically since the last edition of this magazine was published, and AUSVEG understands that the COVID-19 pandemic has severely disrupted our vegetable and potato industries in many ways.

In light of this, *Vegetables Australia* – Winter 2020 has dedicated a significant portion of this magazine to COVID-19, exploring the issues around the pandemic and resources that growers can access. We hope our readers will find this information useful to their growing operations and businesses during these unprecedented times.

In the meantime, there have been a couple of positive outcomes for our industry – including McDonald's Australia's commitment to display the country of origin of the ingredients in its products. AUSVEG has been a vocal advocate for clearer Country of Origin Labelling and, as Australian consumers have a strong preference to buy locally-grown food, they have a right to know

where their food comes from.

The decision by one of Australia's biggest fast food outlets to commit to adopting Country of Origin Labelling was a show of faith to the hard work and dedication of Australia's growers in providing high-quality food to Australian consumers.

Another encouraging outcome for Australian horticulture is the formation of the Fruit & Vegetable Consortium, of which AUSVEG is a founding member. The Consortium comprises Australia's leading health professionals and horticulture industry groups, and its mission is to collectively advocate for comprehensive action to address our country's complacency about eating fruits and vegetables.

We are collaborating to investigate options to increase fruit and vegetable consumption, including one project to develop a behaviour change program that will work to increase vegetable consumption among Australians to

improve their health and well-being.

We recognise growers' strong commitment to increase Australians' vegetable intake and are looking forward to working alongside the food and health industries to improve the health and wellbeing of our men, women and children.

If every Australian ate an additional half a cup of vegetables per day, not only would their health improve, but government health expenditure would reduce by an estimated \$100 million per year (\$60.7 million to the Federal Government and \$39.2 million to states and territories). These statistics exemplify just how important it is to work together to meaningfully change behaviours to increase consumption of vegetables.

AUSVES urges everyone who has an interest in supporting the health of their families, friends and their communities, to support the Fruit & Vegetable Consortium. For more information, please visit thefvc.org.au.



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Message from the CEO

While the local and global situation with the ongoing COVID-19 pandemic is rapidly changing, the importance of the fresh produce industry in supplying fresh, healthy produce to consumers remains critical to the health and well-being of every Australian.

AUSVEG is continuing to operate as normal with minimal disruptions, and our staff are available to talk to you and help.

In recent months, AUSVEG has been actively working with governments and industry to ensure critical issues that growers are currently facing are immediately addressed, including those in the labour and supply chain sectors.

A large amount of this work has been undertaken with the National Farmers' Federation (NFF) Horticulture Council. AUSVEG National Public Affairs Manager Tyson Cattle is on secondment for two days a week to the NFF as the Horticulture Council's Executive Officer, which will help drive horticulture issues in the NFF and make sure that the industry-wide issues are more efficiently addressed. For example, the Council has been instrumental in having visas extended for workers already in the country and continues to lobby for visa changes to help mitigate the impact of the predicted fewer backpackers in the foreseeable future.

In other news, AUSVEG has also been participating in discussions around the government's newly announced International Freight Assistance Mechanism (IFAM), to ensure airfreight capacity remains open for critical export markets. Important information to assist vegetable exporters with the international airfreight supply chain, was recorded in a briefing and has been published in full on the Austrade website at austrade.gov.au/News/News/international-freight-assistance-mechanism.

AUSVEG urges vegetable exporters to contact their existing freight forwarder to discuss how they intend to work and secure blocks of cargo capacity with IFAM, how it can assist them to continue to supply key export customers, and provide guidance on expected freight rates.

Closer to home, growers have been telling us of the decline in demand for vegetables due to the disruption to the food service sector and changing retail purchasing behaviour due to COVID-19. Of particular concern, studies from the United States have indicated that people consume more fresh produce when eating at restaurants than when left to their own devices at home, and it appears that Australia is following this trend.

AUSVEG will continue to push the message to Australian consumers that they need to be thinking about fresh produce when visiting their local supermarket or greengrocer, as growers need their support during this time. AUSVEG is also supporting campaigns from State Member Growcom, Hort Innovation and the Fruit & Vegetable Consortium (see page 18) to help drive the message that vegetables and fruit are a vital component to a healthy diet and a well-balanced lifestyle.

James Whiteside
CEO
AUSVEG

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The times they are a-changing: how Coronavirus has changed the world

The COVID-19 pandemic has changed most aspects of our lives – how we live, how we work and how we interact with our friends and family. But what has been made abundantly clear is the essential nature of the agriculture industry – particularly those who supply fresh vegetables. AUSVEG National Manager – Communications Shaun Lindhe takes a deep-dive into the pandemic and its wide-reaching impacts, plus the support that is being provided to vegetable growers.

When reports of the first case of Coronavirus (COVID-19) came to light towards the end of 2019, we didn't truly understand the level of disruption that we would face in our day-to-day lives.

At the time of writing in mid-May, over 4.1 million cases of COVID-19 had been reported, with the actual numbers likely to be much higher as the level of testing struggles to detect all of those who have it.

Sadly, there have been over 280,000 deaths around the world – again the number of actual deaths from COVID-19 is likely much higher as reported deaths do not cover all of those who have lost

their lives from the virus, particularly in developing countries that lack the adequate resources and tests to track those with COVID-19.

Australia has fared better than most other countries in the developed world, particularly compared to the U.S.A. and many European countries. By mid-May, Australia had just over 6,900 confirmed cases and around 100 deaths.

The National Cabinet, which comprises the prime minister and all state and territory premiers and chief ministers, regularly convened to coordinate messages to the Australian public and to ensure adequate measures were implemented in all states and territories in line with expert advice to protect the health and well-being of the public.

Messages highlighting the importance of good hygiene and maintaining safe social distances were communicated widely to the public, and the strictest shutdown measures in recent memory were put in place across the country to stop the spread of the virus.

To address the biggest economic challenge facing Australia this decade, the state and federal governments adopted the country's most significant stimulus packages to help the economy survive, totalling over \$300 billion across all states and territories.

Public gatherings were banned. Planes were grounded. Schools shut their doors. Businesses shut up shop.

Over 300,000 jobs were lost and over 200,000 positions were stood down.

But people still needed to eat – and the agriculture sector and supply chain, including hard-working vegetable and potato growers, kept on working to keep people in jobs and to help families keep food on the table.

Impact on businesses and growers, families and workers

Industry and government at all levels were quick to recognise the importance of farmers and the supply chain in feeding the country. The industry and its supply chain was quickly acknowledged as an essential service, which allowed the industry to stay in operation during the COVID-19 pandemic and gave it confidence that the assistance that was required to support the industry would be provided.

But while the agriculture sector has continued to operate, the impact of COVID-19 has been extraordinary.

The disruption of the food service industry, the uncertainty of the domestic retail landscape, the logistical impediments to exports and the challenges in adapting business workforce and operation plans to adhere to social distancing measures have all affected the costs of production, the returns to the farmgate and the overall economic performance and confidence of most farming operations. →

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There have been reports of growers being forced to plough fresh produce and considering reducing planting for the next crop due to the pandemic.

Speaking to the Nine newspapers, AUSVEG CEO James Whiteside noted that while some businesses are doing okay, a lot of people – particularly those that were either accessing food service markets or were selling highly perishable produce – have seen their markets disappear.

“It’s uncharted territory for just everybody in the whole economy. It certainly is for farmers – and the upshot of all this is that Australians are eating less healthily,” James said.

“The message to consumers is, if you want to look after yourself, you need to be thinking about fresh produce.”

Added to the on-farm challenges, the personal toll on farmers, business owners, workers and families and friends cannot be understated. While many farmers are well-versed in isolation given the nature of the work, being unable to see friends and family has impacted everyone in some way. Local sporting clubs have closed, which many people rely on for their social outlets and sense of community.

This has a flow-on effect to regional and rural towns, many of which have lost vital shows and events that bring much-needed tourism and money to businesses and communities – not to mention the hope and joy that comes with seeing fresh faces around town.

Calculating the financial and personal impact on farmers, regional communities is nigh impossible. However, industry and government have worked tirelessly to keep agriculture alive and to mitigate the impact of COVID-19 on farmers, their workers, their families and their communities.

Ensuring growers have enough workers

Once the consequences of the travel bans and social distancing restrictions became clear, AUSVEG worked with the broader industry to lobby government to ensure that the issues that were facing vegetable growers were addressed. Initially, this focused on ensuring there were enough workers to get vegetables from the farm to the consumer.

AUSVEG worked with the Australian Fresh Produce Alliance (AFPA) to map the labour requirements for the horticulture industry over the short-, medium- and long-term, including identifying how many workers are required in specific regions. This work was important for temporarily

extending vital foreign agriculture and food processing workers in early April.

The changes allow those within the Pacific Labour Scheme, Seasonal Worker Program and Working Holiday Maker program to continue to work in agriculture and food processing until the coronavirus crisis has passed.

The visa extensions are a sensible and practical solution for fruit and vegetable growers who rely on a combination of local workers and foreign backpackers to work on farms to supply Australian with ample fruits and vegetables.

“The decision to temporarily extend the visas of seasonal workers and backpackers already working on farms in Australia will give growers confidence to plant their crops for the coming season, will help keep local businesses open in regional and rural areas that rely on agriculture to survive, and will ensure that locals, seasonal workers and backpackers alike are able to keep their jobs, work and live safely, and keep the economy running,” James said.

“This was an important outcome for the Australian horticulture industry and demonstrates the value in the sector

coming together and collectively advocating on behalf of fruit and vegetable growers towards an outcome that benefits growers, workers and the Australian public.”

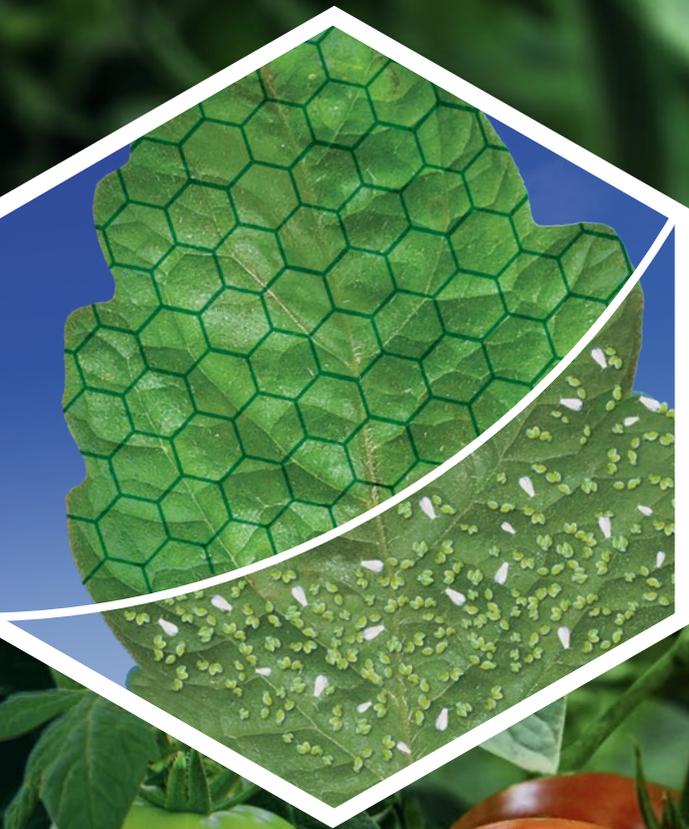
AUSVEG has aided the wider industry’s response to the pandemic through its work on the National Farmers Federation (NFF) Horticulture Council, seconding its National Manager – Public Affairs as the Council’s Executive Officer to ensure that horticulture-wide issues are dealt with.

The NFF’s Horticulture Council is now entering its third year and has developed into an effective pathway to raise and advocate issues on behalf of the horticulture industry. As a result of that, membership of the council has continued to grow which is a positive sign of the industry coming together on common issues.

AUSVEG is closely monitoring the industry’s labour situation and has been working with the National Farmers Federation (NFF) Horticulture Council, AFPA and the broader industry to ensure growers continue to have a reliable and adequate workforce.



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Getting exports off the ground

The forced grounding of most domestic and international air travel resulted in an immediate challenge to exporters, particularly vegetable exporters who transported high value, perishable product as belly cargo in aeroplanes.

To address this, the government announced a \$110 million International Freight Assistance Mechanism (IFAM) to help allow Australia's vegetable grower exporters to meet the demand from key international markets for high-quality fresh vegetables.

This initiative is an interim emergency mechanism to both assist industry with keeping access to export markets that some businesses have built over many years, and also an opportunity to showcase Australian agriculture and enhance our reputation as a reliable supplier in both good times and bad.

A network of 15 air freight service providers and freight forwarders has been established by the government to accelerate delivery of agricultural and fisheries exports into key overseas markets.

AUSVEG has been in regular contact with government on behalf of growers and provided detailed data to the IFAM coordination team on the footprint of fresh vegetable airfreight exports – by city of origin, export market destination, crop/product and volume by month, to ensure vegetable exporters can use the mechanism to continuing exporting their products.

AUSVEG National Manager – Export Development Michael Coote said that IFAM was an important step to help ensure local growers do not lose the markets that they have worked hard to maintain over many years.

"Demand has continued to be strong for Australian fresh vegetables in international markets, with enquiries still coming in from a range of key importers. While demand has been high, exports of fresh vegetables have been affected by the reduction in the number of commercial passenger flights, which many growers use to export their fresh, perishable products to key Asian and Middle Eastern markets," Michael said.

"Australian vegetables have a strong reputation for quality and reliability in key export markets, so it is critical that we are able to continue to export our fresh produce and that vegetable growers have a commercially-viable avenue

to reach these markets."

"We have been working closely with the Austrade team administering the IFAM, including Michael Byrne as the International Freight Coordinator General, to help exporting vegetable growers to continue to export their fresh vegetables to international markets."

At the time of writing, air freight prices remain relatively high and capacity in the air freight network is down around 70 per cent on pre-COVID levels. These two issues have made it challenging for fresh produce exporters to get their products on planes to continue servicing international customers.

Impact on different sectors of the industry

The ongoing COVID-19 pandemic has caused a seismic shift in the domestic supply chain, with the true extent of the impact becoming clearer the longer the pandemic lasts.

Overall impact

According to a Nielsen report, composed for the Hort Innovation-funded Harvest to Home project, in the four weeks to 22 March 2020 there have been unprecedented grocery sales in the wake of COVID-19.

In the reporting period, total grocery sales were 18.0 per cent higher than Christmas month 2019; driven by increases in frequency and spend per trip. Produce also had the highest four weekly volume growth, mainly driven by vegetable sales.

"Shoppers have rushed to stockpile on packaged groceries to prepare for lockdown at home and in response to fear of scarcity on supermarket shelves, though bulk purchasing of fresh produce was not quite as pronounced," Nielsen Associate Director – Fresh Industry Lead and the report's author, Melanie Norris, said.

"The monthly volume growth of fresh produce reached a two-year high, up 5.1 per cent during the four weeks ending 22 March. During this time, promotional activity was cancelled by many retailers to manage demand, while higher pricing caused by supply chain interruptions due to bushfires and drought were also in play."

According to the report, vegetables were the key driver of strong fresh produce performance, increasing by 15 per cent in the reporting period.

Potatoes, carrots and onions – all vegetables that store well – contributed most to the growth.

"Households purchased vegetables more frequently, on average, and increased their volume per shopping trip," Melanie said.

"In other parts of the store vegetables were also in high demand, with frozen sales up by 59.8 per cent, while sales of canned vegetables increased by 118.5 per cent."

Conversely, fruit volume sales declined in the same period. Bananas, apples and stonefruit were the highest contributors to volume growth; however, berries, avocados and citrus did not perform as expected during the last four weeks, perhaps due to the shorter shelf life and more discretionary nature of berries and avocados in particular.

For fruit in other parts of the store, frozen fruit recorded an all-time high for volume growth of 39.3 per cent, while canned fruit also increased by 73.9 per cent, suggesting that longevity was a key consideration.

Given that the average price of fruit was 7.9 per cent higher than the same time year ago, budgetary constraints may also have factored in here.

Impact on wholesale

Central markets operate as a market and clearing house for produce, with prices based on supply and demand. The customer supply chain of central market wholesalers is expansive and includes independent and major supermarkets, greengrocers, processors, exporters, secondary wholesalers, providers serving the foodservice sector and weekend markets.

Fresh Markets Australia (FMA) is the national organisation representing each of the five Market Chambers across Australia. FMA Executive Officer Gail Woods says that the sudden change in consumer sentiment at the onset of the pandemic resulted in a much higher-than-normal demand at the retail level, which in turn caused businesses that operated at the central wholesale markets to also experience a high level of demand.

"The Australian consumer's initial response to the pandemic has been well documented in relation to panic buying," Gail says.

"Initially, retailers experienced a very high level of demand across all commodities, but particularly hard



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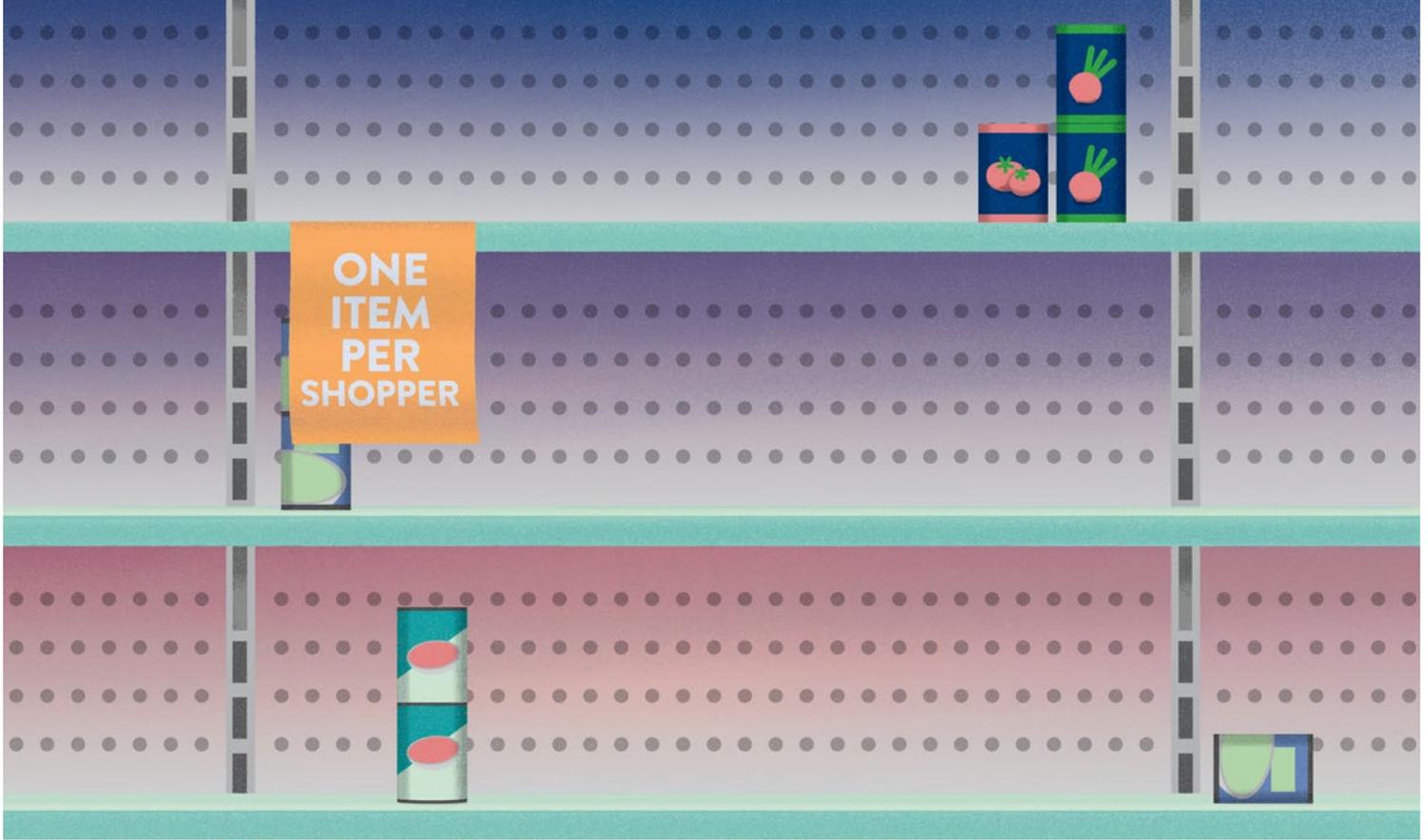
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produce. The increase in home cooking had seen good consumer demand for produce generally on top of seasonal demand."

Conversely, the abrupt and almost complete closure of the food and beverage sector has had a dramatic negative impact on the demand for sector-specific produce, resulting in an over-supply of those commodities.

"While a number of suppliers to the sector were able to pivot to the consumer market, there was an overall negative impact on these suppliers," Gail says.

"This produce destined for the food and beverage sector increased the supply to other supply chain customers."

Despite the turmoil from the pandemic, there have been some issues affecting businesses in the industry that are unrelated to COVID-19.

"Not unlike other years, the environment for the 12 months prior to the pandemic saw the horticulture industry experience the supply of some commodities negatively impacted by droughts, floods and bushfires, while other commodity groups experienced good and even over-supply," Gail says.

"Some wholesalers also reported some reduced or halted supply of produce due to growers' labour shortages, resulting in crops not being able to be harvested."

That being said, despite the severe disruption from the pandemic, there have been some positives for the supply chain through this time.

"The good working relationships

between wholesalers and growers - some decades long - have continued with the good flow of information in relation to the changing demand and supply," Gail says.

"The diversity of central markets supply chain customers means that produce can be marketed widely and not exclusively to one sector."

"Wholesalers have displayed resilience, knowing how to adapt to environmental and economic challenges as proven over many years, and continue to operate, as fluctuations in supply and demand are commonplace in the supply chain."

Impact on food service

The impact on the food service sector has been significant, with the only option for those offering dining out is to operate through pick-up, drive-thru and home delivery.

This has resulted in a sizeable food distribution channel undergoing significant disruption. The latest Hort Innovation-funded *Hort Stats Handbook*, produced by specialist food market researcher and analyst Freshlogic, quantifies the value of the horticulture food service market at \$1.76 billion in 2018/19 from 687,600 tonnes of produce, with vegetables making up around 60 per cent at \$1.05 billion and 438,000 tonnes.

Freshlogic Managing Director Martin Kneebone says that the COVID-19 pandemic has changed the way that people shop and these changes are expected to shape a 'new normal' of

household food buyer behaviour in the medium-term.

"In current conditions consumers are no longer time-poor and have used this time to engage in cooking from scratch. In this mode, people also have a propensity to buy a wider range of produce than they usually would and then spend more time preparing a more involved meal," Martin said.

"Households are expected to be more measured with their household spending as the economic effects of the COVID-19 pandemic continue, which may be reflected in lower demand for dining out, even after the restrictions are relaxed."

"We expect consumers to be more conscious of portion sizes, as they are more likely to shop less frequently and buy more with each shop."

"While consumers will look harder at the value of what they are buying, in these conditions food retailers can benefit. This is because purchasing higher value household items will be deferred and consumers shopping for food are prone to treat themselves."

"The industry has added a lot of value by servicing time-poor consumers with products that have suited 'top-up shopping' several times a week and easy meal preparation. The new normal is still taking shape and has some way to go with the economic impacts are still arriving, but we expect it is unlikely things will switch back to completely to the way things were pre-COVID-19."

Impact on processors

While the demand for frozen and canned products has increased in recent months, the impact on the processing industry, particularly for potatoes, has been immediate and significant.

Anne Ramsay, Executive Officer of the Potato Processors Association of Australia, says that the impact has been felt differently across the processing sector.

"Crisping factories have stepped up to meet demand from their main clients – the supermarket and corner shop consumers," Anne said.

"On the flip side, the French fry sector has seen a rapid decline in demand, as the volume of their market goes to the food service industries: pubs, clubs and restaurants. The combination of closures to dining-in options and the postponement of large sporting events, as well as an overall reduced demand from caterers, has resulted in a significant demand slump.

"Australian French fry factories are looking to honour contracted obligations, while juggling supply and demand with freezer space."

The outlook for the processing industry, like most, will be contingent on the duration of restrictions.

"The medium-term impact on the French fry industry is largely dependent on when isolation measures are scaled down, the level of disposable income available to consumers when the restrictions are softened, and changes in consumer behaviour as a result of the pandemic," Anne said.

"Should restrictions continue to be in place into June and July, the outlook for the French fry industry will be longer felt."

