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Citrus News

ISSUE 2 **2022**

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Torren returns to his family roots with NEW PACKING SHED

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IN THIS ISSUE...

Front cover: Torren Sergi of Golden Grove Citrus in Tharbogang, NSW.

CORPORATE PARTNERS

Regional issues important piece of big picture

As always, it was good to get out on farm to speak to growers about the season, the industry and what's important to them in their region. I travelled with some of the team and we held meetings in Griffith, Leeton and Cobram in July to hear firsthand how people are faring.

Nathan Hancock with George Nardi on his Stanbridge orchard in July.

As I expressed at each meeting, understanding the issues affecting individual business in each region is the base from which I am able to articulate issues to governments at all levels, and you'd be surprised how often the same issues occur in other parts of the country too. The Citrus Australia team shares this information with each other and the Board, which guides our approach to tackling issues affecting individual growers and the industry as a whole.

For example, albedo breakdown has affected many farms on the eastern seaboard. We know it's impacting first grade pack outs and adding to the difficulties this season. I've taken the opportunity to request a literature review be done to bring together the latest Australian and international research and identify gaps in knowledge or opportunities for research in the future. We've dedicated an episode of our Citrus Australia podcast, The Full Bottle, to this topic. The literature review by Dr John Golding is available on our website in the Growers & Industry section and I have begun discussions with the Bureau of Meteorology and John on what future research could include.

Keeping with the advocacy theme, Richard Byllaardt and I met with the Swan Hill Council recently where I was invited to present on the issues of importance to growers in the region and fill the Council in on the expansion of citrus production in the region. It's because of our dedicated team who speak to members on a regular basis that we're across the issues that are important to you.

It is nice to share some positive news from a recent meeting regarding shipping. Shipping line representatives predicted that the current problems affecting vessel and reefer availability and reliability of sea freight are likely to improve after Christmas.

Global consumer trends shared by the Port of Melbourne indicated less consumer spending on household goods due to international government fiscal policies, including less online shopping and a return to overseas travel as a result of less pandemic restrictions. This should translate to reduced pressure on sea freight and containers and downward pressure on freight costs.

Many shipping companies are also adding new and restored vessels to their fleet, and investing in equipment (reefer containers) increasing availability.

Although it won't be a return to pre-Covid levels immediately, it will be a noticeable improvement.

Like shipping and border restrictions, most of the issues we're facing at the moment as an industry are temporary issues, and we will get through this difficult period.

The bright light on the horizon remains the continued strong demand for Australian citrus, despite the amount of production from our southern hemisphere competitors.

Even this year, trade figures show orange and mandarin exports are only slightly behind where they were in 2021.

Demand for citrus remains strong, which gives some confidence that once these temporary issues pass, we will return to something like pre-Covid trading conditions.

A quick update on our recent work to expand export opportunities. Our General Manager, Market Development, David Daniels and I were in India in July, conducting our first visit as part of Citrus Australia's ATMAC funded project to increase export opportunities for Australian growers.

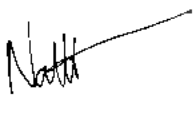
David and I visited four cities - New Delhi, Mumbai, Bangalore and Chennai – to examine firsthand the supply chain complexities whilst meeting importers, wholesalers and retailers from traditional and online businesses.

There's no denying this will be a market that takes time to position ourselves in at a higher value proposition, given the abundance of low value Egyptian and South African Valencia oranges that the market has grown accustomed to.

Our initial priority is to continue to pressure our government to negotiate a further reduction in the import tariff down to zero.

It was good to familiarise ourselves with the market and we will utilise this information in the next stage of the project – keep an eye out for our interim report.

Sincerely,



NATHAN HANCOCK
Chief Executive Officer
Citrus Australia

Thank you and welcome to our new members

GROWER MEMBERS

Howe Farming Enterprises Pty Ltd

Forrester Ridge Pty Ltd

AFFILIATE MEMBERS

Nu-Edge Solutions Australia (Mildura) Pty Ltd

Olivia brings retail expertise to juice sector

Olivia Tait has joined Citrus Australia in the newly created position of Citrus Juice Market Development Officer to champion the Australian citrus juice industry.

Olivia has hit the ground running, attending Citrus Australia Committee meetings, directly contacting juice growers, processors, retailers and other key stakeholders; and meeting face-to-face with growers within the Riverina to engage with the juice community.

"I would like to thank the growers that I've spoken to because each of them has provided me with different insights and collectively that's really helped me get up to speed with what the main issues are," Olivia said.

"Listening to all the issues can be a bit overwhelming but equally I feel pretty fired up now in terms of how to take this initiative forward."

Olivia will tackle immediate issues but is also exploring opportunities to promote and grow the juice industry to ensure long-term viability.

"Input costs are increasing, the cost of labour is increasing with accessibility to labour decreasing, and gall wasp infections are growing more severe, these are all significant issues but the one issue eclipsing all others is the price per tonne growers are getting for their fruit.

"The current numbers don't stack up in terms of providing a fair and reasonable return to the growers."

To retain a viable and robust Australian fresh juice industry, Olivia said it was vital retailers sell at a price per litre that enables a fair and reasonable return to all stakeholders: the growers, the processors and retailers.

"In Citrus Australia part of our role is to advocate on behalf of the growers, to make sure people are aware of their predicament."

Olivia said consumers needed to be made aware that fresh Australian juice cannot be taken for granted if growers do not receive a return that covers their increasing input costs and enables them to make a living wage.

"Australian fresh juice is affordable, great quality and nutritious, and we will be telling consumers they cannot take that for granted."

Citrus Australia will also continue to push to ensure the current health standards and health ratings accurately reflect the health and nutritional benefits of Australian juice, and share that information with consumers so they can make informed purchasing decisions.

Olivia has experience across a range of agricultural industries including dairy, wine, apples, pears, truffles and stone fruit to guide her expertise in supporting juice growers.

Olivia said the interactions she's had to date with the citrus industry has shown that the industry is willing to work together.

"The sum is greater than the parts and if we can come together on this as an industry, I think we have a much stronger voice."

Riverina issues reflected across the nation

Citrus Australia visited members, including Frank and Jeanette Nardi and their son Michael, Twin Palms Citrus, as part of their recent trip to the Riverina and Cobram.

Issues affecting individual regions are often replicated across the country and therefore monitored and addressed by Citrus Australia, CEO Nathan Hancock told growers at information nights in Griffith, Leeton and Cobram in July.

"The work we do, although it may seem to be on a national level, benefits each region and each farm," Nathan said.

"We are working on solutions to major issues, be it disease management, labour shortages or sustainable prices through improved market access, that affects every grower."

Growers also heard from Citrus Australia Policy and Membership Project Officer Kerry Thompson on changes to the piece rate and Juice Market Development Officer Olivia Tait on Citrus Australia's new juice project.

Nathan said albedo breakdown was a major issue affecting not only the Riverina but most of the country.

"The albedo issue is widespread but has impacted some regions more severely. There's a multitude of reasons that it's been so bad this year, but I think the long periods of rain and overcast weather is a contributing factor for many," he said.

