



SUMMER  
2023

VOLUME 33  
Nº4

# Talking Avocados

SOUTHEAST ASIA MARKET  
VISITS A SUCCESS

SMART FARM UPDATE

MARKETING AUSSIE AVOS  
INTERNATIONALLY



# Talking Avocados

is published by:

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**Talking Avocados published quarterly:**

Autumn, Winter, Spring and Summer

**Circulation:** 1000 Copies

## Subscriptions

Four issues per year:

**Australia:** AUD: \$65

**New Zealand:** AUD \$85

**Rest of the world:** AUD \$100

## Advertising

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## Printed by

Snap Brisbane Felix Street

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**ISSN 2207-9998** (digital) | **ISSN 1039-2394** (print)

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*Talking Avocados* is published through the *National avocado industry communications program* (AV18003), funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.



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**COVER:** The 2022 inaugural Southeast Asia Market Visits were highly successful. The front cover images show highlights from the tour.

# CHAIR'S PERSPECTIVE

*Brad Rodgers, Avocados Australia Limited*



Welcome to the first issue of Talking Avocados magazine for 2023.

I'd like to start by informing you all that Jim Kochi has been recognized for his contribution to the Australian avocado industry by being awarded Life Membership. The entire Board voted on this, and everyone was in full agreement that this award was well deserved. Avocados Australia Life Membership is the highest form of award that Avocados Australia (AAL) can bestow and Jim's eighteen years of service to the Australian avocado industry has been justly recognized. An article about this appears in this issue.

I was pleased to hear that AAL's Southeast Asia Market Visits, held in November last year, went well. There were a good number of participants and I hear that important networking, fact finding, and business leads were generated as a result of this initiative. More market visits are planned. Check your inbox regularly for AAL's emails for the details. An article covering the Southeast Asia Market Visits appears in this issue.

Richard Magney, AAL's new Chief of Export – Market Access, started in late October 2022 and he hit the ground running. I believe his presence has already made an impact and he will be a positive addition to the AAL team. Richard elaborates on a range of market access activities that have taken place in his article in this issue.

Myself, Daryl Boardman and Richard hosted an Indian and Australian government delegation in the Tristate region in early November. This was part of our market access application for Australian Avocados into India. This visit went extremely well and our application is progressing well.

2023 will be a BIG year for AAL. We officially celebrate our 20th Anniversary, and we have two events planned to recognize the event. A 20th Anniversary Celebration function is being held on 3 April during the World Avocado

Congress at the Grand Millennium Hotel in Auckland. This is a members-only event. The other event in which we will be celebrating Avocados Australia's 20th Anniversary is at Avo Connections in the first week of June at the Adelaide Convention Centre. All members of the Australian avocado industry are invited to attend.

For those of you who will not be harvesting in April I recommend attendance at the 10th World Avocado Congress in Auckland New Zealand. With over 900 attendees confirmed from more than 28 countries the congress represents an extraordinary opportunity for the global avocado sector to come together. It is a chance to share information and ideas. To remain competitive, we need to be globally focused and much of what you need to know will be presented in one location. Members of the AAL team will also be in attendance.

Among AAL's priorities is the priority to increase domestic consumption of avocados and it was good to see that in 2021-22 domestic consumption had increased. In FY2021-22 Australians consumed 4.76kg of avocados per person, this was a significant increase on the previous year's figure. It's a step in the right direction and work on this will continue this year with emphasis on the food service sector and other options. Our 2023-2026 Domestic Marketing Plan is set to work further to increase domestic consumption.

At the time of writing this article fruit quality of Australian avocados was good. It is obvious that Australian avocados are of great quality and that this is our point of difference when going up against inferior lower quality imported fruit.

I'm sure this year will deliver further increases in exports and domestic consumption. That's all from me for now. As always, be great farmers, have pride in what you produce and what you are happy to take to market.



# CEO'S REPORT

John Tyas, Avocados Australia Limited



Welcome to 2023. It will be a busy year full of events.