There may also be broader trends in the global market that could impact the performance of Australian processing companies, with a potential for international processors to dump product onto the Australian market.

"Many European-based factories are sitting idle or with reduced throughput, meaning large volumes of unprocessed product sits in storage," Anne said.

"This may have a significant impact on the global French fry supply chain. The closure of some factories may see a reduction in supply out of Europe, although it is more likely that they will try to dump their produce below cost into the Australian market."

"A move that will help counter possible international food dumping is a focus to become more self-reliant as a nation,

with a demand for local produce with a transparent and reliable supply chain."

Impact on supply chain

Boomaroo

For companies throughout the supply chain, their fortunes are often dependent on their customers' supply chains. For Boomaroo Nurseries, one of the country's largest commercial vegetable seedling nurseries operating along the eastern seaboard, the greatest disruption has been some of the self-imposed preventative measures it has put into place to maintain continuity of supply and protect its workforce.

According to Boomaroo Nurseries Director, Nick Jacometti, the pandemic has also helped the business become more agile and tech-savvy.

"COVID-19 has forced us to communicate differently between our team members, as well as with our customers and supply chain partners," Nick said.

"While the use of digital tools should never entirely replace face-to-face communication, the immediate need has encouraged us to use technology in ways that we were hesitant to use in the past. For example, it has certainly brought about efficiencies through reduced travel and enabled us to act more responsively."

While there are many uncertainties as to what the 'new normal' may be post-COVID-19, Nick is confident that the industry is resilient enough to work through any challenges that come up.

"Thankfully as primary producers most of our customers are still experiencing reasonable demand for the vegetables they produce," Nick said.

"The bigger concern for many is that they will not get the raw materials they need to keep farming. This concern is particularly heightened for products that are sourced from outside Australia."

"Our customers are a tough bunch and they have experienced, survived and, in some instances, are still working through many challenges such as drought and floods. COVID-19 is undoubtedly a massive challenge for all, but the resilience and resolve of the Australian farmer is helping many get through."

Fertiliser – Incitec Pivot Fertilisers

Other sectors of the supply chain were experiencing changes even before COVID-19 – particularly due to increased

demand for product from higher-than-usual rainfall across eastern Australia.

Incitec Pivot Fertilisers (IPF) is Australia's largest manufacturer and distributor of fertiliser, and is doing everything it can to supply fertilisers to farmers and support them to make the most of favourable planting conditions.

"Strong rainfall across eastern Australia has led to heightened demand for fertilisers during 2020 and our supply and distribution teams are working tirelessly with dealers and customers to deliver the products," IPF VP Agronomy & Innovation Charlie Walker said.

"Due to the COVID-19 pandemic, IPF has implemented additional protocols to protect our workforce and customers, and ensure we are able to continue safely and responsibly supplying the essential fertilisers and agronomy services that underpin Australian food production."

"All contracted fertiliser volumes are currently working their way through our supply chain. Our distribution centres are working as flexibly as possible to ensure a smooth and safe pick up process, and farmers should work with their dealers to schedule and pick up fertilisers in an orderly fashion."

"We are encouraging farmers who are yet to contract their required fertiliser to engage their dealers and lodge orders as soon as possible."

What is industry doing to increase domestic consumption?

AUSVEG, Nutrition Australia and other industry groups have teamed up to launch the Fruit & Vegetable Consortium, which brings together key organisations to collectively advocate for comprehensive action to address Australia's complacency about eating fruits and vegetables.

Australians fall alarmingly short of the recommended daily intake, with just seven per cent of Australian adults and five per cent of children meeting the recommended guideline for daily vegetable intake.

The Fruit & Vegetable Consortium is collaborating to investigate options to increase fruit and vegetable consumption, including one project to develop a behaviour change program that will work to increase vegetable consumption among Australians to improve their health and well-being.

More information on the Fruit & Vegetable Consortium's efforts can be found on page 18.



Growcom – Eat Yourself to Health

AUSVEG State Member Growcom has launched a new national campaign, Eat Yourself to Health, encouraging Australians to 'Eat Up and Branch Out' to boost fruit, vegetable and nut consumption.

As part of the Eat Yourself to Health campaign, individual growers will be challenging consumers to their own unique COVID Cooking Challenge, encouraging creativity in the kitchen with fresh produce – while highlighting how the product's nutrients and vitamins can boost one's immune system.

A website has been established (eatyourselftohealth.com.au/campaign) with a variety of resources and information for consumers, including ready-made social media graphics, on how to boost their health through increased intake of fruits, vegetables and nuts.

Growers are encouraged to get involved and join the conversation today via on Facebook and Instagram at @eatyourselftohealthau or by using the hashtag #EatYourselfToHealth.

Hort Innovation – Good Mood Food

In response to COVID-19, Hort Innovation – the research and development corporation for Australian horticulture – has launched the Good Mood Food campaign, a new direct-to-consumer marketing campaign it hopes will invigorate consumer purchasing habits for fruit, vegetables and nuts both during and beyond the COVID-19 pandemic.

Taking a whole-of-horticulture approach, Hort Innovation aims to educate Australian consumers on the ways fruit, vegetables and nuts can be used to promote health and wellbeing.

Adopting the motto 'The Good Mood Food', the campaign will focus on mental health and wellbeing as Australians continue to adhere to social isolation rules.

The message will be broadcast across television, print, radio, online via social media and through retail partnerships. It will run through September, with the possibility of it being extended beyond that timeframe.

More information on this campaign can be found at horticulture.com.au.

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FERTILISER CHECKLIST



WHERE IS IT FROM?



DOES IT HAVE A BATCH NUMBER?



DOES IT HAVE A CERTIFICATE OF ANALYSIS?

BETTER QUALITY = BETTER CROPS



YOUR HAIFA AUSTRALIA TEAM

Trevor Dennis, Managing Director
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Joining forces to drive Aussies' fresh fruit and veg consumption

Australia's leading health professionals and horticulture industry groups have teamed up to launch the Fruit & Vegetable Consortium, which brings together key organisations to collectively advocate for comprehensive action to address Australia's complacency about eating fruits and vegetables. Shaun Lindhe reports.

The Fruit & Vegetable Consortium was formed a number of years ago in response to the alarmingly low rates of fruit and vegetable consumption in Australia. Just half of Australian adults – and two thirds of children – have an adequate daily intake of fruit.

When it comes to vegetables, Australians fall alarmingly short of the recommended daily intake, with just seven per cent of Australian adults and five per cent of children meeting the recommended guideline for daily vegetable intake.

The Fruit & Vegetable Consortium is collaborating to investigate options to increase fruit and vegetable consumption, including one project to develop a behaviour change program that will work to increase vegetable consumption among Australians to improve their health and well-being.

The inaugural Chair of the Consortium is Nutrition Australia CEO Lucinda Hancock, with other founding members including AUSVEG, the Cancer Council of Victoria, Heart Foundation, the Institute for Physical Activity and Nutrition, Melbourne Market, Nutrition Australia, Stephanie Alexander

Kitchen Garden Foundation, the Good Foundation, the Produce Marketing Association of Australia – New Zealand and VicHealth.

The Consortium already has over 50 organisations that have pledged their support since launching to industry four weeks ago.

Importance of boosting fruit and vegetables

Ms Hancock said that lifting fruit and vegetable consumption is not only a critical step to improving the nutrition and health of the general public, but also a sure safe way to reduce government expenditure.

"Diets rich in fruits and vegetables have been shown to protect against high blood pressure, obesity, heart disease, stroke, type 2 diabetes and some cancers," Ms Hancock said.

"The job of increasing fruit and vegetable consumption is too much for a single person or organisation. This Consortium was born out of a common imperative to increase fruit and vegetable consumption with the aim of improving health outcomes for Australians and their families."

AUSVEG CEO James Whiteside said that it was important that growers work with health professionals, researchers and other organisations that possess the same goals to develop and promote programs that will meaningfully change behaviours to increase consumption of vegetables and fruits.

"Growers are deeply committed to increasing vegetable consumption among Australians of all ages and are

keen to work alongside the food and health industries to improve the health and wellbeing of Australian men, women and children," Mr Whiteside said.

"The health benefits of increasing vegetable consumption are well-documented, but the rates of consumption are still unacceptably low. We need to work together to pool our research, knowledge and passion to remedy this.

"If every Australian ate an additional half a cup of vegetables per day, government health expenditure would reduce by an estimated \$100 million per year (\$60.7 million to the Federal Government and \$39.2 million to states and territories)."

Vision and position statement

The Consortium is seeking the support and endorsement of its Position Statement, which will strengthen the call for increased investment in a long-term strategy to increase fruit and vegetable consumption.

To deliver a substantial and sustained increase in vegetable consumption, the Fruit & Vegetable Consortium is calling for:

- Funding of a broad-reaching, well-executed and appropriately resourced behavioural change campaign implemented over a number of years, with an initial focus on promotion of vegetables.
- Collaborative strategies that address the systemic barriers to consumption (including access, availability, price, convenience and food literacy).
- Investment in locally relevant, community-led programs with



demonstrated efficacy in increasing vegetable consumption, particularly for populations with the lowest intakes.

The Consortium has outlined its vision and for its first major project is developing a business case and prospectus for potential funders, including government, retailers and other interested sectors, to outline the investment needed for a sustained, comprehensive behavioural change campaign for increasing vegetable consumption.

“We are hopeful that we can work with industry groups, sectors, farmers, philanthropists and others with a goal to fostering a healthier population to develop a business case for a substantial behaviour change campaign that will make a difference for generations of Australians,” Ms Hancock said.

“The importance of eating plenty of fruit and vegetables has never been more critical, so I urge everyone who has an interest in supporting the health of their families, friends and their communities to support the cause of the Fruit & Vegetable Consortium and see how you can help to make a difference.”

Business case to drive vegetable consumption

The Consortium has commenced the development of a detailed Business Case and Business Model that will underpin a proposed national behavioural change strategy to drive increased vegetable consumption.

The Consortium will use this proposal as a basis to seek funding to develop the working model – based on a marketing campaign of approximately \$10 million per year.

It is expected that the Business Case will be completed and ready to present mid-2020 and include:

- Behavioural change and communication strategy.
- Development of an umbrella branding device and branding strategy.
- A marketing plan with the elements of the marketing mix outlined.
- Demographic targeting and key messaging.
- Identification of the intervention tough points.
- Creative direction.
- Product development.
- Identification of potential stakeholder participants.
- Structure of the funding framework, operational model and governance model.
- Performance tracking.
- High-level budgets and timeline.

Who will benefit?

Increased sales of vegetables – **Real economic benefit to growers**

Preventative health campaign – **Cost savings to government**

Increased vegetable consumption – **Health benefits to individuals**

Find out more

For more information on the Fruit & Vegetable Consortium and to find out how you can help make a difference, visit thefvc.org.au, or contact the Fruit & Vegetable Consortium Secretariat Michelle Lausen at mlausen@nutritionaustralia.org.

Fruit & Vegetable Consortium members



COVID-19 trade impact on fresh vegetable exports

The emergence of the COVID-19 pandemic has led to an uncertain start to the year for levy-paying vegetable grower-exporters. Market closures, supply chain disruptions and air and sea freight services being ceased or heavily reduced are examples of some of the challenges exporting growers have faced in the first quarter of 2020. AUSVEG National Manager – Export Development Michael Coote reports.

Vegetable exports have continued during the first quarter of 2020 as the COVID-19 crisis worsened. According to the latest data from Global Trade Atlas, the total value of vegetable exports for the period from January to March 2020 was \$59.5 million, a decrease of 8.7 per cent from the corresponding period in 2019. Total vegetable export volume dropped to 58,276 tonnes, representing a 12 per cent decrease over the same period (see Table 1).

Table 1: Change in vegetable exports January to March 2019-2020.

	2019 (January-March)	2020 (January-March)	▲
\$ AUD	\$65.2M	\$59.5M	-8.7%
Tonnes	66,236	58,276	-12%

Exports by destination market

Looking to the primary vegetable export markets, trade to Singapore was up by \$983,798 to \$11,207,437, an increase of 10 per cent in value. However, it was down 48 tonnes to 6,462 total tonnes for the period – a decrease of one per cent. Trade to the United Arab Emirates saw a decline of three per cent in value and volume. Saudi Arabia rose 10 per cent in value and 17 percent in volume. Trade to Hong Kong was lower than the previous year, down 14 per cent by value and down seven per cent by volume. The most significantly impacted market was Japan, down 70 per cent in value and 78 percent in volume (see Table 2).

Table 2: Change in vegetable exports by destination market January to March 2019-2020.

	\$ AUD 2019 Jan-March	T 2019 Jan -March	\$AUD 2020 Jan-March	T 2019 Jan -March	\$ ▲	T ▲
SNG	\$10,223,639	6,510	\$11,207,437	6,462	10%	-1%
UAE	\$8,466,201	9,021	\$8,227,124	8,754	-3%	-3%
Saudi	\$3,162,074	3,518	\$3,485,844	4,109	10%	17%
JAP	\$1,828,371	1,938	\$541,441	419	-70%	-78%
HK	\$4,314,310	1,979	\$3,714,602	1,831	-14%	-7%

Japan in focus

In recent years, the value of vegetable exports to Japan in the first quarter averaged \$1.3 million; however, from January to March 2020 export value totalled \$454,963, a reduction of 71 per cent (see Table 3). This is despite total Japanese vegetable imports growing by 0.28 per cent from last year. This indicates a reduction in the share of Australian vegetable exports into Japan for the period as supply is replaced from other trading partners, in addition to a reduction in the asparagus trade this season. This is the largest reduction of any single trading partner to Japan.

Table 3: Japan vegetable imports January to March 2018–2020.

Trade Partner	Australian Dollars			% Share of veg exports to Japan			▲ 2019/2020
	2018 Jan–March	2019 Jan–March	2020 Jan–March	2020	2019	2020	
China	\$139,074,602	\$106,433,597	\$105,055,908	39.13	37.01	36.43	-1.29%
New Zealand	\$43,983,642	\$41,684,252	\$53,563,263	12.37	14.50	18.58	28.50%
Mexico	\$51,185,391	\$44,138,950	\$45,371,273	14.40	15.35	15.73	2.79%
Korea, South	\$42,438,817	\$36,627,925	\$36,700,919	11.94	12.74	12.73	0.20%
United States	\$31,042,757	\$22,078,750	\$14,778,640	8.73	7.68	5.13	-33.06%
Philippines	\$8,294,477	\$10,020,539	\$9,027,909	2.33	3.48	3.13	-9.91%
Thailand	\$7,747,842	\$8,087,137	\$8,213,393	2.18	2.81	2.85	1.56%
Taiwan	\$21,124,652	\$8,716,568	\$7,541,255	5.94	3.03	2.62	-13.48%
Netherlands	\$1,096,224	\$1,381,622	\$1,751,726	0.31	0.48	0.61	26.79%
Spain	\$1,426,369	\$1,706,788	\$1,624,010	0.40	0.59	0.56	-4.85%
France	\$997,423	\$1,185,051	\$1,171,522	0.28	0.41	0.41	-1.14%
Peru	\$1,834,984	\$1,122,976	\$752,031	0.52	0.39	0.26	-33.03%
Vietnam	\$2,748,208	\$1,193,826	\$586,751	0.77	0.42	0.20	-50.85%
Argentina	\$192,035	\$400,559	\$581,351	0.05	0.14	0.20	45.13%
Australia	\$1,251,701	\$1,579,867	\$454,963	0.35	0.55	0.16	-71.20%
Total Imports	\$355,423,986	\$287,555,698	\$288,348,689	100.00	100.00	100.00	0.28%

Table 4: Vegetable exports January to March 2019–2020.

Product	2019 Jan–March		2020 Jan–March		▲ 2019/2020	
	\$ AUD	Tonnes	\$ AUD	Tonnes	\$ AUD	Tonnes
Carrots	23,396,225	26,540	20,612,742	23,952	-12%	-10%
Potatoes	13,804,616	19,957	13,514,604	18,119	-2%	-9%
Onions	13,754,288	15,256	10,878,971	12,073	-21%	-21%
Brassicas	3,360,396	1,078	3,426,292	805	2%	-25%
Lettuce	2,920,519	432	2,558,942	356	-12%	-18%
Celery	2,069,666	1,206	2,159,174	1,307	4%	8%
Pumpkins	1,410,234	681	1,799,104	758	28%	11%

Exports by crop

Demand for celery, brassicas and pumpkins remained strong in export markets. Exports of carrots, potatoes, onions and leafy salads were down considerably on the same period in 2019 (see Table 4).

Factors affecting vegetable exports during COVID

A wide range of environmental and domestic market factors can influence the amount of vegetable production that is directed to export markets, and this can vary greatly by crop.

Downward pressure on the Australian Dollar made Australia's vegetable exports more competitive in international markets. From January to March 2020 the Australian Dollar was as high as US\$0.63 and as low as US\$0.55 – the lowest level for the AUD/USD since 2003.

Staple vegetable produce lines experienced robust demand and ongoing enquiries from export markets. Many countries are experiencing difficult economic conditions and increasing unemployment; however, consumers are still seeking staple vegetables – possibly instead of higher-value discretionary fresh produce purchases.

Access to critical freight services has been mixed depending on the mode of transport; in some cases, the ability to get product out of the country has been significantly impacted. This applies particularly to air freight which has reduced in availability and affordability:

- Air freight has been reduced by up to 91 per cent from pre-COVID levels. In April, the Federal Government announced the International Freight Assistance Mechanism, a AUD\$110 million stimulus package to get more planes in the sky to ensure that important agricultural and aquaculture products can be supplied to export markets, with backhaul flights bringing in critical medical supplies to add to the national stockpile.
- Sea freight has been less disrupted than air freight. Some container shipping companies are cancelling sailings and merging routes to cut losses and stay afloat amid a drop in demand and a worsening outlook for

global trade. The number of “blanked” or cancelled sailings has increased, however the focus has not been to reduce Australia routes. Reports are that the largest capacity withdrawal has been from the Asia-Europe routes, where around one-third of capacity has been removed.

Beyond COVID-19 – questions the Australian industry will face

Food security and self-sufficiency:

If countries remain concerned about domestic food security once the initial crisis has passed, they may be tempted to impose additional protectionist policy measures. This may be an ongoing issue as the economic effects of the crisis flow through international economies. It is important that interim measures implemented during the COVID-19 response do not become long term or jeopardise the multilateral trading system.

Economic uncertainty and increased unemployment: International economies will recover at different rates, depending on the resilience of their individual economies and the response to managing the economic and health risks of COVID-19. This may lead to a lead to a change in the ability of some markets to import Australian vegetables; however, the primary markets for

vegetable exports are expected to remain relatively stable. More than ever, exporters will need to consider the economic conditions in their markets and consider the financial credentials of their customers over the medium to long term.

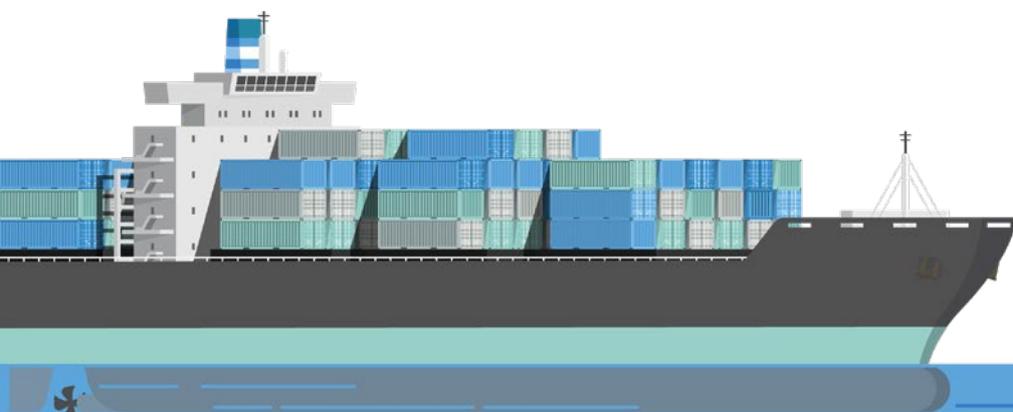
Freight and travel: The impact from COVID-19 on international freight networks may be considerable. The ongoing viability of various shipping routes and profitability of shipping lines may lead to changes in the services provided to and from Australia. Global airlines will increasingly see their fleets back in the sky carrying passengers and cargo, but it is likely to be a staged reopening of countries and airports with routes disrupted from further COVID-19 fallout.

International trade events 2020/21

Through the *Vegetable Industry Export Program* (VG16061), a strategic levy under the Hort Innovation Vegetable Fund, AUSVEG coordinates grower participation in several international trade missions aligned with major tradeshows. Many of these events have been postponed or deferred until 2021. See Table 5 for the updated calendar.

Table 5: International trade event calendar.

Trade show	Original Date	New Date
Foodex, Tokyo	March 2020	March 2021
Food & Hotel Asia, Singapore	March 2020	March 2021
ThaiFEX, Bangkok	May 2020	September 2020
Reverse Trade Mission (inbound)	June 2020	To be confirmed
Asia Fruit Logistica, Singapore	September 2020	November 2020
Gulfood, Dubai	February 2021	No change



Find out more R&D

Any growers interested in any export events or discussing export opportunities can contact the AUSVEG Export Development team on 03 9882 0277 or export@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: VG16061

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Tyson Cattle.

Advocating for vegetable growers to achieve long-term outcomes

As the COVID-19 crisis continues, AUSVEG and other Australian horticulture industry bodies have been working on a range of different issues, as well as investigating options to address them. AUSVEG National Public Affairs Manager Tyson Cattle has provided a brief update on what has, and still is, being worked on by industry.

Policy discussion: Key points

Some of the policy ideas that have been raised with the Federal Government to help fast track economic recovery for horticulture include:

- Improved visa settings for growers to access a more reliable, efficient, and competent workforce.
- Greater focus on bulk exports to net importing countries of food with the objective to get better longer-term trade outcomes.
- Continuation of the payroll tax exemptions and land tax to help growers invest back into their business.
- On-farm accommodation grants to assist growers in being able to meet pastoral care requirements for their workers.
- Support for marketing and domestic consumption and promoting healthier eating.
- Support to grow vegetable exports by assisting growers to become export-ready.
- Extension of the instant asset write-off.
- Any policy changes that encourage greater investment back into the business.

At the time of writing, the Federal Government had made a clear change of focus to economic recovery in Australia. This provides an unique opportunity for industry to build proactive policy to help grow the sector. The feedback so far from government has been positive, and AUSVEG is working to deliver some good long-term outcomes for growers.

It is clear the main two areas of concern for industry have been around labour continuity and confidence, as well as market confidence to be able to sell produce.

Labour has continued to be a concern in the short- to medium-term, with the expectation that many backpackers who are currently in the country working on farms will return home once things return to normal after COVID-19. There is also an expected drop in backpackers travelling to Australia in the short- to medium-term, which will put severe pressure on growers.

It is important that the horticulture industry is ahead of this, which is why industry is engaging with government to improve visa settings to the programs in which it relies upon. Programs such as the Horticulture Industry Labour Agreement, Seasonal Worker Programme and the Pacific Labour Scheme can be improved to allow industry to access a reliable, efficient, and competent workforce.

The markets area is far more complex for industry to address. AUSVEG has been engaged with government on a number of fronts, including looking at pathways to get fresh produce to charities, as well as looking at export opportunities to countries who are net importers and may be facing hardship, particularly during the COVID-19 situation.

These opportunities are complicated and are a challenging process for any industry to undertake, but AUSVEG is continuing its discussion with relevant

stakeholders as it sees short- and longer-term benefits for industry.

Industry campaigns

Another activity that AUSVEG is currently undertaking is looking at ways to increase domestic consumption of fresh produce. AUSVEG is a member of the newly-formed Fruit & Vegetable Consortium, as well as supporting the 'Eat Yourself to Health' campaign that has been launched by Queensland's peak body for horticulture, Growcom. Additionally, we are supporting Hort Innovation's newly-launched 'Good Mood Food' campaign.

AUSVEG is continuing to work with Federal Government and relevant stakeholders to look at options to help improve the current situation for growers, and welcomes any feedback or ideas from growers on these issues.

Vegetable growers are encouraged to head to the AUSVEG advocacy webpage online for the latest information on advocacy activities.

Find out more

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

HORT CONNECTIONS

7-9 June 2021
Brisbane Convention Centre



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18 Industry Partners
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in 2020

STATEMENT FROM AUSVEG AND PMA-ANZ REGARDING HORT CONNECTIONS 2020

In March – after careful consideration – AUSVEG and the Produce Marketing Association of Australia – New Zealand (PMA-ANZ) reluctantly decided to postpone Hort Connections 2020, which was due to be held from 15-17 June 2020 at the Brisbane Convention and Exhibition Centre.