At the request of answers and further information from growers regarding albedo breakdown, Citrus Australia asked Dr John Golding, NSW DPI, to conduct a literature review of international research on the problem, including recent Australian research. This has been completed and will be shared with industry.

"The literature review is not only a great way to bring together all of the research that's been conducted worldwide, but will also highlight areas that haven't been researched enough," Nathan said.

"The review will influence our proposals to the Strategic Industry Advisement Panel, which makes levy-based research recommendations to Hort Innovation. These project proposals could potentially be included in next year's round of funding, which would see research conducted in the next 12-18 months."

Nathan said potential research opportunities could include plant growth regulators, gibberellic acid (GA) and weather patterns.

"We could potentially look at the weather patterns that have contributed to this year's breakdown. Is there a way to build a system that identifies when it's more likely to occur in a region?"

Nathan told growers to reach out to neighbours or friends that may have had success reducing the impact of albedo breakdown in the past, or to agronomists or packing shed grower relation officers.

Growers must act on piece rate decision

Some growers have been shocked to hear that changes to the Horticulture Award, introducing a guaranteed minimum wage for seasonal workers, were implemented on April 28 this year and are now in effect.

Citrus Australia conducted grower visits and grower meetings in the Riverina and Cobram last month to explain what these changes mean.

"I've been hearing from growers that it will be tough when changes to the piecework rate are brought in, but the reality is the changes are already in place and growers must start adopting them on farm if they haven't already," Kerry Thompson, Citrus Australia Policy and Membership Officer, said.

Kerry explained that despite the time and money invested by Citrus Australia and 30 other peak industry bodies that sit on the NFF Horticulture Council, the decision would not be reversed.

The change occurred because of an application in 2020 to the Fair Work Commission by the Australian Workers Union and the United Workers Union to introduce an hourly floor in the piece rate and to require employers keep a record of pieceworkers' hours (for seven years).

The NFF Horticulture Council hired a lawyer to challenge the application. The lawyers admitted it would be difficult to defend the challenge due to the left-leaning nature of the bench.

Two citrus growers were among those who spoke at the hearing in favour of maintaining the current system, although attempts to find workers to speak on the stand were to no avail.

"Despite attempts to explain the realities of the citrus harvest, not many of our arguments were seriously considered," Kerry said.

The decision was handed down in November 2021 and the NFF Horticulture Council was able to negotiate a later start date, and that the comparison of the piece rate against the hourly rate be done at the end of every day rather than hourly. These were hard won negotiations.

Once the decision was made, Citrus Australia gained independent legal advice on challenging it but was told it would likely cost $250,000 with very little likelihood it would be overturned.

"We know how frustrating this is, we emphathise with all growers, we're happy to support you in enacting it and trying to find ways to improve the situation.

"Citrus Australia welcomes all feedback on how this change affects individual businesses. We hope there will be an opportunity to use this information to influence future decisions.

"In the meantime, growers should consider seeking financial or legal advice for their individual business."

Kerry provided growers at the meetings templates and further information on how to manage the new requirements. These can be accessed on the Fair Work Ombudsman (FWO) website.

Following the decision, Citrus Australia asked its members for questions they had on the changes, then met with FWO to discuss these and gain answers.

Citrus Australia members can access these questions and answers in the members' section of the website.

Kerry stressed that growers cannot leave management of wages entirely to contractors as growers remain responsible for what occurs on their farm. The FWO are conducting random visits to growers to make sure they are implementing the changes, as are state governments with labour hire licencing laws (Vic, SA, Qld).

CHANGES TO THE HORT AWARD IF PAYING PIECE RATE:

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4. Providing a piecework record to workers stating the agreed piece rate prior to starting work

Find resources to assist with the piece rate change at fairwork.gov.au or horticulture.fairwork.gov.au Citrus Australia members can also read the Guide to Farm Labour in the members' section of our website. You can also contact Kerry Thompson at kerry.thompson@citrusaustralia.com.au or on 0448 213 330

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George and Maria Nardi, Stanbridge, with Citrus Australia Membership Officer, Kerry Thompson.

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Creating the National Citrus Map

More than 750 citrus farms across the country have now been carefully mapped and included on the new National Citrus Map.

Citrus Australia's Paul Stephens receives help updating the National Citrus Map.

Australian citrus has been spatially enabled, thanks to the Australian Tree Crop Map. Built by the University of New England's Applied Agricultural Remote Sensing Centre (AARSC), the map serves as a national baseline for the location of all commercial citrus orchards across Australia. You can see the map on the Citrus Australia website.

To support traceability, Citrus Australia has now developed the National Citrus Map, which value-adds essential information at greater detail (block level). This information is not available in the Australian Tree Crop Map and is only accessible to Citrus Australia.

The National Citrus Map provides a pioneering fundamental data set for Australian citrus that will be the cornerstone of the industry's traceability, biosecurity, exports, sustainability and business planning.

Citrus Australia and the AARSChave developed the map, which value-adds more detailed information to the existing citrus elements of the Australian Tree Crop Map, including block ID, variety and age.

Citrus Australia employed a Citrus Traceability Officer, Paul Stephens, to gather additional data to populate the map.

CEO Nathan Hancock said: "Digitising the mapping will help improve the traceability to farm for biosecurity and food fraud related issues.

"It also provides an accurate assessment of current and future crop loads, which will aid future market development, and make KCT applications easier for growers.

"The risks to industry if this tool is not developed and maintained are jeopardised traceability, biosecurity and exports. We are proud to be breaking new ground with this initiative, but equally, it would be negligent not to do so."

With 750 farms mapped already, 400 additional farms require mapping in the future.

Under the program, data is populated at block level into the map by Citrus Australia through a purpose-built application developed by AARSC, supported by an iPad application which can be used on farm, enabling future use by Citrus Australia staff, especially during the yearly November – January Citrus Tree Census.

All information populated in the National Citrus Map is owned by Citrus Australia and is secure under strict sign-in access.

Development of the National Citrus Map, together with complimentary projects for isotope testing and implementation of new traceability systems for exports, was achieved through the Citrus Export Development Project, funded by Agriculture Victoria's Food to Market Program.

Growers can access the Australian Tree Crop Map on the Citrus Australia website and can search for their farm by coordinates or road name.

If there is no citrus on your farm on the map, please contact Citrus Australia and we can update it. ●

Fine details add up for bigger picture

Paul Stephens, Citrus Traceability Officer, Citrus Australia.

Paul Stephens joined the Citrus Australia team as Citrus Traceability Officer and has been responsible for populating the National Citrus Map.

"My role basically involves gathering the data around all citrus plantings in Australia, correlating it and putting it into the map, using the tools built by AARSC."

Paul has spent almost a year mapping in detail citrus crops across Australia from the Citrus Australia office.

"My day to day now includes extensively trying to fill in gaps in the traceability map; looking for any plantings that may have gone in recently that haven't appeared in the KCT or citrus tree census data.