This year Avocados Australia celebrates our 20th Anniversary. The Australian avocado industry has grown dramatically since Avocados Australia began in 2003. 2003 was a different time and many of our concerns were different, however some challenges remain. Producing quality avocados and doing so through adopting best practice is just as important as it was in 2003. In fact, it is even more crucial in order to remain globally competitive. Consumers and retailers located domestically and overseas expect good quality fruit and they now also have expectations around how avocados are grown. Consumers now use social media to stay informed, research and share their experiences. So a grower needs to do more than just grow quality fruit. The industry today needs to be able to share its sustainability credentials and success stories, as consumers and investors increasingly ask for evidence of ethical and sustainable practices from their food producers. As an industry that is focused on increasing exports year-on-year these types of concerns are important. As cliché as it is,

the perception of Australia as a 'clean and green' country is a significant strength and a fact that was taken into account when a number of marketing tools were developed such as in the video commercials aired in our overseas marketing campaigns and in the recent trade video (see the commercials and trade video on AAL's YouTube channel here: <https://www.youtube.com/@AvocadosAustralia>). As an industry we are growing, and we have the plans in place to support this growth. Already last year we saw dramatic increases in exports and domestic consumption. I am confident that we can continue these trends in 2023.

We have a number of events coming up this year to celebrate our 20th Anniversary and I would like to invite you to take part in our celebrations. Read our 20th Anniversary article in this issue for the details as to how you can take part. A commemorative Autumn issue of Talking Avocados is also planned, and in it we will showcase highlights of the events that have taken place over the years and feature the people who have actively taken part. Avocados Australia wouldn't

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be what it is today without the dedication and efforts of our people, our staff, our Board, as well as the various stakeholders who make up the Australian avocado industry.

On the topic of acknowledging our people, this issue of the magazine includes an article about Jim Kochi. As Brad has said, Jim received an Avocados Australia Life Membership award late last year. I was honoured to be able to personally present Jim with the framed Life Membership certificate and thank him for his eighteen years of service to the Australian avocado industry. Jim committed much time and energy in his role as both Chair and as director for the North Queensland growing region and set an excellent example of what can be achieved for the good of the industry.

Since the last issue of Talking Avocados magazine two new staff members have joined the AAL team. Brad has already mentioned Richard Magney, our new Chief of Export – Market Access. The other new staff member is Grant Telford, our Project Manager for the Avocado Industry Biosecurity Strategy 2022 – 2026 (AV21002) project. Grant has extensive industry experience in addressing biosecurity matters and he has a tight rein on this new project. In this issue of Talking Avocados magazine is an article that elaborates on the avocado biosecurity project and details how the project is going so far. This is an important project as it seeks to protect and secure the Australian avocado industry's biosecurity future. More information about this project will appear in future issues of Talking Avocados magazine so look out for Grant's articles.

Avocados Australia's 2022 OrchardInfo Tree Census Report was recently distributed to contributing growers. The information collected in the census, assists long-term industry forecasting for research and development and marketing investments and developing export markets based on future predicted production. It is therefore a valuable resource for the industry so I would like to thank all of you who took the time to contribute.

I wish you all a prosperous 2023.



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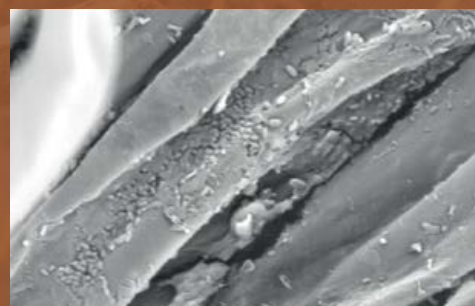
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# AROUND AUSTRALIA



## TRISTATE

*By Kym Thiel*

By now the Hass harvest should be over all for Tristate growers and for a few it lingered on well into January which is not the norm. Heavy rain throughout the early parts of spring caused major delays in picking and

packing then coupled with heavier than expected crops for many meant that harvest pushed out. This at the time I thought would be a good thing as prices would only continue to increase with the lack of Western Australian fruit expected but as of Christmas the much anticipated kick in pricing failed to eventuate. In any normal year one would expect prices to increase but the feedback from the markets is that large amounts of imported fruit has found its way into the system being both Chilean and New Zealand. This is disappointing to see and hear but many traders forward committed to this some time ago when it appeared there would be a significant summer shortfall. It appears some industry estimations are not even close or is it a lack of data input that has led to this happening?

The Tristate crop for 2022 will be very close to the very high levels of the year before. One very good past grower always told me you could get two big crops in a row but never the third. Well at the time of writing, after what I would describe as a far from perfect and even bizarre flowering/setting conditions, I think next year's crop is looking at least average to above. It's very early and time will tell.

Seeing the Murray River in flood as it is now is truly a once in a lifetime event but I would like to wish all those impacted one way or another all the best. The high river will be here for some time, and I know it has affected everyone in some way ranging from poor water quality, loss of power, loss of pumps, and road closures etc causing many delays.