Our industry's top priority is the health and safety of our community; this includes consumers, growers and other industry partners. As such, the decision to postpone Hort Connections 2020 was deemed to be the most responsible course of action taken to maintain our community's health and safety.

We are continuing to monitor the COVID-19 situation in Australia and abroad and will be working to ensure that Hort Connections will resume in 2021 bigger and better than ever.

At the time of writing, we have been honouring the financial commitments that industry and supply chain partners have made for Hort Connections 2020 and roll them over into next year's event.

See you in 2021!

Hort Connections 2021 will be held from 7-9 June 2021 at the Brisbane Convention and Exhibition Centre.

We would like to thank those who have supported the biggest event in Australian horticulture, and we look forward to working with you all in 2021.

More details around Hort Connections 2021 will be released in the coming months. For more information, please visit hortconnections.com.au.



Darcy Holmes.

Attracting and developing the next generation of hort leaders

A project under the Hort Frontiers Leadership Fund is engaging graduate students with the horticulture industry. It involves a Graduate Engagement Program with a two-phase approach designed to attract the right people, retain them and support their ongoing leadership development.

An industry program is connecting university students and horticultural businesses to build capacity and develop future leaders.

The Graduate Engagement Program, delivered by Rimfire Resources, Australian Rural Leadership Foundation and Hort Innovation, involves a 10-week internship during a student's final year of study. After they have graduated, the business can invite participants to complete a one-year graduate program.

Now in its third year, the program's participants have increased. There are a further 22 positions available in 2020.

Attracting new entrants into Australian horticulture – promoting careers in horticulture (LP15006) involves levy funding from the apple and pear, nursery and vegetable industries, in addition to other funding sources, and is funded through the Hort Frontiers Leadership Fund.

Case study: Darcy Holmes

Darcy Holmes was among the first intake of students. He learned a lot during his internship and graduate year at Perfection Fresh. And while completing the program, Darcy could focus 100 per cent on his research, knowing he had a job to go into after completing his Honours degree in biotechnology.

"Other classmates were frantically sending resumes and travelling around the country for interviews, but I could devote all my time to my Honours, which was really good. Plus, it was a very good internship program," he said.

Darcy started the internship working in Perfection Fresh's quality assurance (QA) programs at the Brisbane Markets. Rimfire Resources guided him through the selection process and supported his placement.

"While doing my QA work, I worked on a new project developing standard operating procedures for a new disinfestation plant Perfection Fresh was building," Darcy said.

The project saw Darcy work on the thermal mapping of a heat treatment chamber before fruit is sent to markets including China, Korea and Japan.

"If we can get post-harvest right, we can reduce waste and get a lot higher quality, especially when fruit is going overseas. There are big opportunities there because the higher quality the product, the higher the value," Darcy said.

While undertaking his Honours in plant pathogens, Darcy worked part-time with Perfection Fresh to prepare the standard operating procedures.

After completing his studies, Darcy started working at the vapour heat treatment facility, which included supervising labour hire staff, training QA officers and conducting research. His research supported the Cooperative Research Centre for Developing Northern Australia project entitled *Sustainable Export of Calypso into China*.

Darcy also had the opportunity to work at a Perfection Fresh tissue culture lab in Caboolture, Queensland. He developed new systems there, including procedures to limit contamination.

Perfection Fresh Chief Commercial Officer John Simonetta said Darcy was enthusiastic and quick to learn.

"We're pleased we've been able to support Darcy as a graduate and give him a head start in his career. It's a great way for us to give back to the industry, and the community more broadly, through giving our young people the chance to grow," John said.

Darcy highly valued the Australian Rural Leadership Foundation course that is part of the Graduate Engagement Program.

"The course was amazing, very eye-opening. I learned so much and met a lot of people in the industry," he said.

Establishing a career

Darcy is now in his second year of working full-time at Perfection Fresh. This year, he's doing more work in the company's mango export division. He sees enormous opportunities for Australian mango growers to work together and, with government support, dramatically increase exports in coming years.

In fact, he sees great prospects for growth across the horticulture industry, particularly in northern Australia, and plans to build his career in the industry.

Darcy would not hesitate to recommend the horticulture industry to students.

"Horticulture has everything and there's a role for you," he said.

"For people who are tech-minded, we always need more. If you're really good at sales or marketing, you get to travel the world. Even for me, as a research-based scientist, I visited China to collect data in my first year."

Ultimately, Darcy enjoys getting out onto people's farms and making connections throughout the industry.

"It's rewarding working around fresh produce," he said.



Find out more R&D

For more information or to register your interest as a student or host company, please contact Gemma Burger on 1300 380 701.

Attracting new entrants into Australian horticulture – promoting careers in horticulture is funded by the Hort Frontiers Leadership Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with co-investment from Rimfire Resources and contributions from the Australian Government.

Project Number: LP15006



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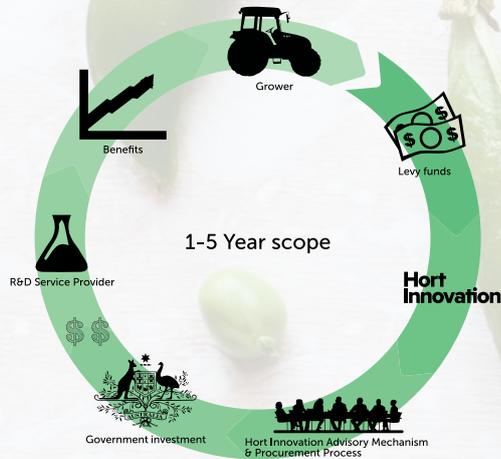
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THE VEGETABLE R&D LEVY AT WORK

STRATEGIC LEVY INVESTMENT



WHO PAYS THE VEGETABLE R&D LEVY?

The levy is paid by growers who produce and sell vegetables in Australia. The charge is set at 0.51 per cent at the first point of sale. The Federal Government also provides funding in addition to grower levy payments. Once paid, the research and development levy funds are managed by Hort Innovation.

HOW IS LEVY MONEY INVESTED?

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

All investments through the Vegetable Fund are made with advice from the industry's Strategic Investment Advisory Panels (SIAPs) – skills-based panels made of panellists from across the vegetable industry, the majority of whom are levy-paying growers.

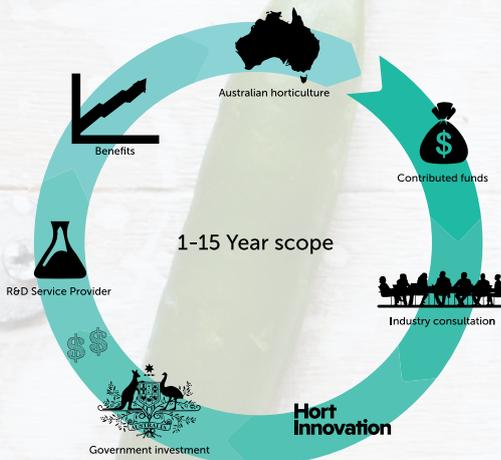
Strategic levy investments have a one- to five-year scope and the R&D is designed to directly benefit growers in the vegetable industry. Project topics range from pest and disease management to biosecurity matters, with findings communicated through a variety of channels, including *Vegetables Australia*.

You can find information on all current strategic levy investments, and details of the SIAP, on Hort Innovation's Vegetable Fund page at horticulture.com.au/growers/vegetable-fund/.

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

You can read more about Hort Frontiers and the seven funds within it at hortfrontiers.com.au.

HORT FRONTIERS



HOW CAN GROWERS GET INVOLVED?

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

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



Dr Cherie Gambley pictured in a capsicum crop.

Investigation into viruses affecting veg continues

In this article, Dr Cherie Gambley from the Department of Agriculture and Fisheries, Queensland, provides an update on a multi-million-dollar research project that was established to address high-priority viral and bacterial diseases affecting vegetable crops.

Area Wide Management of Vegetable Diseases: viruses and bacteria (VG16086) is a strategic levy investment under the Hort Innovation Vegetable Fund. This 4.5-year project includes co-investment from the Department of Agriculture and Fisheries, Queensland (DAF, QLD); Victorian Department of Jobs, Precincts and Regions; the Northern Territory Department of Primary Industry and Resources; the Western Australian Department of Primary Industries and Regional Development (DPIRD); and the University of Tasmania. The project is supported by another specific-focused project led by the New South Wales Department of Primary Industries and similarly funded by Hort Innovation.

The project started in early 2018 and has made good progress. Ongoing accurate diagnoses of what causes disease outbreaks in multiple districts provides valuable knowledge fundamental for development of disease management strategies. Important environmental hosts of several key viruses were identified and include cucumber green mottle mosaic virus (CGMMV) in the Northern Territory, cucumber mosaic virus (CMV) in Victoria and beet pseudoyellows virus (BPYV) in South Australia.

Progress on national mapping of weed hosts for tomato spotted wilt virus (TSWV) by growing district is ongoing. This virus has an extremely wide host range, so it is important to provide specific local information to districts rather than the whole list. Studies on strains of TSWV

that break virus resistance genes in capsicum and other genetic diversity studies have started. This includes study of at least 10 different viruses and multiple *Pseudomonas syringae* pathovars and phytoplasma species. Results of these studies inform on vegetable breeding programs, new molecular crop protection strategies, such as products like RNAi-bioclay and diagnostics.

Monitoring activities in Queensland have identified key weed hosts for thrips in the dry tropics and confirmed the presence of both western flower and tomato thrips. Aphid monitoring has provided valuable baseline data on naturally occurring parasitoids and predators in south-east Queensland. In Carnarvon, Western Australia, key vector species detected were western flower thrips, onion thrips, green peach aphid and melon aphid. Population variation of these key insects by season was also recorded in the Queensland and Western Australian studies. Monitoring of thrips in Victoria commenced in October 2019 in lettuce crops and is ongoing. Victorian monitoring activities are in collaboration with Stuart Grigg from Ag-Hort consulting.

Industry engagement has continued nationally. Engagement is a mix of industry forums delivered in collaboration with the National Vegetable Extension Network (VegNET), AUSVEG, and on-farm discussions during disease surveys and field trial site visits. These events are a great way to provide new information and to capture and incorporate information

from growers and consultants into management strategies as they are developed.

A new industry engagement workshop that focused on educating consultants and agronomists about disease identification was delivered in September 2019 in Gatton, Queensland before moving up to Bundaberg. It will be rolled out nationally over the next 12 months. A similar workshop format will be delivered towards the end of the project to provide updated advice on management strategies and information on how to identify any newly detected diseases. →



Chris Monsour talking to Dale Williams in the field trial.

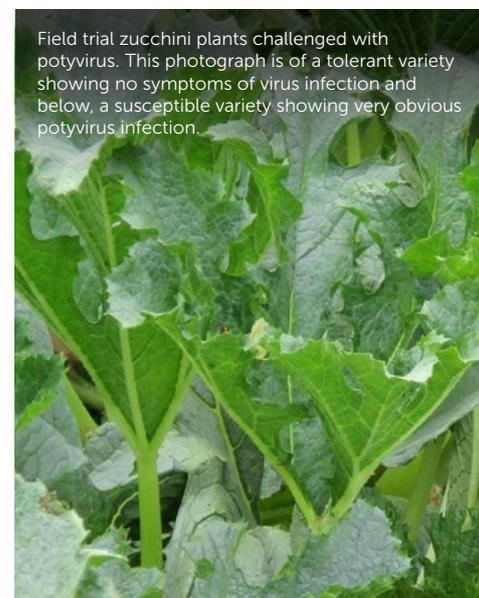


Field trial site at Bowen Research Station for evaluation of zucchini varieties for tolerance to potyvirus. Images courtesy of Dr Cherie Gambley.

Further activities: Queensland and Western Australia

Denis Persley from DAF, QLD and DPIRD's Craig Webster will continue to expand this research. The best performing varieties are being evaluated against the other two potyviruses, ZYMV and WMV.

Preliminary work in glasshouse experiments in Western Australia are already show promising results, which will be further tested in the field. Additionally, the varieties will be assessed for how well they support multiplication of the three viruses. The mechanism for the observed tolerance is not known and seems in some varieties to represent immunity (that is, the virus is unable to multiply inside the plant at all). This is important as immune reactions assist in reducing the sources of virus within the environment.



Field trial zucchini plants challenged with potyvirus. This photograph is of a tolerant variety showing no symptoms of virus infection and below, a susceptible variety showing very obvious potyvirus infection.

Case study: Managing potyvirus disease of zucchini in Australia

Virus disease is a major limiting factor to zucchini production and is mostly caused by one or more potyvirus species. Papaya ringspot virus-type W (PRSV-W) is the main virus found in Queensland, zucchini yellow mosaic virus (ZYMV) dominates in Western Australia and watermelon mosaic virus (WMV) occurs in all regions, but particularly in the Swan Hill area in northern Victoria.

Rapid spread of these viruses by aphids (less than one minute) frequently results in very high disease levels. Affected crops have reduced fruit set and high numbers of deformed unmarketable fruit. The rapid spread by aphids means insecticides are not effective for disease control.

In previous years, seed companies have invested considerably in developing zucchini varieties with virus tolerance. This means the varieties can produce

good yields of marketable fruit even when infected. In project VG16086, we were able to set up trials of the different varieties in three different Queensland production districts. This allowed evaluation of the varieties for virus tolerance and agronomic performance under different climates and compared new generation varieties with those previously available. The three trials were completed in collaboration with Chris Themsen from Agreco Australia and Chris Monsour from Prospect Agriculture as well as five seed companies. From these trials, at least six zucchini varieties performed consistently well with excellent tolerance to PRSV. A further four had intermediate tolerance. All are worth evaluation by growers on their own properties to decide which varieties are best suited to their local environment and market requirements.



Key points for virus management

Virus tolerant varieties are a valuable tool for management and should be used as part of an integrated approach. Other actions that help reduce movement of the aphids into crops or between crops or reduce sources of the virus within the environment is also important. This not only helps with lessening disease impact, but it will also help to prolong the lifespan of tolerant varieties.

These actions include:

- Destruction of harvested or abandoned cucurbit crops as soon as practically possible. These crops are very important sources of virus and aphids on-farm and within the district.
- Separation of new crops from older crops, even by as little as 50 to 100 metres, can be beneficial and planting new crops upwind from older crops can also help.
- Separation of cucurbit crops using blocks of plants that don't host the

virus or the aphid, particularly if these were tall and act as a barrier for movement of the aphids (e.g. sorghum).

- Selective use of insecticides for general control of insect pests. No insecticides are registered for control of virus diseases. In general, they don't reduce virus spread by the aphids. Worryingly, they often have the opposite effect if they disrupt natural enemies and make the plants less pleasant for the aphids to feed, therefore increasing their activity within the crop. As the aphids keep moving and tasting plants instead of settling and feeding, they also spread the virus.
- Consider decontaminating harvesting knives regularly during harvest. All three viruses can be spread by sap on equipment such as knives. A solution of two per cent virkon or similar can be used to disinfect tools.

Find out more R&D

Project factsheets are available to download from the Hort Innovation website: horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/vg16086.

For more information about the project, please contact Dr Cherie Gambley on 0423 200 211 or email cherie.gambley@daf.qld.gov.au.

This project has been funded by Hort Innovation using the vegetable research and development levy, co-investment from the Department of Agriculture and Fisheries, Queensland; Victorian Department of Economic Development, Jobs, Transport and Resources; the Northern Territory Department of Primary Industry and Resources; the Western Australian Department of Primary Industries and Regional Development; and the University of Tasmania and contributions from the Australian Government.

Project Number: VG16086

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Photography by Caroline Ellis.

Going it alone: Adam's growing journey

For around 20 years, Adam Farley was employed in fruit and vegetable growing operations in southern Victoria. Harbours a lifetime ambition to run his own business, Adam purchased an old vineyard in Wood Wood, near Swan Hill, where he now farms 50 acres of organic vegetables. Michelle De'Lisle speaks to Adam about his foray into organic vegetable growing and the challenges he faces as a small operation.

Since he was a child, Adam Farley has been immersed in horticulture. Adam's early days were spent on the farm with his mother, who grew herbs and edible flowers on Victoria's Mornington Peninsula. In his late teens, Adam embarked on a wide-ranging horticultural career, which after two decades, has culminated with owning his own growing operation Murray Valley Organics.

Before establishing Murray Valley Organics, Adam worked in growing operations around southern Victoria including Hussey and Co, Sunny Ridge Strawberry Farm, Gazzola Farms, plus two stints with Coolibah Herbs. It was during Adam's second stint with Coolibah Herbs that he and his family moved to northern Victoria after he accepted a job as Farm Manager at the company's Wemen operation. Adam managed the Wemen site for four years, and then left the operation to undertake dryland farming. Over the following few months, Adam decided it was time to establish his own farming enterprise. He purchased an old vineyard in Wood Wood, which is located 35 kilometres north of Swan Hill, and Murray Valley Organics was born.

Overcoming challenges

Establishing a business is never easy – especially when you're on your own,

as Adam explains.

"The physical work that I've had to put in to get to where I am just now... I'm exhausted, to tell you the truth. And I still know that I'm not there," he says.

While he has always wanted to establish his own growing operation, Adam says there is a lot of pressure from working alone.

"My property is 120 acres and I probably only farm 50 acres of it. But to be that one-man band apart from having contract labourers to come in to do the harvesting for me, and then there's all the paperwork side of things at the end of the day – it certainly takes your time up."

While Adam has to focus on implementing measures to ensure his business remains viable, he would like to see the vegetable industry investigate production costs.

"I'd like to look at the costs that farmers face versus what we get for our produce, and who's actually making the money," he says.

"The biggest challenge is keeping the business viable. I know part of that is being a new business, but when you break it down and you look at all your input costs including water and labour, it's a challenge."

Organic growth

Adam says the decision to establish an organic growing operation was an easy one.

"Most places I've worked have been involved in conventional farming, but the more exposure organics has received recently really hit home. That's what I wanted to do," he says.

"I don't believe there's a need to be heavily reliant on artificial inputs. I'm not saying that the products aren't good or are good – a lot of them probably are good, but it didn't align with me."

Adam believes the challenges that are faced by conventional and organic growers are the same, but it's way the issues are handled as they arise that is different.

"Conventional farming means you can use pretty well any practice you want as long as you're within the guidelines. But with organic, you've got to think about what you're doing. It can come down to knowing your crops in your climate and being very preventative in what you do," he says.

"We're lucky in this very dry climate. I know a lot of other people in organic areas that are coastal and humid may suffer a lot more disease problems than what we would.

"Where we are is generally safe for what



I grow. A rain event can drive humidity up and, in turn disease pressures, but compared to southern Victoria, the disease pressure on crops is a lot less up here.

"But that's not to say that they are not there. You definitely need to plan more and be more aware of what's happening – you can't just rely on the attitude of "this is what we've always done", and you've got the chemicals to get you out of trouble.

"With organic farming, it's a cliché, but you need to 'look after your soil and it will look after you".

Adam takes precautionary measures based on the weather, including temperature, humidity and wind speeds, and he will act if necessary.

"I only sprayed twice last year for diseases and have had no disease problems on my farm. I was proud of that," he says.

"I think it was due to inputs. I do a lot of

fertigation and put a lot of seaweed and kelp into the ground. I'm a big believer in keeping the soil healthy, and try to use a lot of those natural products to get the crops over the line."

Achieving goals

Adam's biggest career achievement is establishing his own business in the current climate, but he is not looking too far into the future as he tries to secure long-term sustainability.

"I'm probably looking at introducing one or two more lines and work myself up to somewhere between 8-10 different crops that would get me through the year," Adam says.

"Only growing zucchinis during summer is a risk, especially if something went wrong with the crop. My ultimate goal is to secure customers for the summer and winter growing programs and cement

consistency and established seasons."

Helping Adam with his newly-established business is Rick Butler from Butler Market Gardens. Adam and Rick have been friends for over 20 years, and the businesses joined forces in 2018 in winter and spring. It has been a successful partnership for both parties as they continue to increase production.

"Rick gave us a start, and we grew some herbs for him to help fill a gap in the season. That now extends into broccoli, cauliflower and zucchini," Adam says.

Meanwhile, Adam's exposure to many different growing operations throughout his career has had a positive impact on his new venture. But if there is one thing that he has learnt over the past 20 years in horticulture?

"Don't cut corners and do it properly the first time."

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Farmland in Katherine, Northern Territory.

Raising biosecurity awareness on-farm and at community level

In this edition, AUSVEG Biosecurity Officer Madeleine Quirk provides an update on vegetable and potato biosecurity activities undertaken throughout the first half of 2020, which ranged from in-person workshops to online webinars. AUSVEG is committed to providing Australia's vegetable and potato producers with the most current biosecurity information.

Earlier this year, AUSVEG Biosecurity Coordinator Callum Fletcher and myself travelled to north to Queensland and the Northern Territory. We visited Bundaberg, Katherine and Darwin to meet growers and discuss current biosecurity threats.

Biosecurity team in Bundaberg, Queensland

In February 2020, we spent a week in Bundaberg where we engaged with vegetable growers and agronomists across the region about biosecurity threats, including tomato-potato psyllid (TPP), exotic leafminers and fall armyworm.

Later that week, Bundaberg Fruit & Vegetable Growers (BFVG) invited us to speak at the 'Biosecurity and Beneficials Workshop'. The workshop brought together growers, agronomists, and industry supply chain to learn about:

- Key biosecurity threats such as TPP and exotic leafminers.
- Pest surveillance.
- Future management and preparedness.
- Property risk mitigation.

Travelling to the Top End

The following week, Callum and I travelled to Katherine to meet with NT Farmers Industry Liaison Officer Simone Cameron. Simone introduced the biosecurity team to several growers across the region and once again biosecurity threats such as fall armyworm, TPP and exotic leafminers were discussed. The group was also taken on a tour of the Katherine Research Station where they witnessed various research trials in action.

Later that week, NT Farmers invited us to present at the NT Farmers Research and Development Forum. Over the course of the day, protected cropping specialists delivered presentations on structure options for protected cropping, low-tech greenhouse structures, hydroponic nutrient requirements, and beneficial bugs and pollinators in protected cropping shade structures.

Biosecurity was another key theme of the event, with the Department of Primary Industry and Resources providing an update on the fall armyworm, a pest that has since been detected across Northern Territory and Queensland. We provided updates on key pests that may threaten the Northern Territory's horticulture industry including TPP, brown marmorated stink bug, and exotic leafminers.

The event was designed to be as interactive as possible, with a Q&A following each presentation, and grow bags and insect pest specimens on display.

Connecting virtually

As travel restrictions are currently in place (at the time of writing) to combat

COVID-19, the biosecurity team is focusing on different ways to engage with vegetable and potato growers across Australia. A key platform that has been used is the webinar platform. Two webinars of note included a Melbourne region-specific webinar and a Tasmania-specific webinar.

Both webinars were facilitated by the VegNET project, and incorporated several topics including plant biosecurity, pest surveillance, and environmental management. You can watch the webinar recordings at ausveg.com.au/biosecurity, or follow @biosecurityveg on Twitter to keep up-to-date about future webinars, including an upcoming one discussing pests and disease threats to Western Australia.

The team also continues to engage and connect with vegetable and potato growers through traditional and social media, along with regular phone calls and teleconferences. If your business requires biosecurity information, please contact Callum and myself by emailing science@ausveg.com.au.

Protecting our borders through community education

Australia's horticulture industries implement measures to combat biosecurity. However, the general public has a role to play in reporting plant pests too.

To that end, the biosecurity team at AUSVEG, in conjunction with the Hurstbridge Community Hub and Agriculture Victoria, facilitated a pest and disease identification workshop at the Hurstbridge Community Hub in Melbourne.



Callum Fletcher presenting at the Darwin R&D Forum in February this year.

Biosecurity Activities

- 2018-2021 program
- Promote farm biosecurity
- Improve industry biosecurity risk preparedness and response mechanisms
- Communicate pest issues and threats
- Raise awareness of effective strategies
- Partner vegetable and potatoes industry at OCEP
- Work with industry, state and federal government to improve biosecurity preparedness and reporting.

The workshop was held in February this year, and it focused on raising awareness of potential insect pests among community gardeners. Participants learnt about how these biosecurity threats affect agriculture, amenity and the environment, and how communities can play their part by reporting suspect detections to the Exotic Plant Pest Hotline.