"That could be members that haven't provided all the data that we need around blocks, it might just be gaps in small farms, it could also be growers who aren't members with Citrus Australia, and we need to chase up what they have planted in the form of their varieties, the rootstock, numbers of trees and spacing and so forth," Paul said.

Some growers in the Murray Valley area might have already met Paul on the road with his iPad and Citrus Australia fluro vest double checking plantings.

Key points

- Improving accuracy
- Positive feedback from growers

"I'll try contact first on either phone or via email to see if we can get that data in electronic form, otherwise it is boots on the ground and trying to see if we can visually identify what's there."

This project has a number of applicable benefits across the entire industry, and he has received positive feedback from growers so far.

"It will help us with forecasting future years because it will provide greater detail in what is being planted and how much citrus has actually been grown."

This will also enhance Citrus Australia's advocacy to government, as it will have a better grasp of the size of the crop in each region, be more equipped to grow exports and be faster to respond to disease outbreaks, bushfires and floods.

"It will also support biosecurity in forms of pest control and disease management. If there are outbreaks, we will be able to better identify where they are, and get on top of them far more quickly."

"It will also be beneficial for growers who are looking to export, making the process of applying for KCT much more straightforward and streamlined."

Paul said he'll be reaching out to growers and members of Citrus Australia not just in the Murray Valley but Australia-wide to assist him in filling in remaining gaps by gathering as much data as possible.

"It may not seem important, things like rootstock or even just understanding tree spacings and so forth, but all that data is really useful.

"It helps us better understand the nature of what's planted and what's going in and really where the industry is headed. All that information is really helpful in what we're trying to achieve." ●

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Banding together in good times and bad

South Australian growers Peter and Michelle Hill, Ridgehill Properties, Loxton, have been members of Citrus Australia in some way, shape or form since they started growing nearly 30 years ago.

Peter and Michelle Hill with their son, Alexander, an Olympic gold medalist in rowing.

Michelle said they joined because it's great to be involved with an industry body that represents citrus and to have people to help you.

"There's so much red tape around any industry that it's good to have some extra clarification on things and to all be working together as one," Michelle said.

Their 240-hectare property is split between wine grapes and citrus varieties including Navelinas, Cara Caras, Afourers, late Lanes and a new variety of nectar mandarin.

Michelle said they're strong believers of not having all their eggs in one basket to ensure their farm is prepared for future changes.

"There have been challenges in the last 12 months and I guess the next 12 months are going to be very interesting times for everybody and we are certainly going to need the likes of Citrus Australia and state bodies batting for us."

Peter and Michelle have raised three children on their orchard, including rowing Olympic gold medalist, Alexander.

"I like to say having good quality citrus around him was a good start to his health and wellbeing for his rowing."

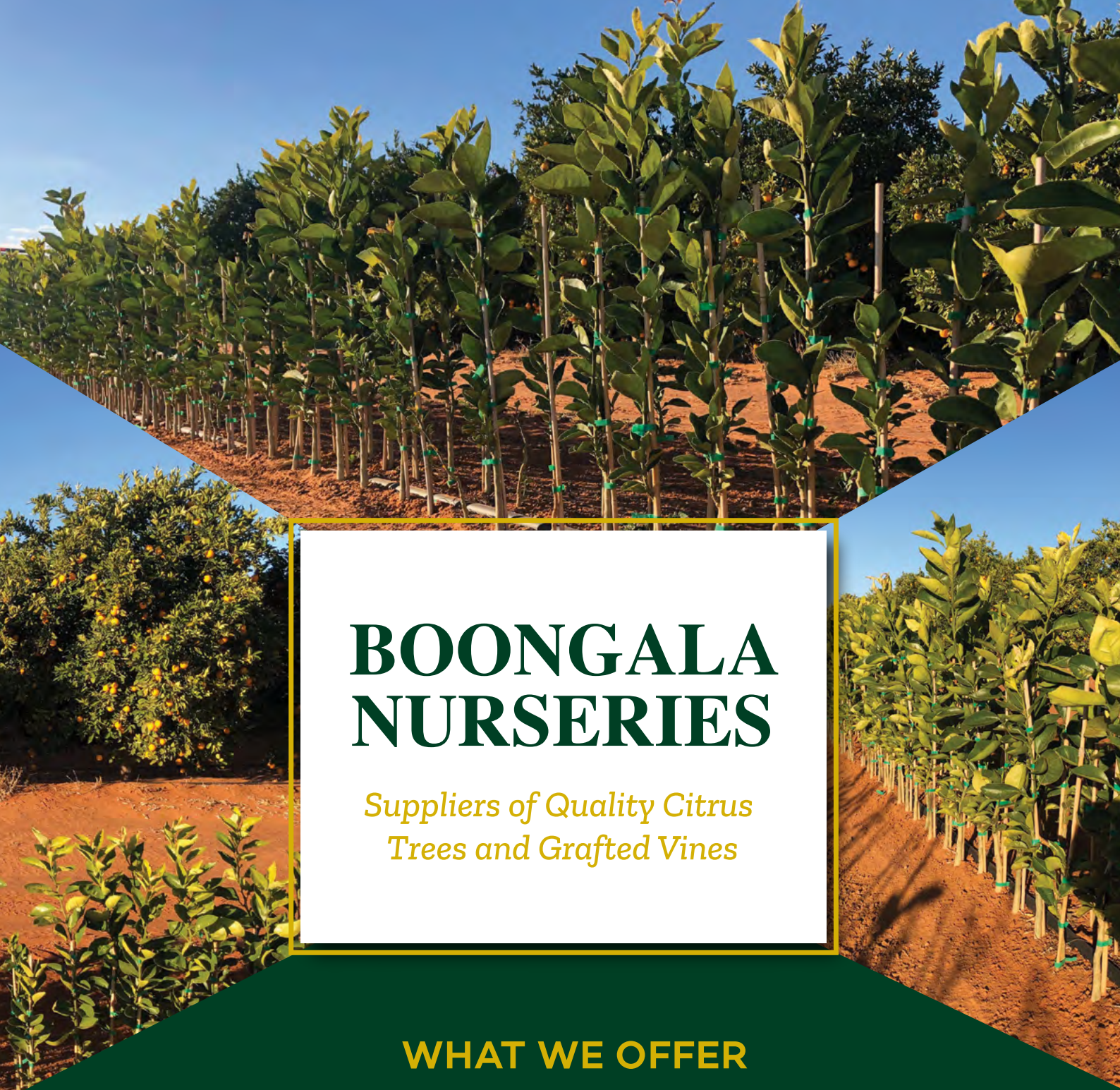
Peter and Michelle said they've surrounded themselves with good people and work well with them including their packing shed, Venus Citrus.

"There are some upcoming challenges happening so that's when it's important to all work together to make it all work.

"We need to look at what the new landscape holds and make sure we're proactive. We can't afford to be reactive."

Michelle said it's important to keep on top of things and make sure the citrus industry doesn't get forgotten by reminding Government we are just as important as any other industry out there.

"I think Citrus Australia is certainly doing a good job and it's a matter of understanding that new landscape and working together."



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Torren returns to his family roots with new packing shed

Torren Sergi of Golden Grove Citrus in Tharbogang, NSW has returned his third-generation family farm back to its packing shed roots.