## CENTRAL NEW SOUTH WALES

*By Ian Tolson*

The weather leading into Summer has been relatively cool. Rain has continued across the growing regions hampering the remainder of the

harvest in Comboyne. The Stuarts Point and surrounding area had the misfortune of a rather damaging hailstorm in recent weeks. Although the hail was not large, it was plentiful and widespread.

Growers in the Stuarts Point area will have a smaller crop than this year. A few contributing factors. Trees and orchards are still in the recovery or replanting stage due to flooding. The problem now is the roots having been waterlogged for so long can of course cause Phytophthora problems. Irregular bearing, the hailstorm and the promise of another abundance of fruit in 2023 is testing growers' resilience. Through all of this though the focus must remain on orchard health, fruit quality and shelf life. The time has come now when fruit that breaks down through lack of good orchard management practices, poor or no spray programmes and plant nutrition will not be accepted in the marketplace.

Other areas have experienced a late fruit set, so are unsure of what to expect yield wise. By next edition fruit drop should have finished, giving everyone a better idea of what yield lies ahead for 2023.

The number of trees in the ground yet to produce is of concern to all growers. The recent organised tour to Asia Fruit Logistica, market visits whilst in Bangkok, then Kuala Lumpur and Singapore gave attendees a better perspective of growth opportunity in those countries. We need to support all endeavours to open up new export markets. The main use of avocados in Asia is as a drink. In Singapore there was a takeaway shop specialising in avocado based goods, unfortunately it wasn't doing much business. Educating those countries on how they can incorporate avocado into every meal would create an exceptional demand for our product. The reverse is for Australians to be educated on how to 'drink' avocados.

A big thank you to all involved in organising such a wonderful trip and may there be many more.

Good to see food chain Olivers now have 'smashed avocado' on sourdough on the menu. Let's hope they are Australian avocados.



2023 will be well underway by the time this magazine lands in your mailbox, so I hope everyone has had a wonderful festive season and well-earned rest so we can face the challenges ahead.



Avocado on the menu, be it a tart, other pastry or drink.



## TAMBORINE AND NORTHERN RIVERS

*By Tom Silver*

Growing conditions in the Tamborine Northern Rivers region have improved in recent weeks in contrast to the rain earlier in the year. Heavy rain in

late October has given way to much dryer conditions with unfortunately the odd mini heatwave!

Crop set for 2023 looks patchy, with many older trees possibly having a break or suffering from poor pollination due to cold and rain during flowering.

Tree health remains a big issue for the region with some trees exhibiting “stress cropping” whilst many trees have not recovered at all or are simply dead from the effects of water logging.

In November I had a chance to walk the floor at Brisbane Produce Market, there was only a limited amount of fruit on display outside the recognised, regular handlers of avocados, with only one damaged pallet out the front of the biggest player! This contrasts to the situation I saw at the Brisbane Produce market last May where during a period of oversupply, pallets of fruit were stacked up on display outside multiple vendors most of which wouldn’t normally handle avocados. This is in addition to anecdotal reports of cool rooms behind the scenes overflowing with avocados and trucks lining up to unload! I am aware that the market was shortening in November, and that the main supply had shifted away from Queensland and Northern New South Wales region, however the issues of supply, scarcity and how growers market their crop is still relevant. Though the wholesale markets only handle a fraction of the Australian avocado crop due to direct supply, any saturation at the wholesale level will have a detrimental effect on price across all the supply avenues. A wholesaler who doesn’t normally handle avos but markets them during an oversupply because they are very cheap, has no “skin in the game” to ensure growers are getting the best

possible price. The result is a race to the bottom and the “price taking” growers become the losers.

Solutions are:

- Sell your fruit through a marketer/consolidator. These guys have access to the chain stores for premium grades and sizes where the best returns are. However most also have export market avenues, and the wholesale market customers that have an interest in ensuring a profitable avocado industry. Yes, there is a marketing fee which I know some growers balk at, but don’t just look at your top price, also look at your bottom price and what that fruit might be costing you.
- Resist the urge to send to agents who don’t normally handle fruit. Just because you send another crop that you grow, or because an agent says to send some because you cannot find any other outlets to sell through, might not be the best reason to send.
- Only send quality. The best fruit gets the best money! Is it worth sending away second grade fruit in 10kg boxes during peak supply just to see what you get? All fruit must get sold, is it worth sending low grade fruit to the detriment of the premium and 1st grade price?

I know I am not the expert on these issues, but I firmly believe that the days of sending and praying are over.