Presentations were given by AUSVEG and Agriculture Victoria, and highlighted pests such as TPP and

Queensland fruit fly (Qfly), as well as spiders acting as beneficial insects in the garden. The presentations were followed by an interactive TPP and Qfly identification session.

These workshops aim to benefit Australia's horticulture industry because they increase community-level understanding of biosecurity so that Australia's horticulture industries, economy and amenity can be supported.

Find out more R&D

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

For further information, contact AUSVEG Biosecurity Officer Madeleine Quirk on 03 9882 0277 or madeleine.quirk@ausveg.com.au. The Farm Biosecurity Program is funded by the Plant Health Levy.

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VegNET enters Phase Two

Hort Innovation has commenced the second phase of VegNET, the vegetable industry extension program, which will fund ten regional development officers located across Australia to support vegetable growers in growing healthy crops and develop successful, profitable businesses. Shaun Lindhe reports.

What is VegNET?

In 2016 Hort Innovation invested in ten regional capacity building projects to effectively transfer R&D information to vegetable growers through regionally-based extension projects and associated coordination and training projects. These projects were contracted to delivery partners based in the ten major vegetable growing regions and were unified under a national brand – VegNET.

The first phase of VegNET finished in early 2020, with the regional development officers (RDOs) delivering R&D awareness and extension activities in their geographical regions.

The VegNET delivery partners are:

- New South Wales – Local Land Services.
- Northern Territory – NT Farmers.
- Queensland – Bowen Gumlu Growers Association (Bowen Gumlu), Bundaberg Fruit and Vegetable Growers (Bundaberg) and Lockyer Valley Growers Association (Lockyer).
- South Australia – AUSVEG SA.
- Tasmania – RM Consulting Group.
- Victoria – RM Consulting Group (south-eastern, western and northern regions) and Food and Fibre Gippsland

(Gippsland).

- Western Australia – vegetablesWA.
- The delivery partners for Phase One will also deliver the project in Phase Two.

What is new in Phase Two?

Following grower consultation, the national vegetable extension strategy was developed in late 2019. The next phase of the VegNET project supports the extension approach from this strategy and will result in RDOs who are more focused on the development of regional plans based on targeted stakeholder engagement with growers, researchers and industry members.

RDOs will transition from acting as conduits of technical insight to enablers of knowledge from various sources. This will ensure they are an effective resource to address industry regional challenges. In this approach, extension becomes the key link to bring broad and diverse groups together to find solutions to problems in a strategic and focused way.

The most common challenges from the consultations carried out to develop the National Vegetable Extension Strategy were in relation to:

- Water (availability, quality and cost).

- Labour (availability, awards, HR and skills).
- Input costs.
- Biosecurity.
- Pest management.
- Market development (including export).
- Post-harvest and marketing.
- Urban encroachment.
- Social license (environmental impact and chemical (mis)usage).
- Business management.

Some or all of these issues may be raised during the development of the individual regional extension plans. Regional issues will be prioritised, and growers and other stakeholders will work with RDOs to identify which ones VegNET is best suited to target.

What will VegNET RDOs do during Phase Two?

Establish a regional extension reference group

VegNET RDOs will convene a regional reference group that will be responsible for developing a regional extension plan and strategies, as well as an annual review of progress and effectiveness in implementing the plan.

Get in touch with your VegNET RDOs

New South Wales

- Local Land Services – Sylvia Jelinek, sylvia.jelinek@lls.nsw.gov.au, 0427 086 724

Northern Territory

- NT Farmers – Simone Cameron, ido@ntfarmers.org.au, 0413 308 335

Queensland

- Bowen Gumlu – Eilis Walker, edm@bowengumlugrowers.com.au, 0427 701 225
- Bundaberg – Bree Grima, bree.grima@bfvg.com.au, 0403 616 702

- Lockyer Valley – Zara Hall, ido@lockyervalleygrowers.com.au, 0456 956 340

South Australia

- AUSVEG SA – Yanyu Liang, yanyu.liang@ausveg.com.au, 0432 742 896

Tasmania

- RM Consulting Group – Theresa Chapman, theresac@rmcg.com.au, 0413 039 733

Victoria

- South-eastern, western and northern regions – Hugh Wardle, hughw@rmcg.com.au, 0427 109 057
- Gippsland – Bonnie Dawson, bonnie.dawson@foodandfibregippsland.com.au, 0407 683 938

Western Australia

- vegetablesWA – Samantha Grubiša, sam.grubisa@vegetableswa.com.au, 0427 373 037

Develop a regional extension plan

With guidance and advice from the regional extension reference group, VegNET RDOs will develop a regional extension plan for the period 1 July 2020 to 30 June 2025. This regional extension plan will be collated into a single national document that will help ensure all growers receive extensive, coordinated extension services. The vegetable industry Strategic Investment Plan will be used as a guide, in assisting in this process.

This plan will include identifying each region's key priority issues and key regional resources and links that will be critical in ensuring growers receive assistance, as well as information that will help them grow better crops and operate more efficient and profitable businesses.

Implement the regional extension plan using an innovation systems approach

Depending on each region's specific plan, VegNET RDOs will deliver tailored and targeted extension activities to meet the needs of their region's growers. Activities may include:

- Field days.
- Farm walks.
- Webinars.
- Workshops.
- Fact sheets.

These events will include face-to-face and remote learning opportunities for growers to reflect the post-COVID-19 landscape.

VegNET RDOs will work closely with

Hort Innovation's Extension Team to ensure industry extension activities are delivering the expected outcomes and that the breadth of research commissioned by Hort Innovation is made available for adoption by growers.

Communicate to industry through AUSVEG and Hort Innovation

VegNET RDOs will work closely with AUSVEG and Hort Innovation to ensure their work reaches as many growers and industry stakeholders as possible. This will include content in industry publications, including *Vegetables Australia*, as well as videos, podcasts and newsletters made available to all growers.

How will VegNET help levy-paying growers?

Phase Two of VegNET will benefit vegetable levy-paying growers in the following ways:

- Identify regional challenges to the productivity, profitability, and sustainability of grower businesses.
- Growers and other stakeholders will prioritise these issues and with RDOs identify which ones VegNET is best to target.
- Increased knowledge of the vegetable R&D program administered by Hort Innovation.
- Improved adoption of outcomes from Hort Innovation-funded R&D projects.
- Connect growers with industry

partners to improve productivity and profitability of vegetable growing businesses.

- Demonstrating the effectiveness of practice change to growers and industry to promote adoption of innovations.
- Effective linkage between vegetable growers and levy-funded R&D service providers.

Find out more

Please contact Hort Innovation Head of Extension Lead Jane Wightman at jane.wightman@horticulture.com.au.

VegNET are strategic levy investments under the Hort Innovation Vegetable Fund.

These projects are funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government.

Project Number: VG19008-VG19017



Neil Salvador (left) and Catherine Velisha (right) have joined forces to establish Velisha Education Group. They are pictured with Yu-Wen from RMIT University.

Gaining an insight into the world of horticultural business

A program has been established to assist horticultural enterprises navigate their way through the Australian business world. With a focus on compliance and the changing legal landscape, the Velisha Education Group (V.E.G.) offers an insight into real-life examples and case studies from a thriving Victorian vegetable growing operation. *Vegetables Australia* reports.

Third-generation vegetable grower Catherine Velisha understands the reticence around implementing compliance into a business.

Catherine is Managing Director of Velisha Farms, and she has transformed the small family-owned Victorian growing operation in recent times. However, her decision to step into the legal world to enhance business capabilities wasn't easy.

"I took over Velisha Farms three years ago and that was an old school business, like many in agriculture. The thought of taking all the steps to become a highly compliant business was very daunting to the point that it was causing anxiety," Catherine says.

However, Catherine's fears were allayed when she connected with award-winning RMIT University lecturer Neil Salvador. Neil lectures in employment and safety law and over the past two years has been assisting Velisha Farms in establishing strong compliance processes along with occupational health and safety (OH&S) and human resources matters.

Catherine and Neil soon realised that their combined knowledge could be shared with others who were looking to take that next step and broaden their business horizons. Additionally, interest in Catherine's business had grown, with

grower groups requesting farm and facility tours. Therefore, the pair decided to join forces and establish Velisha Education Group (V.E.G.).

"What makes us unique is that I can talk from a theoretical perspective, while Catherine provides a practical perspective by talking about how you can implement compliance matters into the business," Neil says.

"The world of business is embedded with compliance obligations. What we try to do is assist employers and business owners navigating through some of these compliance obligations by providing real-life examples of how these things can be achieved."

Business model

Using Velisha Farms as a business example has proved successful for the V.E.G. Program.

"One of things that we do in our classes is that after we talk about a specific compliance obligation, we go out to Catherine's business and show what we've done and how we've done it. We're not just talking about best-practice, we're actually demonstrating best-practice," Neil says.

Catherine agrees.

"What people seem to enjoy is the real conversation around best-practice. I'm very blunt in what works, what doesn't work, what we've achieved, how we've had to improve or not improve," she says.

"It's not just a shiny show of us being a fabulous business, because we also have issues like every other business, and I think that part makes it really helpful and it allows people to connect. There's some genuine understanding and empathy coming from myself and from them to me."

Program activities

During the first half of this year, Neil and Catherine have been offering two presentations for those interested in building their business compliance knowledge.

These have been delivered via video conference (using Zoom), or participants have tuned into the live stream on YouTube. Recordings have also been made available on YouTube.

One presentation was helping participants to navigate understanding the business implications of The Victorian Workplace Safety Legislation Amendment (Workplace Manslaughter and Other Matters) Bill 2019. This will

be implemented on 1 July 2020.

The next presentation focused on COVID-19, and outlined best-practice frameworks and compliance precautions, using the Fair Work, Occupational Health & Safety Acts as its foundation to implement simple and clear steps immediately in your business.

"Participants received information about how to protect themselves. I think even for me, having someone like Neil being able to walk through this hand-in-hand makes you far more likely to be proactive and comply, because you feel like there's support and you have the knowledge," Catherine says.

Previously, there have been other one-day programs focusing on subjects such as the importance of leadership; innovation and evolution; market competitiveness; and capital and future growth.

Next steps

The V.E.G. Program is looking to expand its capabilities and international reach, particularly as Catherine undertakes a Nuffield Scholarship, which will see her travel around the world over the next

12-18 months.

"We've got a lot of interest from different organisations wanting us to do both in-house training and to attend our training sessions. And what we're seeing is that different organisations have different needs. Some are in different places in terms of their compliance obligations – there are some that are advanced, where some aren't that advanced at all," Catherine says.

Obtaining registered training organisation (RTO) accreditation is also on the agenda.

"Because we've had interest from other states, we just need to make sure that we are compliant from a national perspective. So, we see the RTO route as a way in which to channel that," Neil says.

In the meantime, Catherine has a message for businesses who were in her position three years ago.

"As we started to introduce really strong processes and compliance, I realised that this was something that was of real benefit to business and not something to be feared," she says.

"I just want to help other businesses to not fear it (and subsequently avoid it)."



RMIT University lecturer Neil Salvador pictured presenting to his students.

Find out more

Please visit velishafarms.com/education, or email Catherine Velisha at catherine@velivelisha.com.au or Neil Salvador at neil@ns8group.com.au.

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Biosecurity alert: Fall armyworm detected in Australia

In February this year, fall armyworm was detected on mainland Australia for the first time and has since spread across Queensland, Northern Territory and Western Australia. *Vegetables Australia* provides the latest on these detections and what vegetable growers need to know.

Fall armyworm is an invasive pest that has been reported to feed on more than 350 plant species, and impacts economically important cultivated grasses such as maize, rice, sorghum, sugarcane and wheat, as well as fruit, vegetable and cotton crops. It is native to tropical and subtropical regions of the Americas, and since 2016 has spread to Africa, the Indian subcontinent, China and South East Asia.

In January this year, fall armyworm was first detected on two Torres Strait islands and confirmed in early February. The first mainland detection in Australia was at Bamaga in February.

Subsequent detections of fall armyworm have occurred near Croydon, South Johnstone, Tolga, Lakeland, Mareeba, the Burdekin region, Bowen, Richmond, the Emerald region, and Bundaberg in north-central Queensland.

Fall armyworm has also been found in the Northern Territory (Katherine) and Western Australia (Kununurra, Broome, Carnarvon). At the time of writing, the most recent detections were near Biloela, Mackay and Dysart in Queensland.

As fall armyworm is new to Australia, we are relying on information and experience from overseas until locally generated data can confirm or refine this information. The following have been reported overseas as hosts: apple, banana (could be a minor issue), citrus, mango (less preferred),

melon (but no crop loss expected), onion, potato, processing tomato, table grape, sweet corn, eggplant, beetroot and cucurbits. It is expected that sweetcorn is most susceptible to damage from fall armyworm.

The Consultative Committee in Emergency Plant Pests has determined that it is not technically feasible to eradicate fall armyworm from Australia.

Fall armyworm moves and reproduces fast, and feeds on a very wide range of plants. It is well-established in our nearest neighbour countries.

More details about the fall armyworm, including pest identification, can be found in the summer 2019/20 edition of *Vegetables Australia*.

Spread and activity

The adult moths are capable of flying long distances aided by wind currents. All life stages can be moved on infested plant material.

Adult moths are nocturnal and are most active during warm, humid evenings.

Fall armyworm larvae are most active during late summer and early autumn months, but can be active year-round in tropical areas. Fall armyworm is most likely found in warm, moist regions where winter temperatures exceed the 10-degree threshold for survival.

Signs and symptoms

Regular crop monitoring for both damage and the presence of FAW will be important in avoiding infestations going undetected.

Symptoms of fall armyworm include leaf damage such as pinholes, windowing, tattered leaf margins and defoliation of plants.

Growers should also look out for tiny larvae, less than 1 mm, that are more active at night, eating pin holes and transparent windows in leaves and bigger larvae grazing on leaves, stems and fruit, and leaving behind insect excrement.

In grass-like plants, larvae are often in plant whorls where leaves branch from the stalk.

Managing an outbreak

Early detection is essential. Regularly check all your crops for unusual insect activities.

Key to the control of any pest is an integrated pest management approach. The Queensland Department of Agriculture and Fisheries (DAF), in collaboration with industry, is working to identify strategies and tactics for the medium to long-term response.

It is essential with any pesticide use for fall armyworm control to consider the implications for chemical resistance development in other pests that may be exposed (e.g. Helicoverpa) and the potential impact on natural enemies. Fall armyworm is also known to rapidly develop pesticide resistance.

The APVMA has issued a number of permits for the use of certain chemicals for the control of fall armyworm. It is important to check for the latest chemical permits applying to fall armyworm using the APVMA's permit portal – search for 'fall armyworm' and check the 'pest/purpose' button. The portal can be found at portal.apvma.gov.au/permits.

Monitoring and surveillance

Pheromone traps have been deployed

Figure 1. A larva of the fall armyworm (*Spodoptera frugiperda*). Image courtesy of Frank Peairs, Colorado State University, Bugwood.org.





Figure 2. The armyworm moth that is harmful to field corn. Image courtesy of John Capinera, University of Florida, Bugwood.org.

by DAF at sites throughout Queensland, including: Burdekin, Bowen, Mackay, Richmond, Rockhampton, Longreach, Kingaroy, Emerald, Biloela, Bundaberg, Gayndah, Nambour, Dalby, Goondiwindi, Gatton, the Darling Downs and Brisbane.

Rural R&D for Profit program, iMapPESTS: Sentinel Surveillance for Agriculture, has been trialling smart lure traps alongside the sentinel with aim to provide fast, accurate detection of the fall armyworm. The lure traps feature on onboard imaging system that relays images of the lure trap to a secure cloud storage space and have been developed by Western Australia's Department of Primary Industries and Regional Development, in collaboration with South Australia's Research and Development Institute and Sugar Research Australia.

In conjunction with industry, DAF will continue surveillance and monitoring of the spread of this pest.

In the medium- to long-term DAF will work with industry to:

- Identify the crops most favoured by the pest and determine economic thresholds to guide management decisions.
- Assess appropriate chemical and biological controls.
- Help industry minimise and manage any pesticide resistance.

Legal requirements

Fall armyworm represents a new biosecurity threat for Queensland (and Australia) and any suspected detections should be reported to the Exotic Plant Pest Hotline or your local biosecurity department.

It is not currently listed as prohibited or restricted matter in Queensland's biosecurity legislation, however there are requirements under the Biosecurity



Figure 3. Fall armyworm eggs. Image courtesy of Phillip Roberts, University of Georgia, Bugwood.org.

Regulation 2016 in relation to the movement of plant material that may carry pests.

Far-north Queensland is a high-risk area for the introduction of plant pests and diseases from nearby Papua New Guinea and Indonesia. The spread of pests into the rest of the state poses a significant risk to our agricultural industries.

Two far northern biosecurity zones have been established in the northern half of Cape York Peninsula to control movement of risk items that may carry pests and diseases southwards to production areas. Plants, plant pests, soils and related equipment must not be moved out of these zones without a biosecurity instrument permit.

Advice for growers and producers

Growers and producers should already have strong on-farm biosecurity measures to protect their crops from pests and diseases. Crops should be monitored for signs of leaf damage leading to defoliation of the crop and report suspected sightings to assist with early detection, and potential treatment. Good farm hygiene should be implemented for weed control to remove hosts that could build populations.

If it breeds in very large numbers and then consumes all of its preferred hosts,

it develops an 'army' like phase, where it can then attack anything that is in its path. If this were to occur during flowering it could be an issue, but we believe this would be a rare event.

Find out more R&D

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

Further information detailing fall armyworm advice and management can be found at business.qld.gov.au/fall-armyworm.

Video: Fall armyworm and what to look for

The AUSVEG Biosecurity team has recently created a video that provides an overview of the fall armyworm. This including the damage it may cause, what to look for and how to report it.

The video resource was made available via the Farm Biosecurity Program, funded by the Plant Health Levy. To watch the video on YouTube, please visit youtu.be/H6N4K19B5-Q

Commodity Profile:

Leek

10,809 tonnes

of leeks were produced at a value of AU \$27.5 million for the year ending June 2019.

Source: Australian Horticulture Statistics Handbook 2018-19

\$7.8 million

Harvest to Home discovered that there is a \$7.8 million opportunity for leek if buying households were to make one additional purchase each year. Also, if an additional one per cent of Australian households were to start buying leek, there would be another opportunity of \$810,000.

-5.7% decline

A Harvest to Home case study revealed that, in the 52 weeks to 2 November 2019, leek declined in volume kg sales (-5.7%) and grew slightly in dollar sales (2.7%), where total vegetables maintained volume kg sales while dollar sales grew.

Volume decline in leek was driven by households shifting volume purchases into other vegetables and this was worsened by buying households that stopped purchasing leek in the 52 weeks to 2 November 2019.

Source: Harvest to Home

Veggycation® advises that hydro-cooling, crushed ice, and vacuum-cooling are the most common methods to promptly cool harvested leeks to 0°C. Leeks can be stored for 2-3 months at 0°C with 95-100 per cent relative humidity.

The Australian Horticulture Statistics Handbook 2018-19 reports that for the year ending June 2019, 21 per cent of Australian households purchased leeks, buying an average of 426 grams of leeks per shopping trip.



According to Veggycation®, trim leeks roughly 5cm from leafy end and 1cm from the base, then slice the whole length. For best flavour, allow sliced leeks to sit for at least five minutes before cooking.



In 2005, a project entitled *Managing diseases of leeks* (VG00013) was completed. The project's aims were to identify the disease problems on leeks in the main production areas in Australia and to develop management strategies to control these problems. The final report can be found by searching 'VG00013' on the InfoVeg database.

Storage for 4-5 months at 0°C is possible with controlled atmospheres, although there will be some loss of quality. Recommended controlled atmosphere conditions are 1-3 per cent oxygen and either 2-5% carbon dioxide or 5-10% carbon dioxide. Source: Veggycation®.



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Photography by John McRae.

Enoch X

Location: Kemp's Creek, NSW

Grows: Cucumbers, flat beans, basil, parsley

How did you first become involved in the vegetable industry?

Getting started was a huge learning curve. I have a friend who is involved with farming and I thought if she could do it, I could too. But it was a lot of trial and error. Even though my friend gave me a lot of guidance, it took a long time to actually understand the correct practice. However, I am still learning and tackling new problems as they arise.

What does your role in the business involve, and what are your responsibilities?

My responsibility is to ensure the plants are getting enough nutrients to stay healthy and to deal with problems such as common or new diseases and pests.

What do you enjoy most about working in the vegetable industry and how do you maintain your enthusiasm?

I greatly enjoy watching my plants grow and harvesting the fruits of my labour. Sometimes disasters strike such as heatwaves, or big storms rip the greenhouses apart, but it's part of the practice. I just have to anticipate it, remain positive and take actions to adapt. Knowing that the quicker I recover, the higher the chance of receiving a good price for produce as others are still "licking their wounds".

What are the biggest challenges you face working in the industry, and how do you overcome them?

For an emerging grower, there are tons of problems to tackle. These include pests and diseases, irrigation system failure and market crashes. But the biggest problem of all is lack of experience. There is a vast amount of knowledge found in books and online, but they will not translate into 'experience' until you actually apply it and face the problems head-on.

I learn a lot from my M.O.M, P.O.P and G.O.D (M.O.M stands for my own mistakes; P.O.P is perils of people; and G.O.D is guidance of the divine, which is our God-given wisdom and common sense.)

Another huge problem for vegetable growers and other industry members is what I call the P.H. problem. And no, it has got nothing to do with acidity or alkalinity: it is poor husbandry. Especially dealing with difficult pests such as spider mites and diseases such as Pythium root rot. You just have to keep on top of it. Preventing these pests and diseases is always better than treating them.

Where do you receive your on-farm practice advice and information from?

At first, I asked friends. My advice is to make lots of new grower friends if you have to.

Eventually, I discovered specialist horticulturalists and now attend events organised by AUSVEG, VegNET and the New South Wales Department of Primary Industries (NSW DPI). These events have a lot of information relating to chemicals, diseases and good farming practices.



One thing I have definitely learnt from these resources is good sanitation. That helps to prevent a lot of problems in the first place. They have also helped me to network with other growers and industry experts, such as Andy Ryland and Len Tesoriero, who personally visited my farm and gave me lots of useful advice.

What new innovations, research and/or practices has your business implemented recently? What are you doing differently to other grower operations?

I have learnt the hard way with Integrated Pest Management (IPM), especially in a protected cropping environment. I have killed my beneficial insects numerous times due to use of incompatible chemicals (so-called safe organic ones). Not every beneficial insect is compatible with every organic chemical. I found an app called Side Effects Guide from Koppert Biological Systems that has really helped. NSW DPI has also produced an updated list of chemicals that are safe for beneficial insects, noted with the bee sign.

I also found that IPM cannot work in protected cropping at certain times of the year where the temperature is extremely high unless you have climate controls in place. So, I still have to resort to spot

spraying with conventional chemicals and combine IPM with conventional ways.

Besides IPM, I have also started experimenting with dual cropping, where I have two levels – the main crop on top and herbs right underneath to make use of the run-off wastewater. It has been working so far but not recommended for people who cannot stay on top controlling pests and diseases: double the crop, double the trouble.

Finally, the most important and often neglected factor in greenhouse farming, besides sanitation/quarantine, is ventilation. Some greenhouses have expensive manifolds and fans, but I have just added windows on the higher end of the tunnel to create the natural thermodynamic effect to ventilate my greenhouses.

Where do you see yourself in five years?

I am not sure that I will still be producing crops commercially the way we are doing now, as climate changes and the market fluctuates a lot. But I will definitely grow something and pass on the knowledge to anyone who wishes to learn, because having no growers means no food for the nation and for the world. I am also

thinking of experimenting in aeroponic, aquaponic and permaculture, to become more sustainable as water becomes scarcer in certain parts of the country.

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

Young people actually have a better chance to make it because there are more and more courses available both online and at colleges. With new robotic automation and drone technology, it will be a lot easier for them. Even taking short courses and workshops organised by DPI or the local TAFE would greatly help.

Everyone thinks it's hard when they do not have the knowledge and confidence, but growing vegetables commercially is easy once you get the know-how.



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Growers and industry members attended a fruit fly forum in Bundaberg last year.

Establishing networks between veg growers and wider industry

Bundaberg Fruit and Vegetable Growers (BFVG) is the voice for fruit and vegetable growers in the Bundaberg and Wide Bay-Burnett regions. It also facilitates the VegNET – Wide Bay-Burnett project, an investment that keeps vegetable growers informed about current R&D activities, results and resources. BFVG Managing Director Bree Grima provides a project update.