In 2019, Torren began constructing a packing shed on his 65 hectare citrus property after buying his uncle's side of the farm and taking it under operation with his father's property.

Torren's favourite thing about farming is 'being your own boss' which led him to the decision to implement his own packing shed more than 60 years since his family last packed its own fruit.

Torren and his brother, Javier.

The Golden Grove label.

"I wanted to add value to what I grow and have a lot more control of what I do rather than put it on the back of a truck and drop it off," Torren said

Torren's shed operates at a capacity of 180-200 bins a day – half grown on his farm and the other half bought in.

Since building his packing shed, Torren has pulled out and replanted certain citrus varieties on his orchard to ensure his packing shed is in operation year-round.

With Washington navels and Imperial mandarins to begin his season, Torren said sometimes the older varieties are still the best varieties.

"Washington navels are easier to grow, easier to sell and probably the best flavour to eat, and the sweetest as well.

"Especially if you let it sit on the tree a little bit longer, go and pick the piece the picker left behind six weeks later and it's like honey."

Torren has planted 2600 M7 trees this year and last year another 2000 trees of Late Lanes, and he's always re-evaluating his varieties.

In the past six months, Torren has finished installing new equipment and alterations to his packing line, including a new fruit grader.

"With the camera system you save a lot of labour because the optics of the machine does all the work for you."

"I wanted to add value to what I grow and have a lot more control of what I do rather than put it on the back of a truck and drop it off." - Torren Sergi

Torren said he's a pretty positive person and is passionate about all sides of growing but was disappointed this year with the severity of albedo breakdown.

"About a month ago when I first noticed it, I couldn't believe my eyes because we do all the proper sprays and we've had our albedo in the past and have learned how to manage it.

"But I think it didn't matter what you did this year, it's just the wet weather."

Torren said they've got some blocks with 60-70 per cent albedo breakdown and he's seeing reports of it across the eastern states.

He also received hail damage this year.

"We copped the hail in January, and we thought that was going to be the end of it.

"We got 10 per cent hail damage or 15 per cent, some people got 60-80 per cent so we were one of the luckier ones that didn't get quite as affected."

Torren reflected seeing another property where the hail had ringbarked two and three-year-old trees and the grower had to cut them right back to rejuvenate them.

Despite the challenges his business faces this year, Torren summarised next year is another year.

In December 2019, Torren travelled to China - one of 11 local growers to receive funding from the Griffith and District Growers Association to do so – describing it as eye opening.

"Unfortunately, they haven't got the land that we do so they grow on mountains in terrace farming.

"But if they had the land we had, I reckon they'd be more advanced than us."

Motivated to strive in his industry, Torren is happy with his new packing shed and is not looking to expand until he needs to, but he's optimistic he will expand his production base in the future.

"If I went back now, I would have built the shed three times the size because of how much the price of steel has risen today, but you've got to have a starting point." ●

Interactive wellbeing tools a click away

Key points

- Online services for farming families
- Physical and mental health
- Designed for farmers

When Covid-19 caused lockdowns across the country in 2020, the National Centre for Farmer Health was no longer able to deliver services face-to-face, causing them to be innovative and adapt to the online environment.

As a result, it now has a range of online services available to farming families, and their support networks, across the country.

The NCFH, founded in 2008, is a partnership between Deakin University and Western District Health Services, located in South-West Victoria. It was established to improve the health, wellbeing, and safety of farm men, women, families, and communities across Australia by providing quality education, research and service delivery.

NCFH Director, Dr Alison Kennedy, said its primary focus is on prevention and early identification of risk factors associated with farming.

"All our resources are geared in that way to not just be delivered to the person who may be the primary worker on the farm but all of those who are affected by life at work in a farming environment," Alison said.

"We very much understand farms are usually places where people both work and live, so a lot of what we consider risk factors to farmers' health are actually risk factors to the entire farming family."

The NCFH conducts face-to-face service delivery throughout the country but has expanded its range of online tools over the past three years.

"We've now got the Farmer Hat Tool where people can jump online and do their own health assessment and benchmark their own wellbeing and safety over time," Alison said.

"It's able to identify potential risks through our health and wellbeing safety assessment and provide direct resources to be able to address some of those risks so people don't end up in a state of crisis and seek crisis support, whether that be with physical or mental health."

The NCFH has 95 fact sheets on its website, and a support page that provides information on a variety of topics, from mental health right through to things associated with flood recovery and drought. More than 40,000 copies of the NCFH's Managing Stress on the Farm booklet have been distributed and this can also now be downloaded.

The NCFH website features a number of online interactive tools, including the Campfire platform.

"It's a chat-based platform which is designed to prevent work related risks to mental health but it's very practically focused," Alison said.

The team at the National Centre for Farmer Health.

The NCFH strives to be practical, and partnered with interactive communication company Listen to develop an online psychology service where each psychologist has undergone training to better understand and deliver services to people in agriculture.

"We think that's a really important role for us to play in building capacity, so when people are seeking support and seeking services, that what they get is quality and has an effective result."

The NCFH's physical health and safety checks are also specialized to address common risks in the farming environment such as sunburn, hearing, and personal protective equipment (PPE).

"It's never too early to be on the front foot when it comes to wellbeing.

"Wellbeing is kind of the big picture and it's very difficult to separate physical health, mental health and safety, it's important for us to consider all of those and how they affect each other," Alison said.

With the support of a group of farmers and health professionals The Steering Straight plan was developed this year.

"That is a personal plan that people can write up and it steps you through the process of creating that plan. It really provides people with the opportunity to take some time to reflect about things in their world that create stress for them."

Alison encourages people to see what is on offer on the NCFH website and give them a call if you need more information or direction.

"I honestly think people shouldn't be waiting until they need help, that they should proactively look at what's available to be able to put some plans in place to protect their health, wellbeing and safety."

Alison said summer can be a time where people will have some down time to reflect about their own wellbeing in a proactive way and set plans.

"I encourage people to take some time out. Time away from the farm can be really restoring and help give people a fresh perspective on things for starting off the new year." ●

You can visit the National Centre for Farmer Health webpage at http://farmerhealth.org.au or call them on (03) 5551 8533.

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"My role is to help urban communities understand what citrus pests are out there, and how to detect them."
- Andie Wong

Community engagement: a crucial step in biosecurity preparedness

Meet Andie Wong, Citrus Australia's new Urban Biosecurity Coordinator, leading our work in urban community engagement.

Andie will work closely with Citrus Australia's National Citrus Surveillance Coordinator, Jessica Lye, within the CitrusWatch program.

"A big component of the CitrusWatch program is to do outreach to the community for increased awareness and preparedness of exotic pests," Andie said.

Andie will be engaging with communities in urban environments and peri-urban growing regions near major ports in Australia, which are high risk entry points for exotic species.

"I'll be working with community gardens, nurseries, schools and residential owners who grow citrus trees. My role is to help urban communities understand what citrus pests are out there, and how to detect them.