Hoping growers have a good growing season and a better 2023.



## WESTERN AUSTRALIA

*By Brad Rodgers*

While summer has commenced it is only in spits and spurts. It only really started to get warm in mid-December. Flowering has occurred over a protracted period of time. A lot of orchards are seeing late set which will make 2023’s crop mixed.

Harvest is over halfway completed and lower/smaller fruit as forecasted is evident in the weekly Infocado numbers. Fruit however is of good quality so well done to all Western Australian growers!

It’s pleasing to see that the majority of packing sheds now have an export quota they are fulfilling regularly as part of their harvest program. Export reports are also reporting increases in exports for our growing region, so we are making further inroads into achieving our Export Strategy objective. I recommend to anyone wanting to track our exports to go online to the Best Practice Resource (BPR) to the “Export Reports” webpage. There you can view monthly and weekly export reports tracking our export progress. Just login to the BPR, click on “Exports” on the green menu then click on “Export Reports” on the right-hand side menu.

I am pleased to hear that a number of industry members from Western Australia took part in Avocados Australia's Southeast Asia Market Visits. I understand that more market visits are planned. I want to encourage more Western Australian growers and exporters to take advantage of these types of initiatives as they are brilliant for fact finding and learning more about markets overseas. The market visits that took place in November provided participants with the chance to meet importers, see retail and other industry relevant organisations at work in our overseas markets and this kind of experience is valuable.

On 18 October this year polyphagous shot-hole borer (*Euwallacea fornicatus*) and the associated symbiotic *Fusarium* sp. were formally classified as Category 1 EPPs (emergency plant pests). This means that the pest is considered likely to have a major impact on the environment and on amenity flora. It is deemed to have a nuisance impact on human lifestyle and relatively little impact on cropping sectors, therefore, the cost share of implementing a Response Plan is 100 per cent government funded. I believe this is a good outcome for the industry. There is a full article about this in this issue of the magazine.

That's it from me for now. I'd like to wish all growers a bright and prosperous 2023.



## SOUTH QUEENSLAND

By Daryl Boardman

I would like to firstly start by saying thank you again to Jim Kochi for his long service to our industry on the board and also as chair. Thanks mate. Also, my thanks go to Jim Randell for his time filling the seat for

Central Queensland. Thanks Jim. I would like to welcome the new Board members. Lucy Philip who was elected for Central Queensland/Sunshine Coast. Welcome Lucy. Also, Matt Kleyn who has filled the North Queensland position. Welcome Matt.

Southern Queensland has had a good long harvest with some growers still harvesting as I write this report. There are some that will still be harvesting after Christmas. Fruit quality has been mixed depending on orchard practices, tree age and the extent of decline in orchards from the wet weather the area has experienced.

Fruit set was a concern with such cool conditions during flowering but asking around and looking at my own orchards it looks much better than we had all expected and most feel it could be similar to last season's fruit set at this stage.

Fruit Spotting Bug is already out and about with the humid conditions so keeping on top of this and other pests and disease is important during these summer months.

Recently myself, Brad Rodgers and Richard Magney (our new Chief of Export – Market Access) travelled to the Mildura region to meet with Department of Agriculture, Fisheries and Forestry representatives and Indian Department officials to showcase our industry as part of the steps that need to be taken to gain access to this market. I feel this was a positive trip and that it should go a long way to helping gain the Indian market for our industry.

At the same time as this visit Asia Fruit Logistica was also held and along with this Avocados Australia arranged the first Southeast Asia Market Visits tour of Bangkok, Kuala Lumpur, and Singapore. Unfortunately, I was unable to attend due to my commitment in Mildura, but from all reports both events were well worth attending and those who took part gained valuable experiences.

Like all these events they do take you away from your farm and you think you can't afford to be away but if you ask most people that attend, they will always tell you that the benefits or insights they gain are well worth it.

I would encourage you all to consider attending the World Avocado Congress in New Zealand in April. The networking at these types of events and getting onto different farms in different countries is always worth a look and you always pick up something. There is nothing better than getting off your own dung hill so to speak.

To all the SQ growers, I hope you had a very happy and safe Christmas and I wish you all a prosperous New Year with family and friends.



## CENTRAL QUEENSLAND/SUNSHINE COAST

By Lucy Philip

It certainly was a tough one this season and it doesn't look like it's going to get easier next season either, however as I reflect on this year and take a walk through our orchard and read back through earlier editions to contemplate what to write for my first Talking Avocados article, I keep coming to the same conclusion "this is farming". As farmers we take the good with the bad in regard to the issues out of our control i.e., the weather.