Queensland grows approximately 30 per cent of Australia's vegetable production. A major contributor to this production is the Wide Bay-Burnett region, which enjoys a sub-tropical climate and annual rainfalls between 850 to 1,150 millimetres. This is across the 48,598 km² region encompassing five local government areas. The vegetable industry in Bundaberg alone is valued at more than \$237 million, covering approximately 6,000 hectares, and produces a diverse range of vegetable crops, including capsicum, corn, beans, pumpkin, zucchini, Brussels sprouts and chilli. These vegetables are produced by more than 100 growers across the region.

Due to the diverse nature of crops and year-round growing conditions, producers actively seek information to assist in the productivity and profitability of their businesses. The VegNET – Wide Bay-Burnett project, delivered by regional

grower group Bundaberg Fruit and Vegetable Growers (BFVG), has been perfectly placed to assist with this.

From large forums with over 80 people in attendance discussing the impact of fruit fly, to smaller groups discussing specific chemical requirements of vegetable crops, the project has remained nimble to ensure information delivered is practical and informative. The project also provides producers with the opportunity to speak directly to researchers and R&D programs, which encourages the uptake of new technologies and procedures to aid in best-management practice.

Biosecurity matters

Focusing on specific pillars of information for producers has allowed the program to target issues and opportunities relevant to the region. Biosecurity remains a priority for producers, and their experiences with pest incursions in recent years ensures this will continue to be the case. From cucumber green mottle mosaic virus appearing in January 2017 and the impacts of green peach aphid to the recent detection of fall armyworm, producers need to remain vigilant with in-field monitoring to detect and report anomalies.

To capture population samples for green peach aphid, the VegNET team – together with Cesar – provided pest trap kits to producers that included a simple plastic container, an ice brick and sample collection details. Producers and agronomists picked through infested areas to collect aphids and placed them into the container along with a small sample of vegetation. These kits were then returned to Cesar, with the ice brick to keep the sample cool for analysis. Scientists were interested in tracking

the extent of insecticide resistance in Australian green peach aphid populations and investigating the genetic mechanisms of resistance evolution.

Connecting industry

Encouraging producers to play an active role in programs such as VegNET is vital to ensure regional statistics are captured. It also allows the expertise of researchers, including those from Cesar, to stay connected to the region.

The VegNET program, and the grower representative groups that deliver it, play a key role liaising between producers, who place trust in their local grower group and researchers from outside the region. This ensures producers have every opportunity to expand their knowledge on relevant topics and apply this in a practical way, thereby increasing their productivity and profitability.

BFVG is extremely pleased to be delivering VegNET Stage 2 and will continue to build the dynamic relationship between producer and R&D over the next 18 months.

Find out more R&D

Please contact Bree Grima at vegnet@bfvg.com.au or phone the BFVG office on 07 4153 3007.

Regional capacity building to grow vegetable businesses – Wide Bay-Burnett 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: VG19009

Hort Innovation
Strategic levy investment

VEGETABLE FUND

Funding boost for organic growing operations

Four organic fruit and vegetable growing operations are the beneficiaries of a million-dollars in grants and interest-free loans that will allow them to upgrade production systems and develop expansion plans, ensuring that they remain sustainable into the future.

Woolworths has awarded \$1 million in grants and interest-free loans to four organic farms across Australia in the second round of the Woolworths Organic Growth Fund.

The \$30 million Fund was established in 2018, and has committed to a five-year partnership with Heritage Bank to help Australian growers meet the increasing consumer demand for organic fruit and vegetables.

The four successful recipients in the second funding round – Gingin Organics, N&A Group, Biofarms Australia and Pairingi Farms – grow a wide range of fruit and vegetable varieties on farms based in Western Australia, New South Wales and Tasmania.

“We’re proud to be backing the expansion plans of entrepreneurial growers across Australia through our Organic Growth Fund,” Woolworths Head of Produce Paul Turner said.

“We’re seeing double digit growth in customer demand for organic fruit and vegetables, and believe the trend will only continue over coming years.

“We’re particularly interested in working with conventional growers who are looking to diversify crops and convert to organic production.”

Gingin Organics – Neergabby, WA

Owned and operated by Lynda and Noel Harding, Gingin Organics is the first Western Australian recipient of funding. The operation grows a range of organic and seasonal vegetables such as broccoli, carrots and cauliflower.

The Hardings will use the \$200,000 grant to develop six hectares of new organic farmland and upgrade their packhouse over the next year.

“We have a reputation for quality and consistency of supply in varied vegetable lines, including challenging lines such as organic celery, that we want to build on,” owner Lynda Harding said.

“With the expansion of our farm, we’ll be able to grow more organic vegetable varieties and boost our supply to Woolworths customers year-round.”



Owners of Biofarms (L-R), Mark, David and Chris Benson.

Biofarms Australia – Forth, Tasmania

Biofarms Australia, run by brothers Chris, Mark and David Benson, produces a diverse range of certified organic vegetables such as broccoli, beetroot and pumpkin.

The Tasmanian organic vegetable growers will use a \$500,000 interest-free loan from the Fund to buy new machinery and equipment, and upgrade irrigation systems to improve productivity and efficiency on the 300-acre farm.

“We initially started our farm growing vegetables conventionally over 20 years ago. We were keen to eliminate the use of chemicals for environmental reasons, so we decided to start organic production in 1999 and haven’t looked back,” owner Chris Benson said.

a \$150,000 interest-free loan to fund protected cropping at its Ardrossan Orchards in Batlow.

“This interest-free loan will significantly improve our ability to produce a more consistent supply of high-quality organic berries by reducing the impact of heat and controlling pests and birds,” Ardrossan Orchards Manager Ian Cathels said.

“Other farmers should consider applying to the Organic Growth Fund as they will be able to develop and scale their organic production in a more-timely manner. By providing greater all-round consistency and quality for Woolworths shoppers, we can help drive growth throughout the entire category.”



Fred Kazzi from Pairingi Farms, who owns and manages the operation with brothers Scott and Daniel.

Pairingi Farms - Paringi, NSW

The Kazzi family are third-generation growers. They own Pairingi Farms, which will use a \$170,000 interest-free loan to convert its electricity supply to renewable sources and invest in new packing equipment.

The farm uses different growing practices including glasshouse, shade net and field production to produce organic vegetables such as capsicums, zucchinis and tomatoes. It is currently going through conversion to become fully-certified organic.

“The demand is there for organic produce from consumers, and if the price point is right, more producers will come on board and the market will continue to grow,” co-owner Scott Kazzi said.



N&A Group’s (L-R) Ian, Hannah and Rob Cathels.

N&A Group – Batlow, NSW

Nestled in the south-west slopes of NSW, the N&A Group has been supplying Woolworths as a conventional supplier since 1956 and decided to diversify into organics in 2015 in response to increasing demand for organic produce. It will use

Find out more

Please visit [woolworths.com.au/organicgrowthfund](https://www.woolworths.com.au/organicgrowthfund).



Rambutan (pictured) is a type of bird netting used on high-value tropical fruit crops.

Protected cropping focus across the Top End

The popularity of protecting growing practices is rising in the Northern Territory. In this article, NT Farmers Industry Development Manager Greg Owens outlines the reasons behind this growth, the investigation into year-round protected cropping vegetable production, and how NT Farmers is helping growers to understand the emerging on-farm technology.

The Northern Territory has already seen the development of a number of types of protected cropping. These have been mainly about keeping crops cool and excluding some very persistent winged and terrestrial vertebrate pests.

Around Darwin, there are many shade and netted structures that have been erected to address these problems. Bird netting on high value tropical fruit crops, like Rambutan, became essential in the early 1990s when the local Rainbow Lorikeets found how good they were to eat.

The other reason for protected cropping is about modifying the environment. In the Darwin region, this has mostly been about keeping the heat out – not locking it in. During the Dry season (winter), minimum temperatures are normally around 15 degrees Celsius (°C), and all days throughout the year are 30°C-plus. This has led to most structures being constructed of white shade cloth.

Typically, these are used for the highest value crops such as Lebanese cucumbers and sometimes rotated with snake beans.

Predominantly, growers use in-ground cultivation. Even our larger hydroponics grower uses shade cloth and only produces continental and Lebanese cucumbers during the Dry season.

These structures also work well for tomatoes and capsicum, but it is hard to compete with these products grown in glass and plastic houses in the southern states during the season as the bulk of Northern Territory's produce is sold in Sydney, Melbourne and Adelaide during the southern winter.

Investigating year-round production

Lately, there has been interest in achieving all year-round production. In the Wet-Dry monsoonal tropics, this is about managing the very high intensity rainfall; preparing for cyclonic events and dealing with never-ending crippling humidity that lasts for seven or eight months of the year.

The Department of Agriculture and Fisheries, Queensland (DAF, QLD) is leading a CRC Northern Australia (CRCNA) project looking at protected cropping in this region. It is also looking at how to meet these challenges and take advantage of the economic opportunities that come with the newer protected cropping systems.

There is a worldwide increase in protected cropping in the tropics where these environmental challenges are being overcome. The CRCNA project is collecting this information and is developing a best practice site in Ayr. The VegNET – Northern Territory team will be organising a grower's trip to the facility when interstate movement restrictions are lifted.

The benefits of year-round production offered by protected cropping may not only be economic, but a source of nutritious fruit and vegetables for remote Northern Territory communities that are often isolated from normal supply chain for months at a time.

While many have tried this approach and failed, the Food Ladder group is

kicking goals in this space and providing critical training to indigenous students and communities. Food Ladder has projects in Katherine, Tennant Creek and Maningrida, and you can find out more at foodladder.org.

Educating Top End producers

In late February, The VegNET – Northern Territory team organised a protected cropping R&D forum. Speakers at the forum included DAF, QLD Senior Horticulturist Dr Elio Jovicich, Western Australian vegetable grower and 2019 Nuffield Scholar Bao Duy Nguyen and VegNET – Western Australia Industry Development Officer, Truyen Vo. They were joined by AUSVEG and other industry representatives to address Northern Territory vegetable growers and participate in field trips.

Held in the Top End, the R&D forum gave local producers a chance to hear about what is happening in northern Queensland and Western Australia and learn from the other attendees.

The VegNET – Northern Territory team will continue to offer ongoing assistance to vegetable growers who are looking to take advantage of the developing technologies, and markets for protected crop produce, in our unique and challenging environment.

Find out more

Please contact Greg Owens at greg@ntfarmers.org.au.

Regional capacity building to grow vegetable businesses – Northern Territory 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: VG18003

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



Syngenta Technical Services Lead Shaun Hood.



The GrowMore Experience sites continue to showcase new innovations from Syngenta. Visitors to the Bowen site in 2019 were among the first to see MINECTO® FORTE in a commercial style spray program.

A new in-field tool for insect pests

Fruiting vegetables and cucurbit programs are set to benefit from a new crop protection product that has recently been registered in Australia. The insecticide has been formulated to help growers fight against destructive and highly resistant pests found in vegetable crops, including silverleaf whitefly and aphids.

A new insecticide has been released to help control chewing and sucking pests that attack fruiting vegetables and cucurbits, while setting a new course for resistance management.

Newly registered by Syngenta, MINECTO® FORTE contains diafenthiuron (Group 12A) and cyantraniliprole (Group 28). This is a combination that quickly brings on insect pest paralysis, whether they are feeding or vectoring, to prevent any further crop damage. The inclusion of diafenthiuron is especially good news for those growers with resistant whitefly and aphid populations.

"These two complementary modes of action were carefully selected to provide control of pest species that overlap. The end result is a formulation with precisely the right amount of each active ingredient to deliver both robust control in field crops and a novel solution to resistant populations," Syngenta Technical Services Lead Shaun Hood said.

Diafenthiuron is a new mode of action for the control of silverleaf whitefly and aphids in both fruiting vegetables and cucurbits. It works through inhibition of mitochondrial ATP synthesis, resulting in paralysis, primarily through direct contact following application. Meanwhile, the cyantraniliprole component works via ingestion. The active ingredient binds to the pest's ryanodine receptor, causing the onset of paralysis and cessation of feeding.

"MINECTO FORTE has performed as we expected throughout trials, but it's something you have to see for yourself to fully appreciate," Dr Hood said.

"It's a product that advisors and their

clients can readily use to address a particular pest as soon as the threshold is triggered. That application will also go to work on overlapping insect pest species, while they are ticking along in the background."

A new weapon

In both cucurbits and fruiting vegetables, this new insecticide includes control claims for melon aphid, green peach aphid, two-spotted mite, silverleaf whitefly, *Helicoverpa armigera* and *Helicoverpa punctigera*, potato moth, cluster caterpillar and cucumber moth. It also delivers suppression of western flower thrips, tomato thrips and plague thrips.

The product should be applied early in the crop once pest action thresholds exceed what can effectively be controlled by natural predators. A maximum of two applications are permitted per crop – at least 28 days apart – observing a one-day withholding period at harvest for cucurbits and six days for fruiting vegetables.

"MINECTO FORTE has been a feature of our Bowen GrowMore site through April and May, so make sure you follow the results through the Syngenta website," Dr Hood said.

Find out more

Please contact your local Syngenta Territory Manager, or phone the Syngenta Advice Line on 1800 067 108 or visit syngenta.com.au.



Junglefy designed and constructed the Junglefy Breathing Wall™ in a central hub of the office to give all staff access to plants, including those not located near a window.

'It's time to grow up' with urban greening in-focus

The Hort Frontiers Green Cities Fund was established to investigate and confirm the benefits of urban greening, and then conveying those messages to the wider community. *Vegetables Australia* spoke to Hort Innovation Head of Research and Development Byron de Kock about the latest project under the Fund, which resulted in a free online resource being released to the public.

With the Australian urban population increasing, and the health benefits of green space becoming clearer, urban developers and governments are becoming increasingly interested in creating greener communities.

However, the impact of green space in a range of environments needs further research. To address this, Hort Innovation developed the Green Cities Fund to help uncover science-based answers to these questions and inform business decisions regarding urban development.

The Fund brings together a range of partners to research and demonstrate the benefits of increased urban greening. One of the recently completed projects is *DIY laneway greening – simplifying vertical greening at a community level* (GC17002), which has produced a new community-focused resource designed to help urban dwellers go green.

Growing green

Hort Innovation Head of Research and Development Byron de Kock described urban greening as 'more plants in cities.'

"Traditionally, we would associate urban

greening with our traditional parks that include trees, garden beds and turf areas. That's traditional green infrastructure that most of us know," Mr de Kock said.

"Then you can extend it to include streetscapes – for example, in a normal suburb, that'd be just planting street trees. But now, with the higher density planning and houses and unit blocks, some of those opportunities are diminished, so we need to invest in vertical greening (going up the sides of buildings) and green roofs."

'It's time to grow up' is a free online resource developed by researchers at the University of Technology Sydney (UTS). The greening tool simplifies vertical greening (or green walls) with an aim to encourage the community to help bridge the gap between fragmented urban habitats and nature.

The resource is aimed at groups such as urban communities or body corporates. It contains guidelines relating to the planning, designing and managing of green walls within community spaces, with information including the types of plants that work best; the green wall systems best suited to common scenarios; how to work within a DIY budget; the

benefits of green walls; how to address potential barriers and more. In some cases, it would also depend on the approvals that are required (for example, local council or landlord).

"This website is a terrific resource community groups or body corporates can use," Mr de Kock said.

At-home veggie patch

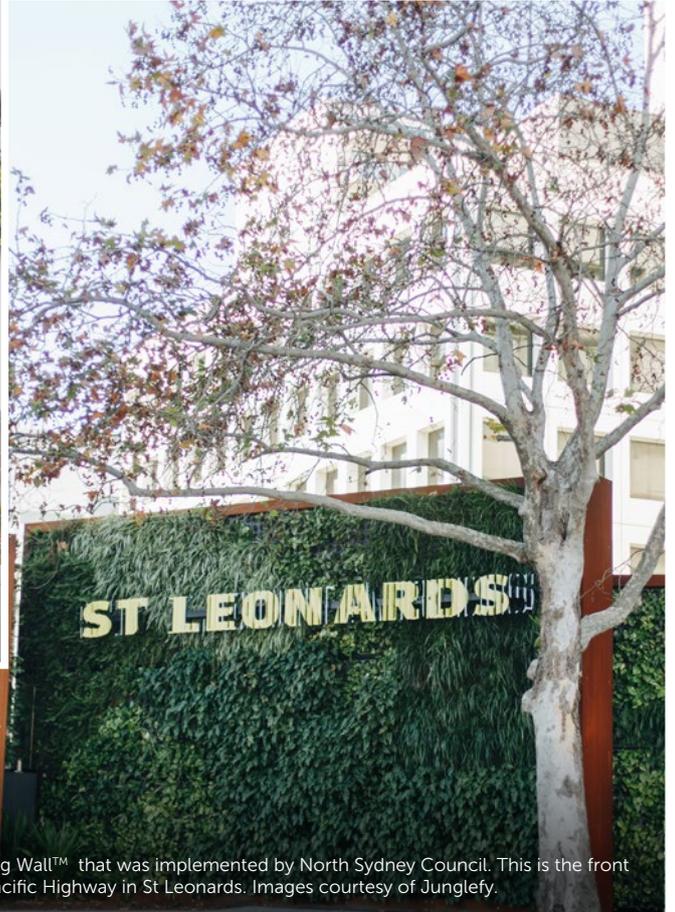
The 'It's time to grow up' concept is not just for non-edible horticulture such as plants and turf. Fresh produce, such as vegetables, can also be grown using the design make-ups outlined in the resource.

"The traditional green wall is where you just have a creeper growing up a wall, but there are options where you have a plant-to-pot system that you would install on a framework or a scaffold. You can easily grow vegetables in such systems," Mr de Kock said.

"It would be a great way for people in cities to grow their own vegetables and get a feel for how good it is to enjoy fresh produce. And that's only going to be a good thing for vegetable growers, because they'll never be able to grow enough for



Located in Sydney, the Manly Vale Carpark was designed with Junglify Breathing Walls™ to provide design functionality and much-improved visual amenity.



A double-sided Junglify Breathing Wall™ that was implemented by North Sydney Council. This is the front of the wall, located next to the Pacific Highway in St Leonards. Images courtesy of Junglify.

their whole year's supply."

"I think it will really promote the value of fresh produce and motivate people to buy more vegetables. The vegetable levy payers and our growers around the country will benefit from an increased appreciation of vegetables."

Health benefits

Researchers have discovered that plant-based systems such as green walls helped to mitigate poor urban air quality, provided acoustic insulation and helped with thermal regulation, thereby reducing the 'urban island effect'. An urban heat island is an urban area that is significant warmer than nearby suburban and rural areas.

"It has proven that both turf and trees will reduce the 'urban island effect' when they're in place. A bare patch or concrete or bitumen areas can be 12 degrees hotter than under a tree," Mr de Kock said.

"There's also the air quality benefits – the lead researcher from UTS, Dr Peter Irga, has confirmed some of the pollution reduction benefits of urban greening. Plants take out some of the pollution that can be harmful to us.

"There are a number of beneficial factors and if people are growing veggies, that's even better! The beauty of horticulture is that there's nothing bad about anything that we grow."

Green walls not only enable the presence of nature but also allow people to connect with nature as they build, plant and maintain these living systems, which in turn can have a positive impact on mental health.

Next steps

The Hort Frontiers Green Cities Fund is currently formalising the next iteration of its projects and identifying the knowledge gaps that need to be addressed.

"This project has just finished, and we've got about three other investments that are still going and probably will finish in about 18 months to two years," Mr de Kock said.

"A key aspect of the Green Cities R&D program to date has been to confirm scientifically the benefits of urban greening – benefits most of us appreciate instinctively. It has been great to see the science confirming our instincts are right – plants in cities are good for us!"

Find out more R&D

To check out the green wall resources and start your green wall project, please visit itstimetogrowup.com.au.

For further information or to submit an idea for a future project, contact Hort Innovation Head of Research and Development Byron de Kock on 0417 622 773 or email byron.dekock@horticulture.com.au. More can also be found at hortfrontiers.com.au/green-cities-fund.

This project has been funded by the Hort Frontiers Green Cities Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with funding from the University of Technology Sydney and contributions from the Australian Government.

Project Number: GC17002





Prototype mobile surveillance unit, Sentinel 1, launches at Sugar Research Australia's Meringa site in Cairns.

Mobile plant pest surveillance units unveiled

The ability to accurately monitor the timing, abundance and movement of airborne agricultural pests and pathogens is limited and fragmented across the Australian landscape. The iMapPESTS Program aims to address the problem through the provision of enhanced and coordinated surveillance, diagnostics and reporting tools to its industry stakeholders. Shakira Johnson reports.

While the country has been practising social distancing and adhering to restrictions of lockdown, airborne plant pests and pathogens don't stop affecting our plant industries. It is more important than ever that we look to innovative solutions to address the current lack of a coordinated, rapid and localised alert system to reduce the threat of pest and pathogen infestation.

Rohan Kimber is a research scientist at the South Australian Research and Development Institute (SARDI), and he uses Western flower thrips as an example of a destructive pest.

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

To assist in identifying pests and coordinating surveillance, sentinels are a suite of custom built, flexible mobile surveillance units that are central to the development of the plant surveillance network as a part of the multi-million-dollar, cross-industry iMapPESTS program.

While the sentinels trap airborne pests and pathogens, downstream researchers are investigating new and emerging diagnostic tools and techniques that aim to deliver rapid and accurate information on what exactly is captured. The results generated by the surveillance and diagnostics is then distributed to growers as easy to access, data visualisations and outputs.

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

Three trials completed for prototype sentinel unit

The prototype surveillance unit, Sentinel 1, held its first two trials in growing regions north of Adelaide, followed by a road trip

to northern Queensland where it was launched at a sugar research site near Cairns. The first trial at the Hart field site for four weeks in spring 2019 was followed by a 12-week trial in the Barossa Valley over summer.

During this time, the sentinel targeted pests and diseases present in the grains and wine growing regions. Results from the four-week field trial in spring 2019 showed clear differences in the patterns of pest development that would be missed from a single sampling activity. The data captured at Hart is now available to stakeholders via the iMapPESTS website.

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

Testing samples

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

The first three trials have highlighted the importance of a combination of traditional methods of identification (morphological identification) and the more rapid, high-throughput processes. These are provided by SARDI's Molecular Diagnostics Centre and AgVic.

"It is important that we use both traditional and modern methods. Molecular tests will only identify species



Sentinel 3 is a lighter, cheaper piece of equipment that will move from manual to automated sampling during its early trial phase.

for which they have been developed. Morphological identification can identify any pest but is very time consuming, particularly in mixed population samples like those collected by the sentinel,” Dr Kimber explained.

An example of why this is important occurred in the very first field trial. The molecular tests for western flower thrips were run and numbers were found to be low, despite large numbers of thrips having been collected. The morphological identification revealed the dominant thrips were a different target, the similar but far less damaging plague thrips (*Thrips imagines*).

The pests collected by the two-metre and six-metre suction traps on the sentinel were also compared to gain insight into what might be hanging around in the paddock at two metres, versus what is captured on a regional scale at six metres into the air column. This tall trap generally captures smaller insects caught up in higher wind currents and larger migratory insect. The lower numbers in the two-metre trap indicated good pest control.

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

Field trials: Barossa Valley and Cairns

A second field trial in the Barossa Valley occurred over summer before being deployed for a field trial at Sugar Research Australia’s Meringa research site in Cairns. The sentinel trial in northern Queensland aimed to optimise trapping and sampling in a tropical environment characterised by more adverse conditions such as those experienced during the wet season in the tropics.

Unfortunately, the tropical trial for the sentinel was cut short and sent back to headquarters in Adelaide due to COVID-19 travel restrictions. However,

the four-week trial has provided some learning opportunities which have led to engineering and operational optimisations and improvements.

Mobile surveillance unit family grows

Two more sentinels have recently been added to the mobile surveillance network, Sentinels 2 and 3.

The suite of three sentinels are currently being deployed in growing regions around Adelaide, including Adelaide Hills, McLaren Vale and the intensive cropping region of Virginia.

The suite of sentinels is set to expand over the remainder of the year. They will range in size, deployment method (trailer, skid, modular unit) and composition of traps and other features. These features are being explored to cater to different environments and industry requirements, and will be deployed at strategic locations around the country in 2021 for trialling.