"Through this work we will also educate urban residents on how to improve the health of their citrus trees, making them more resilient to pest and diseases, and to understand the benefits of purchasing disease-tested, high-health propagation material."

Andie worked in the finance and IT industries in Singapore before making a career and location change into zoology and genetics in Australia. Andie undertook a scholarship studying immune regulation in Tasmanian Devils in Tasmania, before working with Cesar Australia and EnviroDNA, where she was involved in a wide range of research projects on exotic crop pests.

Andie said she'd like growers to understand her role and what she is trying to achieve through outreach to urban communities.

"I think reaching out to non-horticulture communities, and helping them understand the importance of biosecurity threats and preparedness, is important for commercial growers because they need help from the community to help mitigate risks.

"Historically, urban locations (such as warehouses and home gardens) have been common sites of early detection for exotic crop species.

"If you have a good foundation in terms of community understanding of what risks exotic citrus pests can bring to the industry, and the country, then that can really help growers feel a sense of safety and security knowing that the wider community 'has their back."

Andie said one of the things that jumped out to her about the role was the fact that she loves oranges.

"I love walking around and looking at people's fruit trees and whenever I see a citrus tree, I get really excited." ●

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CITRUSWATCH

Maximising our chances for exotic species detection

Key points

- Number of species requires strategic approach
- Enhancing targeted surveillance with sentinel sites
- Concerted effort to engage wider public

Sentinel sites: Como House, an historic house and garden in Melbourne; a Melbourne rooftop garden and cafe.

Invasion of exotic species has been described as a "wicked" problem with multiple causes that each defy a simple, outright solution.

Causes include international trade, phytosanitary breakdowns, climate change and public unawareness.

Research is revealing that many invasive insects are reaching global status much more rapidly than before, and overall, the rate at which pests and diseases are spreading between countries is increasing.

If current trends continue, many important agricultural nations could be saturated with pests within the next few decades.

While Australian pre-border surveillance activities are stringent, not all invasives are intercepted.

Some of these species will survive transportation, thrive in the new environment and then spread.

Successful containment or eradication of new incursions is strongly reliant on early detection when the pest population is small, confined and not well established.

Now one year into operation, a major aim of the CitrusWatch program is the design and execution of surveillance activities for early detection of exotic citrus pest species that have managed to elude pre-border detection activities.

With multiple high priority citrus pest species to look for during our industry surveillance activities, it is important that we are efficient, risk-based and strategic in our approach.

Key pests and diseases that we target in our surveillance activities are: citrus canker, Huanglongbing, exotic citrus psyllids, and the glassy-winged sharpshooter (which is a vector of the pathogen *Xylella fastidiosa* – causal agent of Citrus variegated chlorosis).

Here are some strategies that we have considered in developing the program:

BIOSECURITY SENTINELS

Readers may have heard about the current Varroa mite eradication in New South Wales. The alarm was raised when the mite was found during routine inspection of sentinel hives located next to the Port of Newcastle.

Without these sentinel hives the mite would have remained undetected, allowing for further spread and making eradication extremely difficult, if not impossible.

Australia's sentinel beehive system is comprised of 170 beehives at 32 ports across Australia. Every six weeks program staff inspect sentinel hives for 16 exotic bee pests, including varroa mite.

The surveillance program is co-funded between the Australian government, pollination dependent industries, and the Australian honeybee industry.

In another 'sentinel' example, a small mob of cattle are kept at Seisia, which is the most northerly town of the Australian mainland on Cape York Peninsula.

This herd is solely used for sentinel purposes and the cattle are routinely tested for exotic pests and diseases such as foot-and-mouth, blue-tongue and screw-worm.

The proximity of this sentinel herd to the Torres Strait and Papua New Guinea makes it a crucial early warning system for the beef industry.

Our activities within CitrusWatch includes 'targeted surveillance' – high intensity surveying of citrus trees over

multiple days – with much of our focus being urban areas near busy Ports of Entry.

Choosing sentinel sites across Australia that we can visit every year is one aspect of planning these targeted surveys.

APPEALING TO THE GENERAL PUBLIC

In the case of border breaches, reporting from the public has proven to be a valuable safeguard against pest establishment.

Between 2010 and 2018, detection of pest incursions by community members (29%) was almost as high as incursions detected by trained biosecurity officers (34%) – in Queensland this group was actually the most common detector type.

As a recent example of an interception that was relevant to the citrus industry, in 2018 a warehouse worker in an outer suburb of Melbourne unpacked a shipment of terracotta pots and alerted the state government after finding brown marmorated stink bugs in the packaging.

Continued page 25

Key pests and diseases that we target in our surveillance activities are: citrus canker, Huanglongbing, exotic citrus psyllids, and the glassy-winged sharpshooter.

A sticky trap and information leaflet.

Sentinel site: Greenwaste transfer station

QUALITY ALL THE WAY

Mansfield Propagation Sales Manager Will McIntosh and general manager Matt Mansfield.

The same quality generations of customers expect from Mansfield's Propagation Nursery is now extended to Rootstock Services, a propagation business specializing in the production of high-quality rootstocks for commercial citrus businesses.

Being a third-generation business is more than just a term at Mansfield's, it represents time and knowledge spent in perfecting and refining not only their product, but quality of service.

Rootstock Services was acquired by Mansfield's Propagation Nursery in 2018 from Colin Mansfield, who founded the company in 2010.

It is a certified NIASA and ECOhort nursery, capable of sending plant material to any state in Australia.

Rootstock Services propagate from certified AusCitrus supplied seed and budwood. Mansfield's Propagation uses traditional propagation methods as well as having its own tissue culture laboratory. This enables it to put harder to propagate plants into tissue culture to bulk up numbers to commercial quantities much faster.

Mansfield's Propagation Nursery was established in 1951 and this third-generation business is now operating Rootstock Services with the same commitment to innovation and customer service.

"We aim to supply our customers with quality plants, products and marketing options to ultimately make us the leading horticultural supplier," General Manager Matt Mansfield said.

"We will continue to diversify our operations in order to drive and support industry needs.

"We aim to develop our business as a centre of excellence by using our industry experience and relationships to maximise our potential and the potential of our customers, share knowledge and create opportunities that benefit the horticultural industry."

Rootstock Services defines its success by the prosperity of their customers and are focused on helping other businesses grow.

"We want to share knowledge with industry and are always available, providing piece of mind when securing orders or offering advice from seed to rootstock.

"We encourage current and prospective customers to visit us if in the area, less than an hour from the Melbourne CBD. We are proud of our clean, state-of-the-art production facility, and happy to discuss how we can work with you.

"This may be through the supply of all or a portion of your rootstock needs."

Purchasing Rootstock Services has enabled Mansfield's to control each part of the production cycle, and continually fine tune its techniques, including dispatch and customer service.

Mansfield's Propagation Nursery now sells 6 million plants annually and is continuing to grow.

For more information or to organize a visit, call on 03 9782 2404.



Sentinel sites: Rippon Lea historic house and garden, Melbourne: St Kilda Botanical Gardens, Melbourne; Melbourne Zoo citrus nursery.