In the Central Queensland/Sunshine Coast region, it's been a wet one just like the rest of the east coast. We have been managing orchard drainage problems, Phytophthora, pulling out dead trees and stumping the weak. We saw a strong flowering, however the weather conditions played havoc on the fruit set. This is evident through the variability we are seeing even within the same block of trees. Some have set heavy whilst others very little. Older trees in this situation



seemed to have been affected the worst and in addition to that, some areas have been affected by hail. As I write this (mid-December) we are seeing a bit of fruit drop around, however it is a bit early to tell as our main drop is usually in January. The overall feel is that we will be down slightly in numbers. These are the issues we can't control. We can have good management practices to lessen the severity and ensure the crop we have is of good quality for sure, but mother nature cannot be controlled.

Moving on to issues we can control or influence I should say... government decisions lol.

Eric Carney and I, as part of the Paradise Dam Reference Group, attended its second meeting at their new engagement forum, on the 10 November last year. In short, the good news is they are committed to rebuilding Paradise Dam to its original full supply height, the bad news is they are contemplating options to reintroduce water for sale before repairs have been finalised! The La Nina event is predicted to be weakening in January /February of 2023 we need to protect our water security; it wasn't that long ago we were experiencing 22% allocations! As growers in the region and more importantly as an industry body we need to voice our concerns in order to be heard and taken seriously. It really does affect us all and we need to stand as a united front.

Also, this year we welcomed a new Hort Innovation (HIA) CEO, Brett Fifield, the HIA board is confident that he will take "Hort Innovation to the next phase of strategic development, and enhanced culture and stakeholder experience." From a grower's point of view, we hope this is true. From a levy payer perspective, and as one of HIA's highest levy contributors, we need to hold them to account and deliver on their promises. This leads me to my final thought, good governance practices.

I strongly ask you to reach out and voice your thoughts, this board represents you and your needs and through adopting good governance practices this organisation will be held to account to achieve these goals. What you put in, is what you get out!



## NORTH QUEENSLAND

*By Matt Kleyn*

Hi everyone, this is my first report for Talking Avocados as the new board representative of Far North Queensland. I would like to take this opportunity to thank Jim Kochi for all the efforts he has put into our

industry over many years. It is becoming apparent to me that it requires a fair amount of time to perform this role well. In turn I would also like to thank Ed Kochi for allowing Jim the



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time away from their family farm to help all of us. I would like to keep you more updated with what is happening, that directly relates to North Queensland, however Avocados Australia are unable to give me your email addresses due to privacy rules. So, if you would like me to include you in any communication, then please request Avocados Australia to give me your email address.

As far as the current crop and market situation, we will all be hoping for better prices this year, particularly for the Shepard Variety. Things are looking promising on that front with reduced quantities from Western Australia this year, however Shepard crop loads as far as I can see are quite strong in the district. If anything, fruit set may be a couple of weeks behind normal, however strong plantings of young trees in past years will alleviate any shortfall of supply. It will be important for all marketers to resist squashing the Shepard supply into a small window as was done on a whole last season. As far as the Hass variety goes, reports of this are quite patchy with some experiencing good fruit set and some average to poor. Large plantings of Hass over the past years will mean that increased supply pressures will continue into the future, so it is important for all growers to push their marketers to expand their export programs. There is strong demand for our product in the overseas markets we can supply and hopefully more markets will come online in the near future.

I am pushing to have fruit fly non host work on Shepard avocados reassessed so that we can explore further overseas markets for this variety as well as Hass. Currently there is also strong demand for Shepards in the overseas markets we can supply. Any fruit that we can export will reduce the pressure on the Australian market which will mean a better return for all of us. So, talk to your marketers and see how you can work together to increase your export percentage of fruit. 20% of your fruit is a good goal to start with. Please understand that the export markets we have access to, are a reflection of the Australian market so if we can strengthen the Australian market we will do the same for the export market.

Staffing pressures have hopefully eased a little with large numbers of Pacific Islanders now working on farms around the districts. I am aware of a few hiccups with this process for the start of the Shepard season, but hopefully all will be back on track by Mid Feb. Small numbers of backpackers are also starting to re-enter the area which will also help to elevate the shortfall of staff. There are other improvements to this in the pipeline which I will let you know about when I have more certain information. But there is plenty to celebrate compared to only a couple of years ago when Covid and its consequences were in full swing.