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

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

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

Find out more R&D

Please contact Engagement and Adoption Coordinator for iMapPESTS Shakira Johnson on 0433 937 564 or shakira.johnson@ausveg.com.au. Further details can be found at the iMapPESTS website: imappests.com.au. You can follow the project on Twitter: @iMapPESTS. Project Number: ST16010



Acknowledgements

The iMapPESTS: Sentinel Surveillance for Agriculture is a five-year, \$21 million-dollar research, development and extension (RD&E) investment. It is supported by Hort Innovation, through funding from the Australian Government as part of its Rural R&D for Profit program as well as investment from plant industry Research and Development Corporations (RDCs). In addition, in-kind contributions from national and international partner organisations have been received, including SARDI, Agriculture Victoria and Rothamsted Research (UK), to name a few.



Jo Van Niekerk works at Boomaroo Nurseries in Key Accounts and Industry Engagement.

Jo Van Niekerk: Rolling up her sleeves to achieve veg industry goals

In this edition, *Vegetables Australia* sat down with Jo Van Niekerk from Boomaroo Nurseries to discuss her role in the business, the learning opportunities that have been provided – including a study tour to Europe in 2018 – and what she enjoys most about working in the Australian vegetable industry.

Managing key accounts and industry engagement at Boomaroo Nurseries makes Jo Van Niekerk one of the most recognisable faces in Victorian horticulture.

With its main nursery located in Lara, near Geelong, Boomaroo is a vegetable seedling producer that supplies close to 300 million seedlings to growers around Australia. The company has recently expanded its operations to Queensland, with a site in Southbrook, near Toowoomba. Upon completion of the remaining expansion stages, this site is expected to double the company's capacity to 600 million seedlings to growers all over the eastern seaboard.

Jo's role in the business is two-fold – firstly, managing the seedling needs of growers in Melbourne's metropolitan region along with the Mornington Peninsula and eastern Victoria.

"This includes farm visits, program and variety discussions, facilitating and monitoring trials, and communication of deliveries to our growers," Jo explained.

Jo's role also includes industry engagement.

"I engage with peak industry bodies and supply chain partners; assist our marketing head with conferences, field days and other events; and generally keep in touch with market or processor contacts on anything that could benefit the needs of our customers," Jo said.

Inspired by her family, Jo's journey into horticulture began early.

"One of my grandfathers was a keen vegetable gardener and the other was a

farmer in Tasmania, which sparked my early interest," she said.

"After studying agricultural science at The University of Melbourne and working in flower nurseries in the United Kingdom for two years, I was drawn back into the local fresh produce industry."

Upon her return Down Under, Jo worked in potting mix in Sydney and around Victoria before moving into fresh produce trading and marketing roles in Adelaide and Melbourne. She then joined Boomaroo.

"Working in the fresh produce industry always just felt like a natural fit for me," Jo said.

Connecting children to farms

In addition to her regular work requirements, Jo has recently devoted her time to represent Boomaroo in its support of the 'Schools on Farms Program'. Led by AUSVEG VIC in partnership with the Stephanie Alexander Kitchen Garden Foundation and Boomaroo, the program has been created by vegetable growers for primary schools to facilitate farm access and receive a hands-on, real-life experience of working vegetable farms.

"Boomaroo has always supported local school vegetable garden programs. There are so many positives for the industry, the community and the children themselves from being involved, and we wanted to be a part of that from the start," Jo said.

"There are many benefits to being involved in the program. The first is the promotion of the benefits of eating fresh



fruit and vegetables to schoolchildren. Feedback from teachers and parents so far has been very encouraging, with kids trying new veggies, getting more involved with preparing lunches and the evening meal, and pestering their parents for more and different veggies to go into the supermarket trolley.

"I think the program will have more significance than ever now, with COVID-19 shining the spotlight on Australian farming and food security."

Industry education

Jo's horticulture knowledge stems from formal training as well as learning from her peers, plus attending a variety of industry events, including Hort Connections and AUSVEG-facilitated workshops.

"I read a lot and I ask a lot of questions of senior staff at Boomaroo, as well as customers and industry partners. I also like to think I'm learning every day from every conversation I have with our growers," Jo said.

"If you keep an open mind and open ears, you can learn an awful lot standing in a field of celery or lettuce talking to the grower and asking questions. If you think there's nothing left for you to learn, it's probably time to give it away!"

Jo speaks to vegetable growers daily.

"There's always some challenge to address, a program to tweak or an opportunity to explore. It doesn't matter what crop they're growing; the challenges are usually around the same theme. My job is to work out the best way to solve

their problem or address their need and then coordinating with the broader Boomaroo team to achieve the best possible result," she said.

Jo broadened her knowledge when she attended the 2018 Women's Industry Leadership and Development Mission to France, Belgium and the Netherlands, which was a strategic levy investment under the Hort Innovation Vegetable Fund.

"We were so privileged to experience horticulture through a completely different lens. The study tour really opened my eyes to the contrast to Australian horticultural practices," she said.

"The highlight for me personally was the friendships I made with other women on the tour, which continue to this day."

Jo said she has become a much stronger advocate for the promotion of the Australian horticulture industry since her return, and she came back with a renewed appreciation for the Australian vegetable industry, its practices and its people.

"We have some of the cleanest produce and most efficient and resourceful growers in the world on our doorstep, and we should celebrate that," she said.

Women in focus

Jo said that she's now seeing more women represented in the horticulture industry than when she first started.

"Having said that, I've never been overly aware of being treated any differently in the marketplace or on farm – I'm just me, doing my job – and growers seem to respond positively to that," she said.

"Boomaroo has been a promotor and sponsor of Women in Horticulture awards at both state and national levels for several years now. These initiatives are such great opportunities to recognise and shine a light on the incredible work women are doing in the industry every day.

"I would encourage any woman to go into the vegetable industry – there's so much scope for learning and opportunity, and it's so interesting and varied. You just have to ask lots of questions and be open to learning and be an advocate for other women just starting out on their journeys."

Industry passion

Jo thoroughly enjoys working in the vegetable industry, and particularly engaging with those around her.

"I've been lucky to meet an amazing bunch of growers, marketers, agronomists and suppliers in this business – many I consider to be close friends. So many are generous with their time and their talents and are happy to share their experience and learnings for the betterment of the industry," she said.

Jo is also proud that she can help vegetable growers achieve their goals, even if it is only in a small way.

"I think growers as a whole are a pretty humble lot – they just do what they do day in, day out, in their own quiet way. They don't stop much to celebrate as they're too busy moving on to the next challenge. I like to remind them how well they've done something, even if they won't admit it," Jo said.

Overcoming a global challenge

At the time of writing, the world is facing the challenge of COVID-19 and Jo reflected about what this may mean for the Australian vegetable industry.

"I think the current situation facing the world has reminded everyone how fragile our way of life is, and how fundamental things like food security are to our country," she said.

"Growers and their representatives are in a unique position to respond as a collective to the disruption facing us all right now and promote the industry at a time when people are listening like never before.

"It's up to all of us to get behind our industry bodies and demand what we need to maintain a strong and agile industry, ready to meet the challenges ahead to keep on producing food for generations to come."

Capsicum: The feel-good crunch

Hort Innovation has worked with global information and measurement company, Nielsen, to bring growers the largest series of insights into market performance and shopping behaviour yet. The latest update is on the Australian capsicum industry. Nielsen Associate Director Melanie Norris reports.

One of the heroes of the Mediterranean diet, capsicum is highly versatile vegetable. It can be stuffed, roasted, stir-fried or simply eaten raw as a snack. Capsicum is purchased by 77 per cent of Australian households and enjoys year-round sales, peaking during the height of summer.

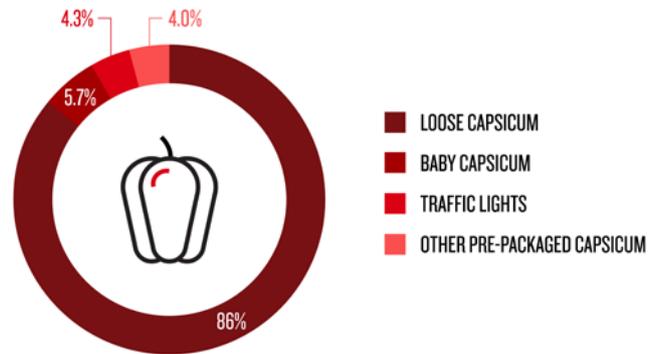
Australians eat more capsicum than their American counterparts. Just 44 per cent of US households purchase capsicum in a quarterly period compared to 59 per cent of Australian households.

Over the past year, capsicum volume sales in Australia have grown steadily (2.7 per cent), while many competitor vegetables have seen decline. The average price of capsicum has remained relatively stable with an increase of just 0.9 per cent over the past 12 months. However, this was not the case across the major supermarket chains, with these retailers increasing the price per kg of capsicums by 5.8 per cent, and experiencing a 2.2 per cent volume decline and 3.5 per cent dollar growth for this channel. Major supermarkets sell over two-thirds of the dollar sales of capsicum and are highly influential on the overall trends we see in the market.

Contrary to the trend in major supermarkets, greengrocers, along with markets and other independent supermarkets, enjoyed strong volume (11.4 per cent) and dollar growth (3.8 per cent) for capsicums, indicating a decrease in average price (6.8 per cent).



MAJOR SUPERMARKETS | \$ SHARE OF CAPSICUM



Sources: Nielsen Homescan 52 weeks to 29 December 2019
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Differentiating capsicum

Pre-packed vegetables offer consumers a convenient, easy-to-use option. With its brightly coloured hue, pre-packed capsicum stands out in store with several offers including traffic lights, baby capsicum and other multipacks. In major supermarkets, pre-packed capsicum represents 14 per cent of all dollar sales for capsicum.

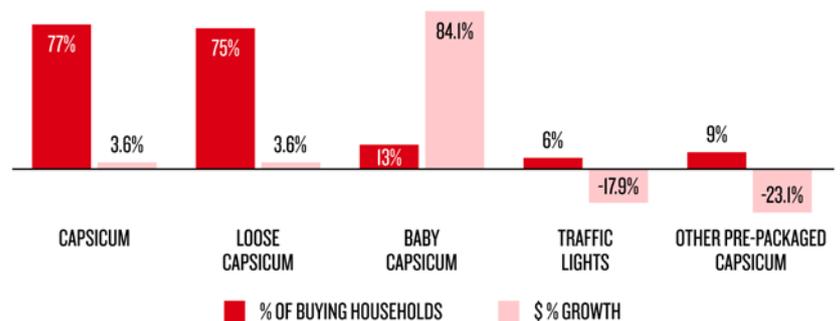
Currently, baby capsicum is the most popular of the capsicum prepacks. This segment grew 84.1 per cent in dollar sales over the past year and increased

the number of buying households by 403,000. Baby capsicum is finding favour with couples and singles aged 35+ years, probably due to its single-serve nature.

There is further opportunity to increase the reach of baby capsicum to include more families; for example, baby capsicum would make a tasty addition to the school lunchbox. Currently the percentage of buying households is relatively low (13 per cent) and shoppers only have an eight per cent spontaneous awareness of the baby capsicum product.

In-store sampling may help to drive further trial.

MAJOR SUPERMARKETS | \$ SHARE OF CAPSICUM



Sources: Nielsen Homescan 52 weeks to 29 December 2019. Copyright © 2020 The Nielsen Company (US), LLC. All Rights Reserved.

Driving capsicum sales

Over three-quarters of Australian households purchased capsicum last year; but there is still room to increase this number and encourage existing shoppers to purchase more.

Wastage is cited as the number one barrier to purchasing more capsicum. Wastage is also the second most significant factor after 'dislike' for non-buyers. Recipe ideas featuring capsicum in various meal occasions, as well as preserving techniques and education in how to properly store capsicums to maintain freshness, may assist in boosting sales.

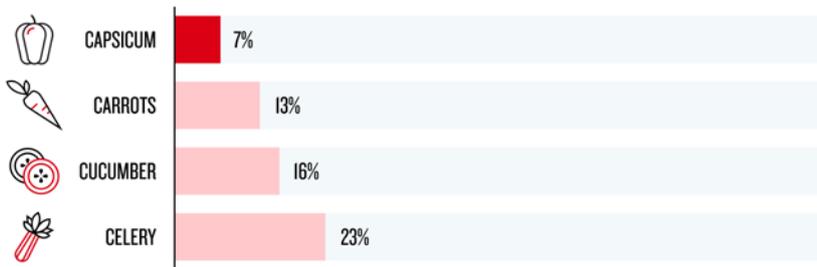
Another way to potentially increase sales is to highlight capsicum's versatility as a snack. Capsicum rates fourth of

all the vegetables surveyed as a regular weekday snack and there is opportunity to further develop this market by promoting it alongside tasty snacking partners, such as hummus and cheese.

With its eye-catching colour and plentiful supply, capsicum has cemented its place as a staple of the Australian table. Encouraging the use of capsicum with recipe ideas in a variety of meals and eating occasions may assist in removing wastage as a perceived barrier to purchasing more. While most sales in capsicum are loose, promoting interest in new formats such as baby capsicum, which is proving popular with older singles and couples, could drive interest and sales from other demographics as awareness grows.



% OF SHOPPERS USING VEGETABLE AS A WEEKDAY SNACK



Sources: Attitudinal reports prepared by Nielsen for Hort Innovation, survey sample minimum n=300, fieldwork from 15/08/2019 to 21/08/2019 for the Australian market. Copyright © 2019 Horticulture Innovation Australia. Q22: In the last week, in which of the following meals did you eat Capsicum (multi-answer)? Copyright © 2020 The Nielsen Company (US), LLC. All Rights Reserved.

Find out more R&D

Please contact Melanie Norris at melanie.norris@nielsen.com.

These data and insights were produced independently by Nielsen and shared through the Harvest to Home platform, supported through the Hort Innovation vegetable, sweetpotato and onion research and development levies. For more insights, visit harvesttohome.net.au.

The Harvest to Home dashboard is an initiative of the Vegetable Cluster Consumer Insights Program and is funded by Hort Innovation using the vegetable, sweetpotato and onion research and development levies and contributions from the Australian Government.

Project Number: MT17017

Hort Innovation

Note:

Major supermarkets are defined here as the sum of Woolworths, Coles and Aldi.

Sources:

- Nielsen Homescan 52 weeks to 29/12/2019
- Nielsen Total Food View, Total U.S. xAOC, 13 Weeks Ending 9/28/19., UPC-coded and random-weight/Non-UPC data; Nielsen Homescan
- Attitudinal reports prepared by Nielsen for Hort Innovation, survey sample minimum n=300, fieldwork from 15/08/2019 to 21/08/2019 for the Australian market. Copyright © 2019 Horticulture Innovation Australia.

Exploring the internal issues affecting capsicums



Internal rot can develop from the blossom end of the fruit. Images courtesy of Applied Horticultural Research.

Internal fruit rot can be a significant issue for capsicum growers. In response to this, a project is aiming to deliver capsicum growers with an integrated disease management strategy to control internal rot, as well as developing a predictive model that will help growers identify crops at risk and diagnose infection early. Dr Jenny Ekman from Applied Horticultural Research reports.

Picture the scene: a suburban kitchen, preparing the dinner after a long day at work. It might be a stir fry, or pasta, but with one vital ingredient – red capsicum. But cutting open the apparently perfect, glossy fruit reveals a ball of revolting grey fluff. Yuck!

The supply chain includes many checks to intercept rotten products before they get to market. There's the picker, the sorter, the box filler and finally quality control (QC) and retail staff. But how to find a problem that's inside the product – invisible, until cut open?

Internal mould in capsicums is a sporadic issue affecting many, if not all, capsicum and chilli producing regions. Warm temperatures and high humidity favour the disease. Although infection is widely believed to occur at flowering, symptoms do not usually develop until the

capsicum starts to ripen, spreading most rapidly after harvest. The fungus is usually found growing over the seeds but can also develop from the flower end of the fruit.

There are several different fungi that may cause internal rot. In the northern hemisphere, *Fusarium* spp. has been identified as the fungi responsible. However, samples collected some years ago in Bundaberg were found to be infected by *Alternaria* spp. As control strategies differ between fungal species, identifying the causal organism is an important first step for managing the disease.

Getting inside information

Applied Horticultural Research is investigating internal rot of capsicums. A strategic levy investment under the Hort

Innovation Vegetable Fund, *Internal fruit rot of capsicum* (VG17012) aims to identify the fungus/fungi causing this problem as well as develop management techniques to prevent infection, reduce postharvest development and minimise the risk of sending unacceptable fruit to market.

In February this year, the project team collected a number of samples of flowers and fruit from both capsicums and chillies in southern Queensland. Isolates of *Alternaria* were recovered from flowers, discoloured seeds and the dried remains of the style (the small, black fragment which sticks to the base of the fruit). *Alternaria* was also recovered from fruit with symptoms of black mould – an external infection resulting from blossom end rot or sunscald.

Whereas internal rot was a relatively minor issue for Queensland growers



Internal rot is most frequently found growing over the capsicum seeds.



University of Sydney Honours student Ryan Hall and Dr Len Tesoriero dissect collected flowers and fruit at the Department of Agriculture and Fisheries, Queensland's Applethorpe research station.



Flowers isolated for incubation, allowing any fungi present to develop.

coming out of drought, sampling in the Sydney Basin during March revealed a bigger issue. On average, 29 per cent of capsicums had symptoms of internal rot. Species of *Alternaria*, *Cladosporium*, *Fusarium* and *Penicillium* fungi, as well as a few bacteria, were all isolated from various flower parts. While *Alternaria* was isolated most frequently from the petals, the carpel (ovary, stigma and style) and stamens were also commonly infected with different fungi. This suggests that there are a range of pathogens present at flowering, which could potentially transfer into the developing fruitlet.

In contrast, *Alternaria* was overwhelmingly the main pathogen isolated from fruit. In total, *Alternaria* spp. was isolated from 92 per cent of flowers and 97 per cent of fruit with internal rot symptoms. Interestingly, at least three different 'small spored' types of *Alternaria* were present. This group includes *A. alternata*, but also *A. arborescens* and *A. tenuissima*. Identifying to species and strain can only be done through molecular methods – an important next step with these isolates.

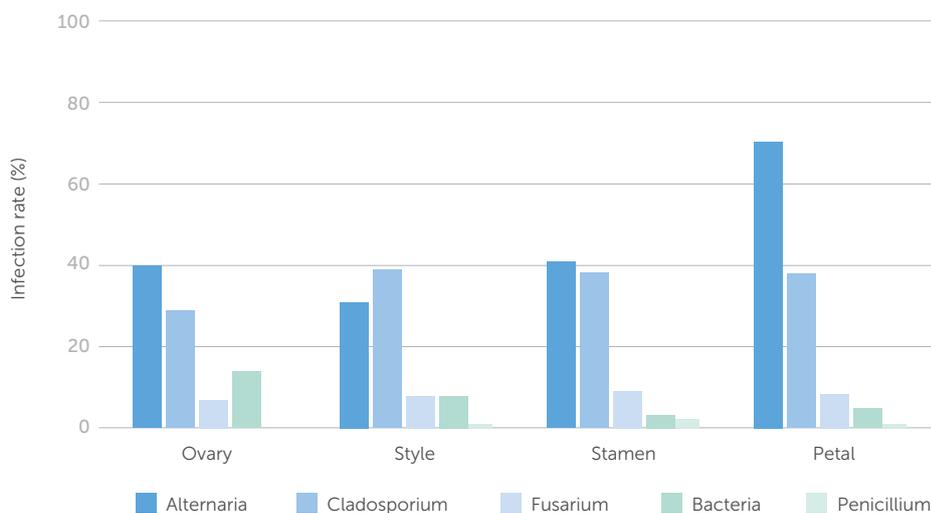
Identification of the fungi responsible for internal rot has been further confounded by flower samples received from Bundaberg. Local collaborators collected multiple replicates of capsicum flowers from crops in Calavos, Alloway, Moorelands and Meadowvale for analysis at Applied Horticultural Research's Sydney laboratory. From a total of 400 flowers, not one was found to have *Alternaria* spp.. Instead, incubation revealed that many were infected with various species of *Fusarium*.

At the time the flowers were sampled, there were no mature fruit on the plants. However, as the capsicums develop and ripen over the next few weeks, we hope to discover whether or not *Fusarium*-infected flowers cause fruit with internal mould.

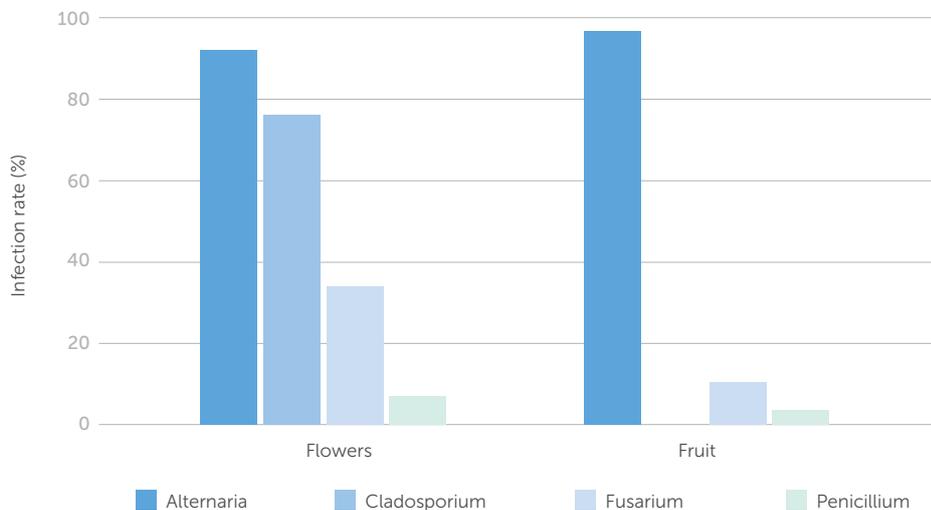
Further research

Meanwhile, Honours student Ryan Hall is growing three commercial varieties of capsicum in the Sydney University glasshouse. The flowers will be tagged and artificially inoculated with different strains of *Alternaria* and potentially *Fusarium*. When the resulting fruit mature, they will be examined at for symptoms of internal rot. We hope that this will establish

Fungal species found in different parts of capsicum flowers.



Fungal species found in fruit compared to flowers.



whether the infection that causes internal mould really does occur during flowering, and if more than one type of fungi can be responsible.

It is early days for the project, and we are keen to get more samples of capsicums with internal mould. Ideally, we would like a number of samples from each capsicum producing region – that way we can gain an overview of fungi responsible.

If you or someone you know does have that experience of finding a ball of grey fluff inside an otherwise beautiful red, yellow or even green capsicum, then please contact the project team.

Find out more R&D

For more information, or to send samples, please contact Dr Jenny Ekman from Applied Horticultural Research at jenny.ekman@ahr.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: VG17012

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



Austchilli Horticultural Technical Agronomist Kaushal Gunasekara.

Veg growing operations investigate precision techniques

In 2017, a strategic levy investment was established to support the vegetable industry in adopting precision agriculture technologies. Over the last three years, the project team has worked with vegetable industry members to develop data packages, which are being used to help growers boost yield. AUSVEG Communications Officer Sophie Burge speaks to agronomists Stuart Grigg and Kaushal Gunasekara about their involvement in the project.

A strategic levy investment under the Hort Innovation Vegetable Fund, *Adoption of precision systems technologies in vegetable production* (VG16009) has been working with growers across Australia to implement the following precision agriculture technologies, and assess their potential in vegetable systems, including:

- Different soil sensing technologies. e.g. EM38, Veris®, SIS™.
- Crop sensing imagery for various applications.
- Strategic soil and plant sampling (including grid mapped soil sampling).
- Yield prediction from remote sensing imagery.
- Yield monitors.
- Variable rate applications.

The Queensland Department of Agriculture and Fisheries (DAF, QLD) has led the project, with a number of collaborators across Australia including the University of New England, Tasmanian Institute of Agriculture, Harvest Moon, Primary Industries and Regions South Australia, vegetablesWA and the Society of Precision Agriculture Australia (SPAA).

Investigating precision ag

One vegetable industry member who has benefited from involvement in this project is Stuart Grigg from Stuart Grigg Ag-Hort Consulting. Stuart is an independent agronomist based in Victoria who has worked with vegetable growing operation, Fresh Select, at its Werribee South headquarters for the past 10 years. Stuart's role involves crop scheduling, variety selection, pest and disease identification, nutrient use with a focus on sustainability and new developments in the agronomy sector.

Stuart explains why he decided to take part in this project.

"I was already going down the path of investigating precision agriculture and seeing where it could fit within the horticulture sector," he says.

"This project allowed me to be involved in the investigation of these technologies on a more precise scale and prove exactly

where the actual benefits exist for the growers I'm working with."