Continued from page 23

This resulted in a containment zone and eradication of the bug over the following months. If this species had succeeded in establishing and subsequently spreading beyond Melbourne, numerous horticultural industries would experience significant production impacts.

Within CitrusWatch, reaching out to the general public to 'extend our eyes' is a focus.

Volunteer-based sticky trapping is well underway with over 100 individuals and organisations involved in annual sticky trap deployment across the country.

Volunteers include teachers, students, citrus growers, industry development officers, government staff (local, state and federal), crop scouts, and home gardeners.

RISK-BASED SITE SELECTION

Of course, we cannot simply place a pin on a map when planning surveys. Choosing sites that may act as 'sentinels' for the citrus industry has involved review of global early detection cases as well as development of key criteria.

Criteria for choosing sentinel sites:

1. Sites should be within 10km proximity of a major Port of Entry, or staging sites for containerized cargo.
2. Sites that experience large numbers of visitors – these would be expected to have a higher likelihood of receiving an introduction from a locally established population than low traffic areas (such as residential gardens) due to the many potential transmission pathways onto the site (e.g. picnic-goers, movement of horticultural staff, shared gardening equipment).
3. Organisations that have strong communication networks and perform an educational role within the community, such as botanical gardens or universities. These sites are more likely to have members of staff who are likely to share information about exotic citrus pests throughout their network and may even be a first point of contact for locals who suspect that they have found an exotic species.
4. Sites with citrus, as well as other Rutaceous plants.

Organisations that we have approached to be involved in the program have been extremely supportive, and have allowed us to access sites, set traps, visually survey the citrus, and take budstick samples for exotic disease testing.

Some site staff have also volunteered to collect our citrus psyllid sticky traps and mail them to the entomologists who are screening the traps.

Sites across Melbourne and Adelaide, where surveys have been conducted so far, include the Melbourne Zoo, café gardens, community gardens, retail plant nurseries, urban farms, botanic gardens, and historical houses.

We have also started to incorporate waste transfer stations into our pest surveys. These often have large green waste piles that stay warm throughout the year, providing a refuge for overwintering insects.

Green waste sites could play an important role as sentinel sites, in particular for exotic citrus psyllids, which have a strong preference for orange jessamine – a very common landscaping plant.

HOW CAN WE IMPROVE INDUSTRY SURVEILLANCE?

There are several activities underway at the moment that aim to improve our ability as an industry to confidently choose surveillance sites, to efficiently and effectively undertake surveillance, and to curate data.

- CitrusWatch is now partnering with AgKonnect to develop an app that will allow us to efficiently collect survey data while out on location, and to visualise survey data points in relation to other landscape overlays, such as citrus growing areas, ports, major arterials, tourist hotspots etc.
- We are also partnering with Cesar Australia to research and predict what international trade pathways are highest risk for transporting key citrus pest species, and to determine more accurate methods for predicting the most likely entry and establishment sites around the country. Such prediction analyses are already in use by CitrusWatch. For instance, during Autumn 2022 we used prediction modelling results from Dr James Camac at the Centre of Excellence for Biosecurity Risk Analysis to choose sites for sticky trap placement near the Port of Brisbane. The further work by Cesar Australia will add to our knowledge base and ability to confidently plan trap deployment locations and targeted survey activities.
- We are collaborating with the New South Wales Department of Primary Industries and the Universitas Gadjah Mada in Indonesia to test improved methods of monitoring for Asian citrus psyllid in Borneo, in environments where psyllid populations are not very high (this simulates what we would expect to see from a recently established population).

To learn more about exotic pest surveillance in the citrus industry, visit the biosecurity page on the Citrus Australia website. If you would like to get involved in CitrusWatch surveillance activities, contact Jessica Lye at Jessica.lye@citrusaustralia.com.au

For references to information contained in this article, contact Jessica Lye, Citrus Biosecurity Manager.

From Tasmania to Bundaberg, meet our new citrus pathologist

Queensland's Department of Agriculture is working to assist our industry's disease and MRL issues with the appointment of a full time dedicated citrus pathologist.

Dr Tamil Thangavel started with DAF at Bundaberg in March 2022 to work on the industry funded project – Integrated management of citrus black spot and 'Emperor' brown spot.

The project aims to develop new and innovative strategies to help reduce reliance on fungicides to meet changing export MRLs.

Alternatives to mancozeb need to be developed, or disease management is going to be very challenging, especially in wet years.

The project will evaluate a range of cultural, biological and chemical control options for managing CBS and EBS.

The project team is well linked with expertise in industry, plant pathology, plant breeding and extension.

Plant breeder Malcolm Smith (left) has been showing Dr. Tamil Thangavel (right) the ropes in his first months with Queensland Department of Agriculture..

Tamil's first day on the job was meeting industry at the 2022 Citrus Technical Forum, pictured here with Citrus Australia CEO Nathan Hancock.

The first activity will be a benchmarking survey, followed by field, glasshouse and laboratory trials—all of which are starting this season.

Tamil has always been enthusiastic about agriculture and is looking forward to working with industry to develop innovative disease management strategies with long-lasting benefits.

Tamil moved to Australia in 2010 to study a Postgraduate Diploma with honours in Agricultural Science at the University of Tasmania. He completed a PhD investigating potato soil borne diseases and was a research fellow studying diseases in poppy, potato, pyrethrum and legumes.

He began the role of Tasmania Senior Research Officer with Botanical Resources Australia in 2020, identifying fungicides for control of pyrethrum pathogens, before moving to Bundaberg this year.

Tamil has taken the move from Tasmania to Bundaberg in his stride.

Despite a drastic change from the cool Tassie weather, he says the tropical climate is a nice reminder of home in Southern India.

When he's not working, you can find Tamil studying or flying for his pilot's licence, playing cricket, or making short movies and documentaries. ●

Want to chat about CBS & EBS management on your farm? Get in touch with Tamil today on 0481 191 993 or Tamil.thangavel@daf.qld.gov.au.

Hort Innovation Strategic levy investment | CITRUS FUND | Queensland Government

MEET THE REST OF THE PROJECT TEAM

Kaylene Bransgrove
Pathologist, Mareeba, DAF

Dr Andrew Miles
Pathologist/R&D manager, Emerald, Superior Production Co

Malcolm Smith
Plant breeder, Bundaberg, DAF

Dr. Tamil Thangavel
Pathologist, Bundaberg, DAF

Dr. Lindy Coates
Pathologist/project lead, Brisbane, DAF

Tony Cooke
Pathology experimentalist, Brisbane, DAF

Using smart phones to count Fuller's Rose Weevil in orchards

Monitoring for pests is a crucial step of successful integrated pest management (IPM) in citrus orchards, particularly for presence of Fuller's Rose Weevil (FRW) which can prevent fruit export into some markets.

Existing monitoring techniques include traps and beat sheeting which can be labour intensive.

Digital management tools, including machine vision technologies, can automate visual assessment tasks and enable faster and more consistent pest monitoring (e.g. University of Southern Queensland's App 'PestDetect' that counts and classifies silverleaf whiteflies and aphids in cotton).