I wish you all the best for the coming season.



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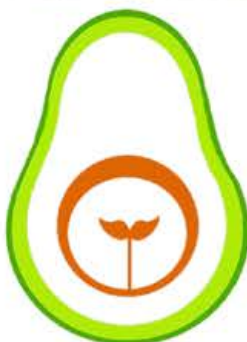


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# NEWS

— Extension News —

## 2022 Avocado Soil Health Summit overview

*By Renata Grunennvaldt, Bridie Carr and Simon Newett, Queensland Department of Agriculture and Fisheries*

Fourteen growers and consultants from across Australia met in Brisbane for a two-day avocado soil health summit on the 8 and 9 of November 2022. This was the last of three 'Advanced Management Workshops' that were part of the *Avocado Industry Development and Extension* project (AV17005). These workshops aimed to reassess and update current best practices, identify research gaps, and highlight regional extension needs on behalf of the Australian avocado industry.

The first advanced management workshop, which was on the topic of avocado irrigation was held in May 2021, and the second was on the topic of avocado canopy management, held in September 2022.

These workshops involved:

- Conducting a comprehensive literature review
- Surveys on domestic and international practices
- A summit with various industry representatives, guest international and domestic speakers, and facilitated discussions
- A final report summarising all the outputs and updating the Avocados Australia Best Practice Resource (BPR)

*All resources, including final reports from these workshops, are available on the industry Best Practice Resource. The fastest way to find this information is to type "soil health" (for example) into the 'Search' box in the BPR.*

Maintaining healthy soil in avocado orchards is an essential exercise to ensure the long-term economic productivity of the soil. Promoting soil health involves the adoption of different management practices, such as following a nutrition and irrigation program to avoid over-watering and over-fertilising, avoiding soil compaction, increasing the organic matter levels, applying mulch, and avoiding soil loss (erosion) and nutrient loss (leaching) by the use of cover crops in the interrow. All these practices positively support the interaction of the physical, chemical and biological properties of the soil which directly impact avocado growth and production.



Given the breadth of the topic of soil health, growers, consultant and researchers' representation and experience at the summit was important. To help evaluate, discuss, and reassess Australian avocado soil health on behalf of the industry, the summit delegates reviewed before attending the summit:

- A soil health literature review completed by Renata Grunennvaldt from DAF
- A domestic canopy management survey summary from 65 Australian growers



With this homework as a solid foundation of information, over the two-day summit, there was facilitated discussion on each of these summaries and the various presentations given.

Presentations during the summit included:

- Various delegates presenting their own areas of expertise and experience
- Dr Tony Pattison, a Principal Nematologist from DAF, giving a presentation on 'Soil Health – Sustaining Soil's Service'
- Dr Neil Wilson, a Research Scientist from Metagen, giving a presentation on 'Assessing soil health using DNA-based measurement of microbial diversity'
- Dr David Crowley, a Professor Emeritus from the University of California, giving a presentation on 'Shaping Healthy Soils: The Importance of Soil Management Practices for Promoting Root Health and High Fruit Yields of Avocado' via zoom

*David Crowley's talk was recorded and is available for viewing on the BPR.*

Comprehensive final reports on all three summits (irrigation, canopy management and soil health) have been prepared for the industry by the AV17005 project team, which include summaries of the presentations, key points from the facilitated discussions, and the key outcomes for the Australian avocado industry.

*All summit documents are available for download from the BPR library under Event Proceedings. Alternatively, you can contact Bridie Carr on [bridie.carr@daf.qld.gov.au](mailto:bridie.carr@daf.qld.gov.au) to be sent copies.*



Dr Crowley's presentation provided valuable insights.



The Soil Summit in action.



Soil Summit participants.

# Orchard Census Update

*Daniel Martins, Avocados Australia Data Analyst*

Avocados Australia's 2022 OrchardInfo Tree Census Report was recently distributed to contributing growers. The information collected in the census, assists long-term industry forecasting for research and development and marketing investments and developing export markets based on future predicted production. We would like to thank all growers who participated by making this essential contribution to the effective planning and management of our industry.

## General Results - Age

For this year's census the number of hectares recorded reached 16,334, a 9.5% increase from last year's 14,921 hectares. Note this increase is partly due to newly incorporated plantings not previously in our records, and not necessarily an increase in plantings.

Of the 16,334 hectares, 42% are less than 6 years old, namely young trees that have not reached their productive maturity, the other 58% are established trees that are currently in production. The proportion of younger plantings is higher when counting trees instead of hectares (50%), signalling that higher density plantings have become more commonplace in recent years.