Stuart explored a range of on-farm precision ag activities including Electromagnetic induction (commonly referred to as EM) and soil grid mapping. EM detects soil electrical conductivity, and is a cost-effective option for detecting spatial differences in moisture, clay content and salt levels in soil.

"The focus for me initially was in soil grid mapping and actually being able to understand where nutritionally-different areas of the same paddock exist, which compromises paddock and crop uniformity. EM Surveying looked at different soil types and potential salinity issues within those paddocks," Stuart says.

Taking to the sky

Another aspect of this project that piqued Stuart's interest was the use of drone imagery. Using drone technology means that Normalised Difference Vegetation Index (NDVI) and the near infrared (NIR) imagery is captured, as Stuart explains.

"Now we can start scanning crops from the air and actually look at the variability of the crops. We can see the interactions between the soil, the soil characteristics, and the soil issues that we've identified by the mapping, as well as how the crops the actually respond to that soil issue, soil type or nutrient status that we've identified from our soil tests," Stuart says.

The next part of the drone technology was to run plant counts over the crops.

"One of our focuses at Fresh Select is to understand the amount of produce that's expected to come into the business' warehouse on a weekly and monthly basis," Stuart says.

"Putting a drone over the crop means we record an exact number of plants, plus or minus two per cent in the field. So, we can fly a crop two or three times after planting and get a really good idea of the number of plants that have actually established in that field, as well as look for variability in the crop. We can then start to make pretty good yield estimations.

“These numbers give Fresh Select more information and clarity around expected volumes the business will receive in one- or two-months’ time, which allows the sales and marketing team to make much more informed decisions.”

Drone focus: Austchilli

Kaushal Gunasekara is the Horticultural Technical Agronomist at Austchilli, a chilli growing operation based in Bundaberg, Queensland.

Austchilli began precision ag practices in the mid-1990s and implemented GPS-guided control traffic operations about a decade ago. The operation began using automated irrigation systems around three years ago and followed this with using drones from 2018.

“We had several rounds of training, starting with the legislative procedures and the legal aspect of drone operation on farms,” Kaushal says.

As part of his involvement in the DAF, QLD-facilitated project, Kaushal also attended a grower study tour of South Australia, Victoria and Tasmania in 2019. Held from 4-11 September, the levy-funded tour provided participants with the opportunity to visit case study farms and share experiences in getting the most out of precision ag technologies for their vegetable growing business.

“It was one of the most important experiences in my life as an agronomist and we learnt a lot as an organisation,” Kaushal says.

“We saw how controlled traffic operations are taking place in different farming systems and how the variable rate of irrigation takes place.”

Networking was also a highlight of the precision ag tour.

“We had a great opportunity to create a network with fellow agronomists and growers around the country, who are involved in precision agriculture activities,” Kaushal says.

Kaushal explains why Austchilli explored precision ag technologies and discusses its importance in the business.

“The main driver is to increase input productivity. With every aspect of precision agriculture, we are focusing on improving our production, and our yield and quantity and quality of the yield, with minimising the inputs,” he says.

“Being in a very sensitive region in Australia, near the Great Barrier Reef, it’s very important. One of our main focuses is to optimise our fertiliser and spraying programs without negatively contributing to the environment.”

Grower advice

Kaushal has tips for vegetable growers who are looking to enter the precision ag space.

“The most important thing is to do thorough research before you select a precision agriculture tool in your farming system,” he says.

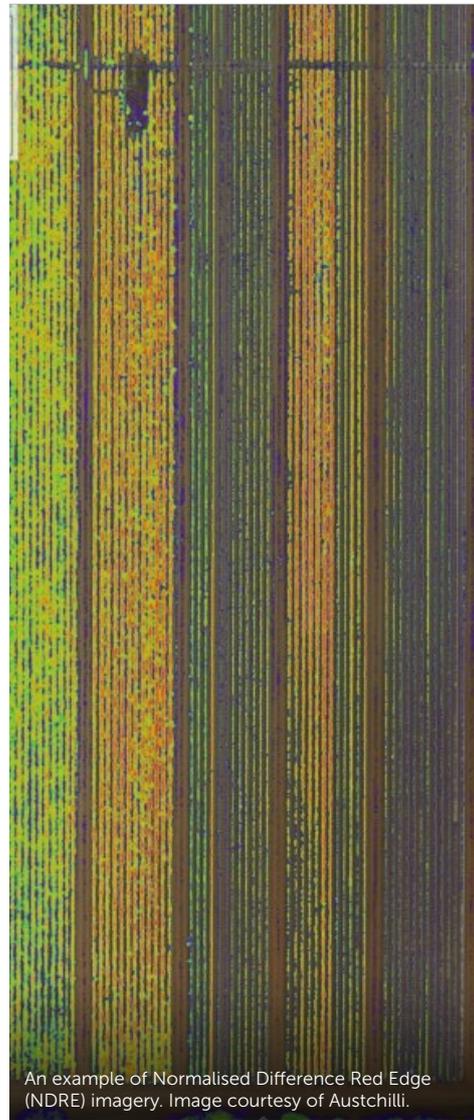
“Every operation is different. For instance, a grower who is doing trickle irrigation is different to someone who is doing overhead irrigation. Or someone can have a large-scale field crop production, whereas someone else has fairly small land that is protected agriculture.

“Doing your research before you go into the precision agriculture operations will help to save you a lot of money. Because if you make a wrong decision, then you have to go back to correct it, and you won’t be able to receive the maximum benefit.”

“Projects like this help growers, and if you do your homework properly, you’ll be able to improve your productivity and profitability.”



Agronomist Stuart Grigg with his children (L-R) Eamon, Bridie and Kiara.



An example of Normalised Difference Red Edge (NDRE) imagery. Image courtesy of Austchilli.

Find out more R&D

Readers can listen to Stuart Grigg and Kaushal Gunasekara speak about their experiences on InfoVeg Radio. This podcast will be made available at ausveg.com.au/infoveg/infoveg-radio.

For further information about this project, please contact DAF, QLD Senior Development Horticulturist Julie O’Halloran on 0409 054 263 or at julie.ohalloran@daf.qld.gov.au.

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

Project Number: VG16009



Minor use permits

Permit Number	Crop	Pesticide Group	Active	Pest/Plant disease/ Target weed	Date Issued	Expiry Date	Permit Holder	States
PER13367 Version 4	Celeriac and leek	Herbicide	Linuron	Grass and broadleaf weeds	31-May-13	30-Apr-25	Hort Innovation	QLD, NSW, SA, WA and Tas only
PER10976 Version 4	Snow peas and sugar snap peas	Herbicide	Bentazone	Broadleaf weeds	10-Aug-09	31-Mar-25	Hort Innovation	All states except VIC
PER80099 Version 3	Fruiting vegetables (except cucurbits)	Insecticide	Alpha-cypermethrin	Queensland fruit fly and Mediterranean fruit fly	26-Feb-15	31-Mar-25	Hort Innovation	All states and territories except VIC
PER80138 Version 3	Cucurbit vegetables	Insecticide	Alpha-cypermethrin	Cucumber fruit fly	26-Feb-15	31-Mar-25	Hort Innovation	All states and territories except VIC
PER11949 Version 4	Radish and beetroot	Insecticide	Lambda-cyhalothrin	Various insect pests	01-Apr-10	31-Mar-25	Hort Innovation	All states and territories except VIC
PER10988 Version 4	Snow peas and sugar snap peas	Herbicide	Cyanazine	Broadleaf weeds	10-Aug-09	31-Mar-25	Hort Innovation	All states except VIC
PER81241 Version 3	Lettuce, chicory, endive, radicchio, spinach (field transplants only – all types) and baby spinach (field crops only)	Herbicide	Phenmedipham	Weeds as per product label	29-May-15	31-May-25	Hort Innovation	All states and territories except VIC
PER11951 Version 5	Brassica, spinach, silverbeet, endive, chicory, radicchio and peas - processing	Fungicide	Phosphorous acid	Downy mildew	05-Dec-14	31-Mar-25	Hort Innovation	All states and territories except VIC
PER12489 Version 3	Celery, cucumber, peppers and cape gooseberry	Insecticide	Imidacloprid	Aphids, greenhouse whitefly and suppression of plague thrips and onion thrips	30-Jun-15	31-May-25	Hort Innovation	Cape Gooseberry QLD only. Celery, Cucumber and Peppers all states and territories except VIC
PER10845 Version 4	Brassica leafy vegetables	Fungicide	Zineb	Cercospora leaf spot and downy mildew	11-Jun-09	31-May-25	Hort Innovation	All states and territories except VIC
PER13301 Version 3	Lettuce (field only)	Insecticide	Alpha-cypermethrin	Red-legged earth mite and vegetable weevil	12-Jun-12	31-May-25	Hort Innovation	All states and territories except VIC

Permit Number	Crop	Pesticide Group	Active	Pest/Plant disease/ Target weed	Date Issued	Expiry Date	Permit Holder	States
PER82341 Version 3	Cucumber, peppers, zucchini, eggplant, bitter melon, sin qua, tomatoes (field and protected situations) and snake beans (field situations only)	Miticide	Bifenazate	Red tomato spider mite and two-spotted mite – snake beans only	01-Apr-15	31-Mar-25	Hort Innovation	All states and territories except VIC
PER13305 Version 5	Carrots (shielded spraying)	Herbicide	Glyphosate	Various weeds	28-May-12	30-Jun-22	Hort Innovation	All states and territories except VIC
PER12351 Version 3	Leafy lettuce, okra, broccoli, cauliflower and head cabbage	Insecticide	Imidacloprid	Silverleaf whitefly	30-Mar-15	30-Apr-25	Hort Innovation	All states and territories except VIC
PER14593 Version 3	Specified fruiting and legume vegetables	Fungicide	Mancozeb	Downy mildew, anthracnose and Alternaria	10-Jul-14	30-Apr-25	Hort Innovation	All states and territories except VIC
PER14337 Version 3	Swede and turnip	Herbicide	Trifluralin	Annual grasses and broadleaf weeds	10-Mar-14	30-Jun-25	Hort Innovation	All states and territories except VIC
PER88349*	Capsicum, snow peas and sugar snap peas	Herbicide	Glufosinate-ammonium	Broadleaf weeds and grasses as per product label	17-Apr-20	30-Apr-25	Hort Innovation	All states and territories except VIC
PER14047 Version 2 [^]	Peppers (capsicum, chillies, paprika) and eggplant (field grown only)	Insecticide	Methidathion	Rutherglen bug	01-Jun-13	04-Feb-21	Hort Innovation	All states and territories
PER80910 Version 3	Brussels sprouts and eggplant (field only)	Fungicide	Iprodione	Grey mould	01-Aug-15	31-Jul-25	Hort Innovation	All states and territories except VIC

Please note:

*PER88349 replaces PER10312 Version 4.

[^]Permit expiry amended to 04 February 2021, in line with cancellation of product registration and phase out period (apvma.gov.au/sites/default/files/gazette_25022020_0.pdf).

All persons may continue to use Suprathion according to current label or permit instructions up to and including 4 February 2021. Use of Suprathion after 4 February 2021 will not be permitted under any legislation.

All efforts have been made to provide the most current, complete and accurate information on these permits, however we recommend that you confirm the details of these permits at: portal.apvma.gov.au/permits.

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

Mixed cover crop trial in Kindred, north-west Tasmania.

Mixed species cover crops stand out in Tassie trial

The Soil Wealth and Integrated Crop Protection (ICP) project works with growers nationally to put soil management and plant health research into practice. This column provides an update on a successful trial on mixed species cover crops in Tasmania. *Soil Wealth ICP Phase 2 (VG16078)* is a strategic levy investment under the Hort Innovation Vegetable Fund.

Since May 2019, Yuri Wolfert and his family have hosted a cover crop demonstration site in Kindred, north-west Tasmania, supported by Soil First Tasmania, Landcare Tasmania and followed by the team from Soil Wealth and Integrated Crop Protection. The trial aimed to demonstrate the effectiveness of using mixed species cover crops in cropping rotations and find out if they could improve growing conditions and the profitability for potato crops in particular, and potentially other vegetable crops.

The Kindred trial was unique as it consisted of one field with seven large plots for different cover crop mixes. These included:

- Plot 1: Lupins and grass.
- Plot 2: Lupins and oats.
- Plot 3: Lupins, grass and phacelia.
- Plot 4: Lupins, grass, phacelia, barely and tic beans.
- Plot 5: Lupins, grass and tic beans.
- Plot 6: Lupins, grass and barley.
- Plot 7: Lupins and barley.

After seeing other cover crop trials in the local area, Yuri decided to host this trial to fast-track his initial thoughts for using cover crops on-farm.

"We wanted to improve harvestability and the general soil health for all of our crops, because there are flow-on effects if you treat the paddock right," he explained.

"Soil First Tasmania got the ball rolling and it meant we could do the trial in one field instead of many years of trials. It was set out fairly well with most plots

being one hectare, which allowed for any variation in the field to be evened out and better comparisons within each plot."

The cover crops were sown in May 2019, while laboratory soil testing and a field day was undertaken in August. The cover crops were incorporated (mostly mulched) in October before the potatoes were planted.

Key findings

The cover crops with the most diverse mixture of species were the best performing plots in the trial. In particular, plot 3 (lupin, grass and phacelia) and plot 4 (lupin, grass, phacelia, barley and tic beans) produced the best soil that Yuri has seen on his property.

"The holding water in the terminated biomass improved, and at the same time the workability of the ground improved. We spent less money on fertiliser, and a lot less time in the paddock for ground preparation – that was an added benefit," Yuri said.

"Our observations from early on, before groundwork, was that the mixed crop underneath the ground was drier than our previous mixes, which meant that we could get onto our soil earlier. The soil was drier, which may have been our dry spring, but it was also better at holding water, which was a win-win."

It wasn't all smooth sailing however, particularly when the mulcher broke due to the amount of biomass in the field.

Despite this minor setback, Yuri was happy with the performance of the trial and has since applied the learnings from this trial and others to help tailor different cover crop mixes to each crop on the farm.

"I've used more species in my next cover crop mix to try to achieve a more balanced nutrient base. I will be working in a more challenging paddock from a soil structure perspective, which has made me put other deeper rooting plants in the mix," he said.

"I'm also going to do a small trial before planting Brussels sprouts in a poorer patch of paddock and use a very low amount of nitrogen fixing plants and a lot of deep and fibrous rooting plants, but no brassicas."

Yuri is happy to host future trials, and has some advice for other growers who may be interested in starting their own cover crop trial.

"Find out what you want to achieve in terms of nutrient base and soil structure and work back from that to decide what cover crop species are going to achieve those goals for you," he said.

"If you can find a way to improve your lifestyle and your bottom line as well, that's a bonus."



Find out more



To find out more on this trial, visit soilwealth.com.au/resources/case-studies/cover-crops-before-potatoes-trial-update-kindred-tasmania/ or [facebook.com/soilfirsttasmania](https://www.facebook.com/soilfirsttasmania).

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-mareeb@rmcg.com.au.

This project has been funded by Hort Innovation using the vegetable research and development levy and contributions from the Australian Government. This cover crop trial was partly funded by Landcare Tasmania and the Tasmanian Landcare Fund.

Project Number: VG16078



Stacked bulk fertiliser bags ready for collection from the fenced-off site at Olam's 'Campbell' almond property in the Kenley area of Victoria's Sunraysia region.

Managing waste in the horticulture sector

With the prohibition of exporting waste and recyclable plastics from Australia occurring from mid-2021, fertiliser manufacturers are exploring novel ways to dispose their recyclable packaging, such as bulk bags, in an environmentally- and user-friendly manner.

Looming environmental regulations and new state laws already in place are building pressure on the Australian fertiliser industry to effectively manage waste and recyclable packaging.

Used fertiliser packaging, particularly large bulk bags predominantly used by the horticulture sector, has largely been exported to Asia for recycling, found its way into landfill or been disposed of inappropriately.

However, by mid-2021 and in-line with international agreements, exports of waste and recyclable plastics will no longer be permitted from Australia. With new laws in several states, incorrect disposable deemed to be harming the environment also can result in massive fines and/or imprisonment.

It means fertiliser manufacturers need to look at systems for future regulatory compliance, as well as protecting their brand and maintaining a strong commitment to the environment and their corporate and social responsibilities, while producers, or users, are under obligations to ensure correct disposal.

The developments have increased the spotlight on Farm Waste Recovery (FWR), which has been collecting large bulk bags from properties for some major manufacturers signed up to its industry stewardship program.

Recovery efforts

The FWR service has collected more than 3,000 tonnes of plastic since commencing four years ago and will soon come under the new banner, Big Bag Recovery, which will cover all industries. Recovery is expected to jump dramatically to around 48,000 tonnes annually, commensurate with the volume of bags imported into Australia. FWR will continue to collect unbranded waste plastics.

The business has mainly exported the bags to Asia and has plans to build a network of regional processing facilities to establish a full circle recycle industry across the country under its parent, Industry Waste Recovery. The new recycle industry would create hundreds of regional jobs and refine the waste back to a resin before manufacturing various new plastic products.

"The resin can be used to manufacture products like evaporation balls to go on water storages for seven to 10 years before being harvested, refined back to a resin and starting again. This is true recycling," FWR Managing Director Stephen Richards said.

"Ultimately, it is about preventing the need for manufacturing new plastic."

Sustainability focus

Earlier this year, FWR was collecting bags in the almond industry in Victoria's Sunraysia region with manufacturers including Haifa Australia, one of the first companies to sign up to its stewardship program, which has been a major advocate with other suppliers and producers to help ensure the industry's future environmental sustainability.

Haifa is one of the major suppliers of water soluble nutrients to the horticulture industry. It has had strong success in Australia with its Multi-K potassium nitrate fertiliser, Poly-Feed nitrogen, phosphorus and potassium formulas, and Multicote controlled release nutrition products. It also recently launched several innovative, low sodium fertilisers for high quality horticulture and greenhouse systems.

"Haifa has been one of the leading organisations behind the stewardship program. It has been actively promoting it in the different industry segments and particularly the almond industry,"

Stephen said.

"Trevor Dennis (Haifa Managing Director) has been very proactive and encouraging competitor suppliers to join because he's cognisant of his industry being seen in a positive light.

"The program is nation-wide, and we have been growing generically as we go into different industries, but not all companies are on-board. The significant leaders in industries have been the early adopters, which has then encouraged some of the smaller suppliers to also come on-board. For others, the risk is around regulatory compliance and social damage to brands, reputation and market share due to not being seen as a good corporate citizen.

"For growers, the risk is linked to the fact there is nowhere to dispose of the bags, so it has been pushed back onto the brand owners."

Find out more

Please visit haifa-group.com/haifa-australia.

Farm Waste Recovery Managing Director Stephen Richards hands a used Haifa bulk fertiliser bag up to his colleague, Stewart Ford, for transfer into the baler.





A yellow sticky trap.

National TPP surveillance program delivers first season results

A three-year investment, designed for the early detection of and preparedness for tomato-potato psyllid should it cross from Western Australia into other regions, commenced in mid-2019. AUSVEG National TPP Coordinator Alan Nankivell reports on the latest findings.

In August 2019, all states and territories commenced a three-year national tomato-potato psyllid (TPP) surveillance program.

A strategic levy investment under the Hort Innovation Nursery, Potato – Fresh, Potato – Processing and Vegetable Funds, *National tomato potato psyllid and zebra chip surveillance* (MT18008) has incorporated the learnings from the initial detection of TPP in Perth over three years ago. The project is being facilitated by the Department of Primary Industries and Regional Development (DPIRD) in Western Australia.

Two strategies have been employed. These are to focus on urban and peri-urban regions and to engage the community in an “Adopt a Trap” initiative, where department staff and community members have volunteered to put out traps and collect them.

In Western Australia, trapping was undertaken in Albany, Geraldton,

Carnarvon and Kununurra. In addition, DPIRD continued with its urban and peri-urban surveillance program. Analysis of the traps will be undertaken by the relevant state and territory departments.

It was determined that sampling would be most effective during each state and territory’s growing season, and peak insect activity time. Therefore, sampling was staggered for different regions. For example, in Western Australia, the northern most regions began sampling at the beginning of the project (August 2019), whereas the southern region’s sampling occurred in October and November. Although most states were sampling in spring, colder regions (e.g. Tasmania) began sampling later in December. Also, the Northern Territory missed its peak sampling period (April-August) due to the late start of the project – the training workshop was held at the end of August. The Top End began conducting its first sampling in April 2020.

TPP analysis

A major benefit of this project is the training of entomologists and microbiologists across the nation to develop competencies in the identification of TPP and the bacterium it vectors, *Candidatus Liberibacter solanacearum* (CLso). Each jurisdiction now has current best practice methodologies for the analysis of insects collected throughout the project.

Results to date

WA has detected TPP in Carnarvon (1 male, trap set ~8 September), Albany (21 TPP over four weeks and four properties) and Geraldton (407 TPP over four weeks and eight properties).

Of these, approximately 120 were tested for CLso (all from Albany and Carnarvon, ~100 from Geraldton), but CLso was not detected. This confirms the negative finding of CLso from the Perth metropolitan region from the same spring sample season.

These early detections are a good sign that the program is working and ensures that growers can respond promptly to prevent further TPP outbreaks.

Analysis from all other states has not identified any TPP, and therefore no CLso.

Number of sites for each state during Sampling Period 1, as well as the number of traps sent out and returned (as of 10 February 2020).

State	Adopt-a-trappers	Traps	Traps returned	Percentage returned
NSW	97	388	228*	58.76*
Vic	90	360	348	96.67
QLD	75	300	276	92
SA	99	396	396	100
WA	100	400	388	97
Tas	102	404	*	*
NT	***	***	***	***

*Not all returned, or traps analysed when data requested.

*** First season of trapping not commenced.

Find out more R&D

For more information on this program, please contact AUSVEG National TPP Coordinator Alan Nankivell at alan.nankivell@ausveg.com.au.

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

Project Number: MT16018

**Hort
Innovation**



Managing bullying, harassment and discrimination

The horticulture industry is lucky enough to welcome workers with diverse backgrounds and experiences that make the industry an interesting and exciting place to work. However, these workers may be vulnerable to bullying, harassment and discrimination. This not only forms a health and safety risks for workers but can also prevent them from performing their job well. The Growcom Fair Farms Initiative team reports.

We all deserve a safe place to live and work, and Fair Farms encourages growers to have policies and procedures in place to understand, prevent and manage any instances of bullying, harassment and discrimination.

Bullying and harassment

Bullying happens when people repeatedly act unreasonably towards someone in a way that can affect that person's physical or psychological wellbeing. Bullying can either be direct or indirect.

Direct bullying is negative behaviour that is very clear and explicit, usually conducted to belittle or demean a person. Examples of direct bullying include:

- Abusive or offensive language.
- Regular teasing.
- Making someone the butt of pranks.

Indirect bullying involves more subtle or indirect behaviours that over an extended period have a negative impact. Examples of indirect bullying include:

- Deliberately excluding someone from normal work or social activities.
- Spreading rumours about someone.
- Deliberately making someone's job harder to perform by hiding equipment or giving false information.

Warning signs that bullying might be occurring in your workplace can include high rates of workers calling in sick, an excessive 'tough guy' workplace culture and uneven distribution of work.

Like bullying, harassment is unwanted or uninvited behaviour that is offensive,

intimidating or humiliating. However, unlike bullying, harassment can be a *single incident* that offends or humiliates someone. **Sexual harassment** occurs when the behaviour directed at a person is of a sexual nature, is unwelcome and would cause a person to be offended, humiliated or intimidated. Sexual harassment is unlawful under both state and federal legislation.

Discrimination

Discrimination occurs when someone is treated less favourably because of a characteristic such as ethnicity, religion, gender or sexual orientation. Like bullying, discrimination can be direct or indirect. While direct discrimination is very easy to see (e.g. only hiring white, Asian or female workers), indirect discrimination can be harder to see. For example, a dress code that requires no facial hair when working on a grading line might unknowingly discriminate against workers who have facial hair for religious reasons.

Managing these risks

The first step in managing the risks of bullying, harassment and discrimination is having a clear policy and procedure in place. Your policy should outline:

- Your commitment to a safe workplace and intolerance of bullying, harassment and discrimination.
- The types of issues that are handled under this policy.

- How your business will handle, investigate and resolve instances of bullying, harassment and discrimination.
- How workers can seek help, including contact information for counselling and support services.

Once you have a clear policy and procedure in place, it is important to communicate it to all workers and include it in any induction material, so workers feel comfortable and safe to raise an issue. You should also train supervisors or managers in the policy so they are confident in handling arising issues in accordance with the procedures.