With funding from Hort Innovation, in a project led by New South Wales Department of Primary Industries, University of Southern Queensland has developed machine vision algorithms to count FRW on beat sheets.

Field trials were conducted in the Riverina in December 2020 and March 2021 to collect over 400 photos of FRW on beat sheets in orchards with different lighting conditions and population levels using smartphones.

A proof-of-concept FRW detection algorithm was developed and found to be 77.5% accurate on a validation set of 80 smartphone photos.

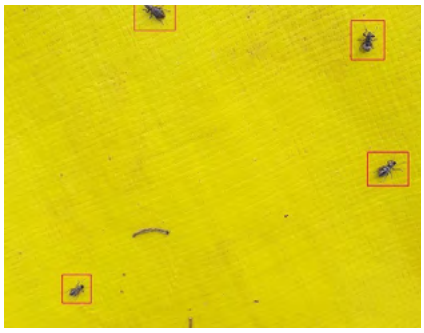
This research demonstrates the potential for machine vision to drive pest sampling and management across the agriculture sector using technology that is readily accessible.

Further work is to evaluate the developed algorithms across broader sites, and investigate other machine vision algorithms for citrus IPM including detection of (i) other indicators of FRW presence such as damaged leaves and (ii) citrus gall wasp presence to assess need for control and performance of previous-season controls. ●

This article was prepared by Alison McCarthy and Derek Long from the University of Southern Queensland and Jianhua Mo from the NSW DPI. They would like to acknowledge Scott Munro from NSW DPI and Mal Wallis from Citri Care for field data collection. You can contact them via email – Jianhua.mo@dpi.nsw.gov.au, mccarthy@usq.edu.au or derek.long@usq.edu.au

Hort Innovation Strategic levy investment | CITRUS FUND

Beat sheet in orchard.



Automated FRW counting using deep learning on smartphone image.

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Manganese (Mn) : 0.5 g/L
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- **Benjamin Itzstein (QLD) 0473 503 373**

DE SANGOSSE

Market access options for export lemons

Key points

- Market access treatments assessed
- Side-by-side comparisons a first
- Irradiated fruit softer

A recent trial assessed three market access treatments (irradiation, methyl bromide fumigation and cold treatment) on lemon fruit quality following treatment and storage.

Many export markets require a phytosanitary end-point treatment to ensure the absence of quarantine pests, such as fruit fly.

There are three different end-point treatments for lemons available: cold treatment, irradiation and methyl bromide fumigation.

Each of these treatments have their advantages and disadvantages in terms of cost, commercial applicability and market acceptance. It is also critical that these postharvest treatments do not have any negative effects on final fruit quality.

The trial was conducted to assess the treatments of irradiation, methyl bromide fumigation and cold treatment on lemon fruit quality following treatment and storage.

There have been many studies on the effects of these individual treatments on quality (e.g. cold treatment on lemons), but there has not been side-by-side comparisons of these treatments on the same batch of fruit.

In this trial, three pallets of lemons sourced from different growing regions - Far North Queensland, Bundaberg, Qld, and Sunraysia - were transported to Melbourne and treated in the commercial X-ray facility at Steritech and at a commercial methyl bromide treatment facility in Melbourne markets.

Table 1. Summary of phytosanitary market access treatments for lemon exports.

	Cold treatment	Methyl bromide fumigation	Irradiation treatment
Example of treatment	1°C for 14 days	32 g methyl bromide per m3 at 15°C for 3.5 hours	150 Gray
Air freight compatible	Limited	Yes	Yes
Acceptance of treatment	General	General	Limited markets
Additional packaging requirements	None	None	None
Maintenance of cold chain	Yes	No	Yes
Potential chemical residues	No	Yes	No
Relative cost of treatment	Medium	Medium	High
Availability of treatment	Registered grower and packing facilities	Registered grower and commercial facilities	Limited. Brisbane and Melbourne
Effect on fruit quality	Potential impact – chilling injury	Potential impact	Potential impact
Overall comments	Potential chilling injury	Chemical fumigant that disrupts cool chain	Limited market acceptability

Figure 1. Appearance of the lemons treated with different market access treatments. These fruit were from Grower 3 (Sunraysia). Fruit were stored for 2 weeks at 8°C and left for another week at 20°C as a shelf life.

Untreated control

Irradiation

Methyl bromide fumigation

Cold treatment

Measurement of fruit ethylene production and respiration rates of lemons after treatment at NSW Department of Primary Industries.

Measuring lemon fruit firmness at NSW Department of Primary Industries.

All fruit were then transported under refrigeration to NSW Department of Primary Industries, where the fruit were stored and regularly assessed for fruit quality.

The results of the trial showed that all three market access treatments had similar effects on final fruit quality (overall subjective fruit quality, calyx condition), with fruit quality declining during storage and the additional shelf life.

The appearance of the fruit after two weeks' storage plus another week at 20°C shelf life is shown in Figure 1.

In general, irradiated fruit were softer than the other market access treatments both upon removal and the additional shelf life testing period.

In addition, the irradiation treatment also resulted in higher levels of skin blemish but this was not reflected in the overall acceptability of the fruit. There were no consistent effects of the different market access treatments on the internal quality of the lemons.

There were some effects with longer storage times but these longer storage times (8 weeks) are not anticipated with high value lemon exports.

There were also differences observed between the different growers and more work is required to understand the interaction of growing conditions and final fruit quality.

Overall these observations were a good result for lemon growers and exporters as it allows them to make informed decisions on market access treatment options. ●

This article was prepared by John Golding[a], Madeline Kavanagh[a], James Freriechs[a], Penta Pristijono[b] and Baogang Wang[c]

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[c] Beijing Academy of Forestry and Pomology Sciences, China

This work was presented in the Postharvest Workshop at the 2022 Citrus Technical Forum on the Sunshine Coast in March 2022.

This project was funded by the Federal Department of Agriculture, Water and Environment through the Agricultural Trade and Market Access Cooperation (ATMAC) Program and NSW Department of Primary Industries.

For more information, please contact John Golding at NSW Department of Primary Industries (john.golding@dpi.nsw.gov.au).

Prevention the best cure for fungicide resistance

Key points

- Fungicide resistance serious postharvest problem
- Technical resistance to TBZ fungicide

Postharvest fungicides such as imazalil (Magnate® or Fungaflor®) play an important role in controlling postharvest decay such as green and blue mould and are essential for the storage and marketing of citrus.

However, the continued use of these postharvest fungicides without proper management allows for the build-up of fungicide resistant decay spores within a packhouse, particularly if packhouse hygiene is poor.

Over time this can lead to a situation where the decay fungus is able to grow on fungicide treated fruit resulting in the growth of the decay and fruit breakdown in the market.

This resistance to the fungicide is a serious and important postharvest problem which needs to be managed in the packinghouse to minimise any potential postharvest losses and claims.

The 'Postharvest Sanitation and Fungicide Resistance Service' is a not-for-profit service which looks for the presence of decay-causing fungi in the packinghouse and identifies if these decay-causing fungi have any technical resistance to common postharvest fungicides (Figure 1).