Differing from last year's report, the rate of new yearly plantings seems to have peaked in 2019 instead of 2018, this can be due to newly incorporated data including plantings in that year that were not previously reported. The rate of decline since the peak remains roughly similar to what was reported last year.

## General Results - Varieties

Hass remains by far the dominant variety with Shepard a distant second, followed by Maluma. Apart from these three largest, no other variety surpasses

1% of the total either by area planted or number of trees, and combined, they only add up to about 4% of trees and of all hectares.

Almost precisely half of all Hass and Shepard trees are up to 5 years of age. Proportionally, younger trees outnumber old ones for other varieties, such as Maluma, Gem, Carmen, and Edrinol, signalling that these could be becoming preferred niche varieties lately.

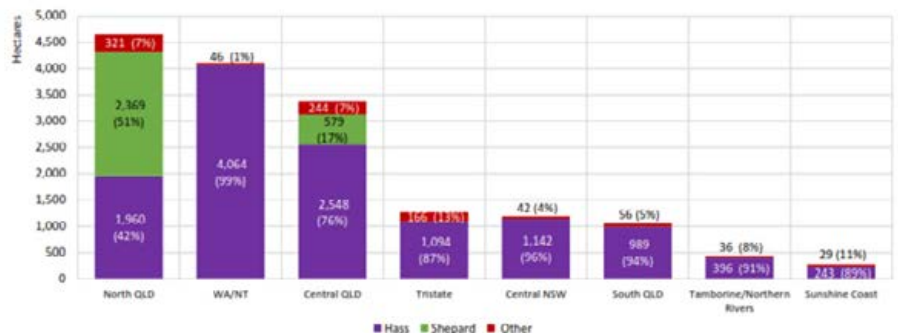
In terms of density, at 256 trees per hectare Hass is unsurprisingly close to the total average of 244 trees per hectare. Shepard has one of the lowest densities (165 trees / ha) while Maluma has one of the highest (497 trees / ha).

## General Results - Regions

Looking at plantings by region, the data shows that the largest proportion of plantings over the past 10 years have been in North Queensland and Western Australia. North Queensland is the largest region in terms of area planted having 13% more than the area of Western Australia, however Western Australia is the largest in terms of number of trees, having 57% more than North QLD plantings. Western Australia has by far the highest density at a weighted average of 342 trees per hectare, and conversely, North QLD the second lowest planting density at 190 trees per hectare (the lowest is South QLD at 180 trees/ha). Central QLD is the third largest region in terms of both



**Figure 1.** Avocado hectares by regional tree maturity.



**Figure 2.** Avocado hectares by variety.



number of trees and hectares. These three regions represent 3/4 of the total are planted.

For the past 8 years North QLD planted an average of 380 (8.2%) hectares per year, the highest of all, followed by WA at 315 (7.2%), and Central QLD at 202 (6%). The industry total has planted, on average, just over 1,000 hectares a year, representing a 7% YoY growth for that period.

Looking at hectares by variety and region this chart shows the regions with the highest proportion of Hass are WA (99%), Central NSW (96%), South QLD (94%), and Tamborine / N. Rivers (91%). The proportion is lower in North and Central QLD, mainly due to the large share of Shepard present in these regions (51% and 17% respectively). These proportions have slightly decreased relative to last year's census due to slightly higher proportions of 'other' varieties.

## Growers / Orchards

The data was recorded from the responses of 627 growers (77% of the total) which were updated this year, in addition to 120 (15% of the total) recorded in previous years that remained unchanged. In total, this report is the result of the records of 747 (92%) growers across Australia. There are an additional 68 growers we know of, that we however have no records of. Most of these growers are smaller operations in the Tamborine / Northern Rivers Region (16 of them), and the second largest group (13 of them) in Western Australia.

The updated results of the census will come to inform the long-term forecast model and we will see how the new number of plantings we have incorporated, based on their age, will have an effect on the projected volumes.

The more complete the data we have, the better our ability to make

projections with a fair degree of confidence. Census participation is therefore of very high importance, as these projections influence industry-wide investment decisions that will help sustain the industry in the long run.

More detailed results were presented in the OrchardInfo report emailed to all participating growers late 2022. If you are an avocado grower and have not received this year's report, you have not confirmed your records for this year. Please get in contact with our office to update your details and we will share the report with you.