These and other important topics are covered in the Fair Farms Standard, which outlines the accepted principles of fair and ethical employment in horticulture. Employers who wish to demonstrate compliance with the Fair Farms Standard can get third-party certified. For more information, visit: fairfarms.com.au or email fairfarms@growcom.com.au.

Find out more R&D

Visit fairwork.gov.au and growcom.com.au for more information regarding your obligations as an employer.

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





Attention veg growers: Can you help new varieties come to life?

In this 'Ask the industry' column, Syngenta Product Development Specialist – Open Field Solanaceae Adam Thomas discusses the benefits for vegetable growers who collaborate with their seed companies to conduct on-farm variety trials.

In many ways, the release of new vegetable seed varieties in Australia has been more 'steady evolution' than 'revolution'. Seeds companies like Syngenta always strive to introduce 'blockbuster varieties'. Huge advances are not always possible, but our incremental gains consistently deliver genuine benefits for growers.

For those who are willing and able to collaborate on a trial site – working with a seed company as part of a national development program – there are significant advantages.

Seeing and comparing new varieties side-by-side in the pipeline can give an important commercial edge in adopting improved varieties earlier.

Having trials on local soil types, growing them under local conditions and within regionally relevant crop rotations can provide valuable information for co-operators as to how these varieties will fit into their cropping systems.

Collaborating with growers is a win-win for us too. It's important to have a large trial and testing network so we can assess information over a wide area finding where to best position a variety and how our products are going to perform before the customer receives them. This ensures that our partners can have confidence in the variety at every step of the supply chain.

The Syngenta Vegetable Seeds Variety Development Program would not be possible without the co-operation of growers who are prepared to contribute sites and assist with management of trials on their properties.

Trial thinking

For growers contemplating variety trials, here are some things to consider:

- Good communication between grower and the seeds company is essential to facilitate effective co-ordination of trials.
- Once seeds or seedling plants are ready to go, they need to be planted or transplanted in coordination with the grower's planting schedule.
- Field trial placement is critical. Things to take into account when offering a trial site and good practice when planting a trial include:
 - Positioning the trial on or close to a headland or road to ensure easy visibility, access and monitoring.
 - Avoid low-lying areas of the farm to minimise the risk of trials being waterlogged and reduce the potential for disease.
 - Use of open surroundings away from buildings or trees will ensure better light and airflow and tend to make for good sites.
 - The trial position should be in the middle rows (or as close to) with buffer plots alongside to avoid added variability from too much sun, wind, dust or machinery exposure.
 - Before you start, be aware of your commitment, i.e. the size of the trial including number of varieties, plot sizes and any replications.
- After planting, the trial area will be largely in the hands of the grower with monitoring and assessment by the

seed company at certain stages of crop development and at optimal maturity for evaluation.

- When quality and yield assessments are required the grower will be notified and communicated the results or best performing varieties to keep an eye on.

Further information

Growers should also be aware of the GMO status of the seeds company.

All vegetable varieties presently marketed by Syngenta Australia and New Zealand have been created using traditional breeding methods, without the use of genetic modification techniques leading to genetically modified organisms as defined in Directive 2001/18/EC.

The methods used in the development and maintenance of our varieties are aimed at achieving high purity standards and avoiding the presence of off-types, including genetically modified organisms.

Please contact us if you would like more information about hosting a Syngenta trial.

Find out more R&D

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*: info@ausveg.com.au. Please note that your questions may be published.

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



Delivering data to the Australian horticulture industry

The *Australian Horticulture Statistics Handbook* is an analysis that combines all available data on production, international trade, processing volumes and fresh market distribution of 75 horticultural categories, including vegetables, for the year ending 30 June 2019.

The latest edition of the *Australian Horticulture Statistics Handbook* is now live and boasts an exciting new interactive dashboard with improved search functionality and user preferences.

The Handbook features data on more than 70 horticultural products including vegetables, fruit, nuts, nursery, turf and cut flowers.

The data shows that in 2018/19, the horticulture sector recorded its highest production value to date. It reports that the sector has experienced seven years of consecutive growth, with the new data showing industry growth by AUD\$1.1 billion to reach a total value of \$14.4 billion in 2018/19, an 8.4 per cent increase from the previous year.

The value of the vegetable category increased by nearly nine per cent to reach a value of AUD\$4.7 billion in 2018/19. Potatoes were the most valuable vegetable product at AUD\$752.6 million.

Valuable insight

Hort Innovation's Head of Data and Insights, Adam Briggs, said the Handbook provided important data for industry, researchers and decision makers; supported policy formation; and contributed to further research to benefit all horticulture industries.

He said the ongoing investment in the development and improvement of the Handbook meant new metrics, which reported information about retail and foodservice distribution for fruit and vegetable products, is now available. Furthermore, its accessibility has also improved.

"The new interface allows users to dynamically select products 'on demand' and perform a greater range of timeseries analyses on the data, which now dates back seven years to 2012/13," Mr Briggs said.

"These additional features mean that our stakeholders have more horticulture statistics available at their fingertips so they can remain informed and make the best decision for the success of their businesses.

"Hort Innovation is excited to launch this new iteration and will continue to develop the data."

The Handbook, which captures data up until 30 June 2019, also revealed:

- The value of bean production increased by 45 per cent year on year – the highest increase of a vegetable product in value terms.
- The volume of sweetpotatoes grown increased an average of 12 per cent per year for the last five years, the highest growth rate of all vegetables. Total volume produced in 2018/19 is almost double that of 2013/14 levels.
- The value and volume of raspberries and blackberries puts them as the highest growing fruit over the five years leading up to 2018/19, with total value increasing one-and-a-half times since 2013/14 and volume nearly tripling.

Interactive stats now available online

Australia's preferred source for horticulture statistics by industry and government is now interactive.

The online dashboard format is available on laptop and desktop computers, provides an interface for readers to directly interact and extract data at the product category level.

In addition to the new interactive format, the 2018/19 edition of the *Australian Horticulture Statistics Handbook* also features additional data, demonstrating the share of fresh supply volumes to both retail and foodservice for fruit and vegetable categories.

The Handbook is an analysis that combines all available data on production, international trade, processing volumes and fresh market distribution in order to produce statistics on 75 horticultural categories.

If you cannot access the online dashboard, the original format of the handbook continues to be made available for this edition through PDF documents.

Find out more

To access Hort Innovation's *Australian Horticulture Statistics Handbook*, please visit horticulture.com.au/hortstats. The Handbook's interactive dashboard is suitable for viewing on desktop computers, while PDF information can also be viewed on mobile.

Australian Horticulture Statistics Handbook 2018-19 to 2020-21 has been funded by Hort Innovation using the across industry levy and funds from the Australian Government.

Project Number: HA18002

**Hort
Innovation**

Hort Innovation vegetable fund investments (levy projects)

Project code	Delivery partner	Project title	Project lead contact details	Project description
VG17012	Applied Horticultural Research	Internal fruit rot of capsicums and chillies	Dr Jenny Ekman: jenny.ekman@ahr.com.au; 0407 384 285; 02 8627 1040	Internal rot of capsicums and chillies is a major ongoing issue for Australian growers, typically those in warm, humid growing areas. It affects both field and greenhouse grown fruit, especially if humidity is not well controlled. This investment aims to determine the causal agent(s) in Australia as well as investigating how disease spreads. It will also develop an integrated disease management (IDM) strategy through on-farm trials and post-harvest controls.
VG17015	The Department of Primary Industries and Regional Development, Western Australia	Alternative disinfestation for market access for crops affected by tomato potato psyllid	Dr Sonya Broughton: sonya.broughton@dprid.wa.gov.au	Tomato potato psyllid (TPP) was detected in Western Australia in early 2017, and has since had an impact on market access for crops that can act as hosts for the pest including capsicums, chillies and eggplants, as well as tomatoes. This investment is exploring TPP disinfestation treatments that will help support the trade of fresh produce from Western Australia. Avenues of research include ethyl formate fumigation, low-dose methyl bromide treatment, and the use of irradiation.
VG18000	AUSVEG	National vegetable industry communications program	Shaun Lindhe: shaun.lindhe@ausveg.com.au; 03 9882 0277	This investment is responsible for effectively communicating the findings of levy-funded R&D and other relevant industry news, issues and data to vegetable growers and other industry stakeholders. The ultimate goal is to increase awareness of project outcomes and inspire on-farm adoption of new learnings and technologies. The project also provides media relations for R&D-related news, including the production and distribution of AUSVEG media releases.
VG18004	Hortigrow Consulting	Vegetable Strategic Agrichemical Review Process (SARP) report updates	Vasanthe Vithanage: vasanthe_vit@yahoo.com.au	This short investment is facilitating a 2020 Strategic Agrichemical Review Process (SARP) for the vegetable industry, to provide an updated view of current priorities and gaps regarding pest, disease and weed control. Each industry's SARP report will assist in directing ongoing efforts to ensure the availability of and access to effective chemical controls for the industries, to address those needs and gaps. This may relate to pursuing chemical registration with agrichemical companies, or minor use permits with the Australian Pesticides and Veterinary Medicines Authority (APVMA).
MT18008	The Department of Primary Industries and Regional Development, Western Australia in collaboration with others	National tomato potato psyllid and zebra chip surveillance	Dr Melinda Moir: melinda.moir@dpir.wa.gov.au	Tomato potato psyllid (TPP) is one of the world's most destructive horticultural pests. This is because the psyllid acts as a vector for the bacterium <i>Candidatus Liberibacter solanacearum</i> (CLso), which is associated with 'zebra chip' disease and 'psyllid yellows' in solanaceous plants. In 2017, TPP was found to have established in Western Australia, but not to have spread further. This investment supports a critical national surveillance, identification and reporting program for the pest and CLso across Australia on behalf of the horticulture industry. Highly collaborative across states and territories, the program is designed for the early detection of and preparedness for TPP should it cross from Western Australia into other regions.
MT18016	The Right Mind	The Growing Leaders Program	David Hanlon: dhanlon@therightmind.com.au	This multi-industry leadership-building project runs and supports the participation of sweetpotato, raspberry and blackberry and vegetable workers in a leadership development program. The program, conducted online and through face-to-face sessions, is designed to help participants define their leadership style; manage conflict; shape team culture; communicate effectively and more.

Project code	Delivery partner	Project title	Project lead contact details	Project description
MT16005	Plant Health Australia	Enhanced National Bee Pest Surveillance Program	Jenny Shanks: jshanks@phau.com.au, 02 6215 7700	Now part of the Hort Frontiers Pollination Fund, this investment is delivering a nationally coordinated bee-pest surveillance program to help safeguard honeybee and pollinator-dependent industries in Australia. It builds upon the previous <i>National Bee Pest Surveillance Program</i> (MT12011), and includes upgrading sentinel hive arrays, strengthening relationships with surveillance operators, the introduction of new elements such as Asian hornet screening and more. The surveillance is designed to enable the early detection of high-priority pest incursions that can impact on honeybees, providing the best opportunity for successful pest eradication. The vegetable industry is one of several contributors to the project's work.
VG17003	Western Sydney University	National Vegetable Protected Cropping Centre	Ian Anderson: i.anderson@westernsydney.edu.au, 0404 081 120	In November 2017, the nation's first state-of-the-art vegetable glasshouse-production research centre was launched. This project continues to facilitate work at the facility, with the aim of manipulating inputs to create the optimum environment to drive maximum harvest windows and overall yield for a variety of vegetables, then share this information with Australia's growers. Through this facility, industry also aims to attract new entrants to horticulture careers by offering students access to some of the most advanced technology currently available.
VG15002	Western Australian Agriculture Authority (WAAA)	Advanced stable fly management for vegetable producers	Dr David Cook: david.cook3@dpird.wa.gov.au	This research has been investigating strategies to reduce the development of stable flies in crop residues left after vegetable harvest. As well as assessing the ability of the flies to lay eggs on residues, it is looking at the use of new machinery for deep burial of crop residues; the use of biological agents including beneficial fungi and predatory insects; and non-chemical approaches to removing stable flies from carrier animals.
VG15073	The Queensland Department of Agriculture and Fisheries	Characterisation of a carlavirus of French bean	Dr Denis Persley: denis.persley@daf.qld.gov.au	This investment is characterising a new carlavirus found infecting Fabaceae crops in South East Queensland, and is set to identify potential distribution and incidence of the virus in other French bean production regions of Australia. Importantly, the project will develop and help growers adopt management strategies for the virus, resulting in improved pack-out, increased marketable yield and a reduction in the impact of the disease.
VG16078	Applied Horticultural Research	Soil wealth and integrated crop protection - phase 2	Gordon Rogers: gordon@ahr.com.au, 0418 517 777	This project will continue to provide vegetable producers with the latest information in soil and pest-related areas. It brings into one investment the well-respected Soil Wealth and Integrated Crop Protection initiatives, with project resources delivered through soilwealth.com.au.
VG16042	Fresh Produce Safety Centre Australia and New Zealand	Pathogen persistence from paddock to plate	Stephen Fujiwara: stephen@fpssc-anz.com, 02 8627 1058	This project is looking at pre-harvest water and untreated animal manure withholding periods in relation to minimising or eliminating the risk of microbial contamination of high-risk vegetable crops. It will help growers use untreated manures and pre-harvest water confidently, with proven exclusion periods, without compromising the safety of their products.



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AUSVEG SA

AUSVEG SA has been heavily engaged in the state-based response to COVID-19 to ensure that horticulture remains open for business throughout the current crisis.

As such, we have been working closely with our membership to work through practical issues such as managing worker quarantine across borders and assisting businesses to implement appropriate social distancing measures.

We remain engaged with the senior executive team at Primary Industries and Regions South Australia along with Minister for Primary Industries and Regional Development, the Hon. Tim Whetstone, to deliver the state response in the agricultural portfolio.

We will soon be working on initiatives

that aid business in the economic recovery stage. If any growers have suggestions or would like to discuss market impacts from COVID-19, they can call their AUSVEG SA representatives anytime.

In other news, South Australian-based extension services (as part of the national VegNET project) have been renewed. This will see valued staff member Yanyu Liang continue with us for another 18 months to deliver extension services and events for our growers. We thank Hort Innovation for this important investment in the South Australian industry, particularly as it looks to manage adverse effects from the COVID-19 crisis such as market shocks to the food service sectors.



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Growcom

Looking after our health has never been more important as we find our way through this COVID-19 crisis.

As the peak body for horticulture in Queensland, Growcom has launched *Eat Yourself to Health*, a new national healthy eating campaign reminding Australians that food is our first medicine.

Research has shown a varied diet with lots of high-fibre foods can help boost gut health and prevent against disease. But according to recent dietary surveys, the majority of us aren't eating even half the recommended intake of at least five serves of vegetables and two serves of fruit per day.

As part of the *Eat Yourself to Health* campaign, we're encouraging Australians to 'Eat Up! And Branch Out!' by consuming more fresh foods and also introducing to their diet fruits or vegetables they wouldn't normally eat.

Queensland growers produce an abundance of fresh fruits, vegetables and nuts, each jam-packed with nutrients and vitamins that can aid in naturally boosting our immune systems.

And since we're all staying home and cooking more, this is a fantastic opportunity to expand our cooking skills and try something new.

As part of the *Eat Yourself to Health* campaign, growers are sharing with consumers on social media their own unique COVID Cooking Challenge, inspiring

creativity in the kitchen by incorporating a wider variety of fresh produce.

Whether it's a short video or a photo with text, here are some of the key elements that growers are including in their COVID Cooking Challenges:

1. State who you are, your farm and location.
2. Invite audience to *Eat Yourself to Health* with the fruit, vegetable or nut you're currently harvesting. Bonus points for any nutritional information!
3. Issue your COVID Cooking Challenge that makes use of the crop you've introduced at step two. It could be using the crop in an unusual way or adding a twist to a classic recipe.
4. Share your post on your own Facebook or Instagram page and tag the campaign @eatyourselftohealthau and use the hashtag #EatYourselfToHealth.

If you're a grower, we encourage you to join the campaign with your own COVID Cooking Challenge, or simply follow us on Facebook and Instagram (@eatyourselftohealthau) and share the campaign with your friends.

For more information, our campaign landing page has a variety of resources for consumers on how to boost their health through increased intake of fruits, vegetables and nuts: eatyourselftohealth.com.au/ campaign.



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VGA trading as AUSVEG VIC

AUSVEG VIC

Due to the COVID-19 pandemic, AUSVEG VIC has decided to cancel the AUSVEG VIC 2020 Awards for Excellence, which was due to be held on Friday 15 May at the Junction Oval in St Kilda.

This is hugely disappointing given it is a fantastic opportunity to recognise the achievements of our state's leading growers and agribusinesses; however, the decision to cancel is out of our hands and the best way to protect people's health.

I would like to thank those who had made the decision to support the organisation by attending and sponsoring the event, and look forward to working with you all in 2021 to come together and celebrate everyone's success, achievements and good health!

The COVID-19 pandemic has caused a massive disruption to our daily lives, but people all around Victoria and the world still need to continue to eat vegetables. No doubt everyone has been impacted in some way, particularly those who saw some of their business impacted by the closure and disruption of the food service and processing industry.

There are many places to go for information on COVID-19, but two great places to start are the Victorian Department of Health and Human Services at dhhs.vic.gov.au/coronavirus, which has important health-related information, and also Business Victoria at business.vic.gov.au, which has specific information for business owners for business support and economic stimulus packages that may be available for businesses.

I would also like to acknowledge that AUSVEG VIC State Manager Tom Cohen has resigned from the organisation after nearly three years in the role of State Manager. Tom has left AUSVEG VIC to further his career in agriculture with Rabobank after spending five years at both AUSVEG and AUSVEG VIC working closely with growers on important industry issues. On behalf of the AUSVEG VIC Executive Committee, I would like to thank Tom for his time at AUSVEG VIC and wish him all the best for his future endeavours.

In the meantime, queries relating to AUSVEG VIC can be addressed to me via the email below.

NT Farmers Association

It is hard to talk about any other topic than the COVID-19 response, and the impact it is having on our lives and businesses. So far, the Northern Territory has done an excellent job of containing the few cases we have had and protecting our large and geographically spread vulnerable communities. The NT has severely restricted people movement from interstate, but freight and vital agricultural machinery and equipment is coming through as required. These transport companies are adhering diligently to their COVID-19 plans. These plans are being developed individually for all our farms with packing sheds. At the time of writing, the first plans from our melon and pumpkin producers were being assessed by the health department.

Australia's season production pattern means that larger producers have built a business model on being able to shift key supervising staff and harvest or pruning labour teams between regions and states. The challenge for producers is to adapt to the new circumstances. States and territories are rightly looking to the horticulture sector to employ locals that have been put out of work by COVID-19. NT Farmers has worked with the NT Government to help set up

and populate the Territory Jobs Hub for our growers looking for workers and job applicants looking for work, who flooded our emails and website in March and April. The gap is clearly for team leaders and supervisors that will be needed to train these workers to become part of our industry for the duration. Helping our growers getting COVID-19 plans approved to facilitate these vital interstate movements has been a major focus for NT Farmers.

The Darwin region had a good finish to the Wet Season and most of our ground water aquifers are back up to normal, which is a much better starting point than last year. However, Katherine has had the lowest rainfall on record, so the refill of the Tindall aquifer is reduced. This could impact on water allocations this year for our melon and pumpkin growers. We are in discussions with the Department of Primary Industry and Resources about a plan to keep those existing agri-businesses producing and to maintain the economic activity for the Katherine region in these difficult times. Additionally, we have fall armyworm being found all across northern Australia – more on that in the next edition.



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NSW Farmers Association

Between drought, fire, flood and COVID-19, the last few months have been hectic for growers in New South Wales and across the country.

NSW Farmers was pleased to see our state government announce \$140 million to support horticulture, agriculture and forestry sectors to recover after the bushfires, and we'll work with them to ensure our affected growers get the assistance they need. We're continuing to advocate for growers who aren't experiencing drought-breaking rainfall, and for those who have seen the impacts of drought on the quality of their fruit.

We're also in regular contact with our state department as part of the NSW Horticulture Industry COVID-19 Working Group to look at issues and solutions across the state. NSW Farmers is concerned about the impacts on labour availability, with horticultural regions locking down to prevent the spread of the virus.

Most hostels are not taking new bookings, and workers don't have the capacity to pay hotel rates. Some growers are offering on-farm accommodation for workers, but others have concerns about the provision of water, power, sewerage and security, as well as occupational health and safety.

Caravan parks and campgrounds are open for essential workers but there are still risks with shared facilities.

With the introduction of JobKeeper payments and the increase in JobSeeker, local labour options are drying up. NSW Farmers is seeing an increase in enquiries from backpackers looking for farm work, especially as many are out of casual hospitality work and don't qualify for government assistance.

We believe there is a way forward, working with the tourism industry to repurpose its infrastructure to accommodate and transport seasonal workers and backpackers. Hotels and motels can house workers; coaches and unused school busses can assist in transport to farms, particularly as many backpackers don't have their own transport.

This requires some flexible, out-of-the-box thinking from industry and state departments, and government must be willing to assist our sector in the way it has assisted others impacted by COVID-19. Hopefully, by the time this issue goes to print, we'll have innovative solutions to these issues and also be finding our way through a post-COVID world.



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vegetablesWA

It has been an unprecedented few months, with the coronavirus pandemic presenting a multitude of serious challenges to the horticulture industry.

I have spent considerable time in discussions with a number of working groups and government forums, at state and federal levels, which have been working toward solutions to address anticipated impacts. This is a period where we have been forced to adapt to changes at a rapid rate, and I expect we will continue to do so for some time to come.

Access to labour remains one of the key challenges to growers in the foreseeable future, while the status of border, travel and export restrictions continue to change and pose new problems.

While the vegetablesWA team has had to place its on farm visits on hold, I am pleased with the way the team has adapted by using technology to maintain contact with growers

and industry.

Workshops are being delivered as webinars, audits and meetings are being conducted using Zoom and social media has become a valuable tool to disseminate time sensitive information.

I am pleased to report that vegetablesWA, together with partner Planfarm, has completed its third-year vegetable of Financial and Production benchmarks across the vegetable industry in Western Australia.

This year's results are significant in that not only have we produced single year results for the 2018-19 financial year, we have also published three-year averages for key business profitability and performance metrics within vegetable businesses – something that to date has not been available to vegetable growers, and will greatly support the resilience and growth in the aftermath of the COVID-19 environment.

Major findings of results indicate the key

to driving profitability in a vegetable business lie more with successful business and financial management within the structure of the business than any direct relationship to size, area, or specific crop.

With a three-year average Return on Capital of nine per cent (and 12 per cent for the top 25 per cent performing businesses), owning a vegetable business is highly

competitive when compared with other asset investment classes.

Also, with a three-year average vegetable operating efficiency of 72 per cent, there is still room for improvement that would return greater profits into the pockets of vegetable business owners.

For further information, visit vegetableswa.com.au/benchmarking.

Tasmanian Farmers and Graziers Association

The COVID-19 pandemic has seen major changes in business and industry sectors across the world, including agriculture. We have all faced significant challenges, and the Australian agriculture sector has worked together to help overcome some of these issues in the best way possible for producers and the wider sector.

The collaboration and work of national peak bodies and state farming organisations – including the Tasmanian Farmers and Graziers Association and those throughout the supply chain – has been essential. This collaboration helped to ensure that agriculture was declared an essential service and Australian agriculture can continue throughout this pandemic.

The work to allow those in the Seasonal Worker Programme, Pacific Labour Scheme and working holiday makers to extend their stays in Australia was another important outcome. As more issues that impact on Australian producers are raised, this collaboration must continue to ensure the best outcomes possible for everyone in the industry.

The TFGA has also worked with the Tasmanian Government to develop guidelines for producers to continue to harvest and maintain social distancing requirements to protect themselves and their staff. However, there are still challenges faced by growers during harvest due to the pandemic and Tasmanian potato growers are also facing issues with harvest due to weather impacts. Tasmania experienced

a very warm January and below-average summer rainfall; however, March temperatures were cooler with the coldest March overall since 2015. March was also a significantly wet month in Tasmania, with 45 per cent higher than average rainfall. This has caused potential issues of disease and increased difficulties harvesting for growers.

Overall, this season has been unprecedented and difficult for growers with the ongoing impacts of the COVID-19 pandemic. This coupled with the difficulties of a wet, cool March means growers are facing a difficult time. The TFGA will continue to work to support Tasmanian growers through this time and work alongside national peak bodies, state and federal government departments, and those along the supply chain to ensure Tasmanian growers can continue to do what they do best: grow premium produce.



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