A selection of some of the packinghouse results from last season are presented in Table 1.

The results show there were large differences observed in the levels of sanitation and technical resistance to postharvest fungicides between the different packinghouses around Australia.

Some good packinghouses, such as Packinghouse A, had very low levels of general moulds and decay in the packinghouse with no detectable technical resistance to any postharvest fungicide.

This is a very good result and shows that with good packinghouse hygiene and fungicide management, potential fungicide resistance can be eliminated.

The results from Packinghouse B shows that while there were higher levels of green and blue mould spores detected in their packinghouse, there was no technical resistance detected.

This shows that the postharvest fungicides were effective in controlling these decay fungi during storage.

However, the results from Packinghouse C showed that while the levels of green and blue mould were similar to Packinghouse B, there was the start of some technical resistance to TBZ (e.g. Vorlon® or Tecto®) fungicide starting to develop (as indicated with the growth of green and blue mould spores on the TBZ amended agar plates).

This needs to be managed and monitored, as any increase in technical resistance will reduce fungicide efficacy.

This is illustrated in the results from Packinghouse D and E, where there are high levels of green and blue mould in the packinghouse which also contained high levels of technical resistance to TBZ.

Table 1. Examples of sanitation and technical resistance to postharvest fungicides found in seven different citrus packinghouses during 2021 season (from 'Postharvest Sanitation and Fungicide Resistance Service').

	Untreated			TBZ			Imazalil			Fludioxonil			Pytimethanil		
Shed	**S**	**E**	**C**	**S**	**E**	**C**	**S**	**E**	**C**	**S**	**E**	**C**	**S**	**E**	**C**
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
B	2	3	4	1	1	1	1	1	1	1	1	1	1	1	1
C	4	2	2	1	2	2	1	1	1	1	1	1	1	1	1
D	1	3	4	2	4	4	1	1	1	1	1	1	1	1	1
E	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1
F	4	3	2	3	3	2	2	2	1	1	1	1	1	1	1
G	4	4	4	4	4	4	4	4	4	1	1	1	1	1	1

Postion in packinghouse
S = at the start of the packingline
E = at the end of the packing line
C = in the coolroom

Level of sanitation / technical resistance
= very low levels
= low levels
= moderate levels
= high levels

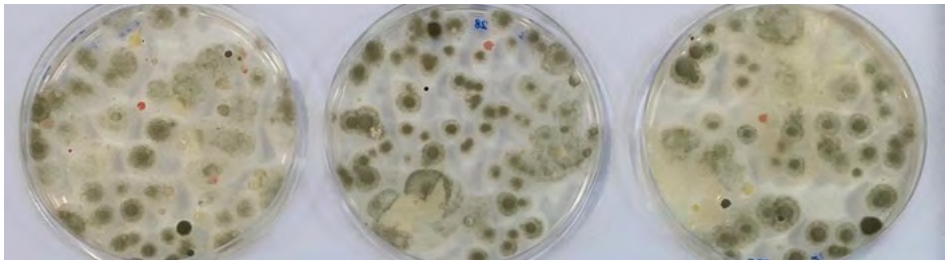

Figure 1. Test plates with postharvest fungicides added to the agar are placed in the packinghouse in different locations. Technical resistance to the different fungicides is classified if the decay spores can grow on the fungicide amended fungicide.

This is a problem as the continued use of TBZ will make its use ineffective in controlling green and blue mould. While TBZ can be an effective fungicide for the control of sensitive strains of green and blue mould, it also has the additional benefit of assisting with reducing the expression of chilling injury.

This additional benefit of TBZ, especially hot TBZ application, is one of the few postharvest treatments that is available to suppress chilling injury during cold treatment for export.

Therefore, it is important to properly manage TBZ in the packinghouse to maintain its fungicide efficacy and to ensure resistance does not get out of control.

Fortunately, in the 2021 season, no technical resistance to fludioxonil or pyrimethanil was detected in any of the tested packinghouses at this time.

Technical resistance to TBZ fungicide was observed to be common across many packinghouses (63% of all samples).

However technical resistance to imazalil was less common (13% of all samples) but technical resistance to imazalil is problematic and requires active attention.

Imazalil is a mainstay of many citrus postharvest fungicide programs and its efficacy needs to be actively managed to maintain control of postharvest decay.

The levels of technical resistance to imazalil which was identified in Packinghouse F was a concern as these moderate levels can quickly develop into more severe levels of technical resistance (Packinghouse G).

These very high levels of technical resistance to both TBZ and imazalil in Packinghouse G were of high concern and active management was required to start to slow, stop and reduce this development of fungicide resistance.

Reducing fungicide resistance in packinghouses with such high levels of technical resistance is a long and slow process of cleaning and fungicide rotations. The best solution to managing resistance is to prevent it from occurring.

This management of resistance to postharvest fungicides requires a whole-of-system approach, starting from harvest through to packing and storage.

However, the first step of managing resistance is knowing what is happening in the packinghouse, i.e. monitoring for technical resistance. ●

This article was prepared by John Golding and Mark Bullôt, NSW DPI. They would like to thank the chemical companies, packinghouse managers and growers for allowing the use of their anonymised data for this article.

Some of the key management factors in reducing the risk of fungicide resistance include:

- **Monitor fungicide resistance.** The early detection of resistance increases the chance that its development can be managed and stopped. It is therefore critical to measure and monitor both packinghouse sanitation and hygiene, and the levels of technical resistance to postharvest fungicides.
- **Optimise fruit health**. Good postharvest practice to minimise physical damage to the fruit during harvest and handling.
- **Use best hygiene practices.** Lowering the populations of decay-causing spores in the packinghouse, cool room and on the fruit are keys to a successful management program. This includes removal of rotten fruit from the packinghouse and coolrooms, and the regular sanitation of equipment, coolrooms and packingline by washing (or using fogging technology).
- **Optimise fungicide use.** Understand the way each fungicide works to develop strategies to minimise the development of resistance by using rotations and mixtures whenever possible and before resistance selection occurs.
- **Optimise fungicide efficacy.** The correct fungicide concentration and coverage determines the efficacy of the treatment and minimises the chances of decay spores surviving following treatment.

Order your test kits now

The 'Postharvest Sanitation and Fungicide Resistance Service' is available to provide timely information to packers on the levels of sanitation and technical resistance to postharvest fungicides in their packinghouses.

This service is provided by NSW Department of Primary Industries and Citrus Australia, where orders for test kits can be made through the Citrus Australia website.

Visit the postharvest section under the 'Growers & Industry' tab at www.citrusaustralia.com.au. After the order is purchased, a set of test plates are sent to the packinghouse with instructions on where and how to put out the plates.

After the test plates have been exposed to the air in different parts of the packinghouse and coolroom, they are returned to NSW Department of Primary Industries in an Australia Post Express Post bag for analysis.

The results are then returned as a confidential report back to the packinghouse. Third parties are also able to purchase the kit and place in your packinghouse on your behalf.

For more information, contact John Golding at NSW DPI on (02) 4348 1926 or email john.golding@dpi.nsw.gov.au

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