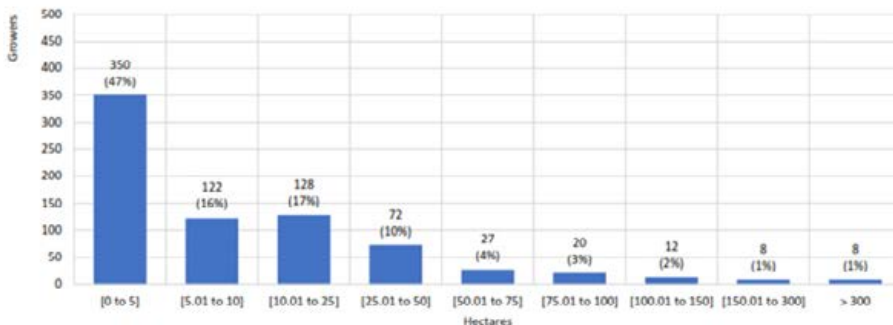
We really appreciate the time and effort all growers put into answering our requests for information.

## Acknowledgement:

This report has been produced by project *Avocado industry and market data capture and analysis* (AV20000), funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

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**Figure 3.** Orchard size profile distribution.



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**Contact:** Sean Arkinstall | **Ph:** 0419 391 558

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**Contact:** Jonathan Chislett | **Ph:** 03 5038 8238

# 2022 Global Market Analysis

Wayne Prowse, Fresh Intelligence Consulting

## Global Avocado Production and Trade

The Food & Agriculture Organization of the United Nations reported (via FAOSTAT) global production of avocados as 8.1 million tonnes in 2020 and expanding 8.9 per cent per year over 5 years. Meanwhile the global trade in avocados reported by UN Comtrade in 2021 was 3.1 million tonnes worth AU\$10.9 billion equivalent. The global trade volume has increased on average by 10.6 per cent per year over the past 5 years. Avocado trade is around 40 per cent of global production making it one of the most highly traded fresh produce crops by proportion of production.

The reason is simple, akin to bananas. Being a warm climate crop the world's avocados are mainly grown mostly in tropical climate countries. The world's largest and most lucrative markets (North America, Europe, and North Asia) must import their needs for avocados as they do not have a suitable climate to grow sufficient volume, if any, to meet their demand. And avocados have seen a strong increase in demand as consumers discover their benefits and cannot get enough of them.

Therein lies the opportunity for export market growth into Northern markets.

## Importers

**The United States is the largest single country importer of avocados**, importing 1.1 million tonnes in 2021/22, mostly from Mexico. Europe is also a large importer by region with combined imports of 1.36 million tonnes although re-export intra-European trade reduces the net imports to around 631,000 tonnes imported mostly from South America and Israel.

By global measures Asia is a small importer though has a rapidly increasing growth rate. Asian markets imported 158,000 tonnes of avocados in 2021, which was 13 per cent more than the previous year and 9 per cent increase per year over 5 years. Japan, China, Hong Kong, and South Korea were the main importing markets and accounted for 90 per cent of the avocado imports by Asia.

China and South Korea are increasing imports more rapidly as avocados are becoming sort after in these markets. Hong Kong, now Australia's largest destination is also increasing.

Japan has long been the largest importer of avocados in Asia and recorded 61,914 tonnes imported in 2021/22 albeit falling 25 per cent in one year. Mexico and Peru are the main suppliers though the supply from Mexico declined offset by strong growth from Peru.

China is recording the highest growth rate for the imports of avocados over 10 years and increased 38 per cent to 43,134 tonnes in 2021/22, although annual imports are somewhat volatile. South Korean imports have increased to 15,486 tonnes and are being driven by aggressive market development activity from Peru.

Southeast Asian markets are smaller but are of interest to Australia where in 2021/22 Australia held a market share of almost 70 per cent in Singapore and 64 per cent in Malaysia. The aggressive pricing enabled Australian avocados to be competitive in these markets and the chart in Figure 3 shows the strong preference for Australian avocados when pricing is competitive.

It is evident that when Australian prices were much higher than the average, such as in early 2021 the demand from Australia was low and the supply was supplemented from Mexico and United States. From June 2021 until September 2022 the prices from Australia matched the average from all suppliers and being in the AU\$5.00 area Australia regained a strong market share, thus lifting export volumes substantially. Since August 2022 the import prices have been creeping up and the volume from Australia has been decreasing. This chart also highlights that the market is prepared to pay around the AU\$5.00 per kg for avocados to maintain a monthly demand for between 400 – 500 tonnes.

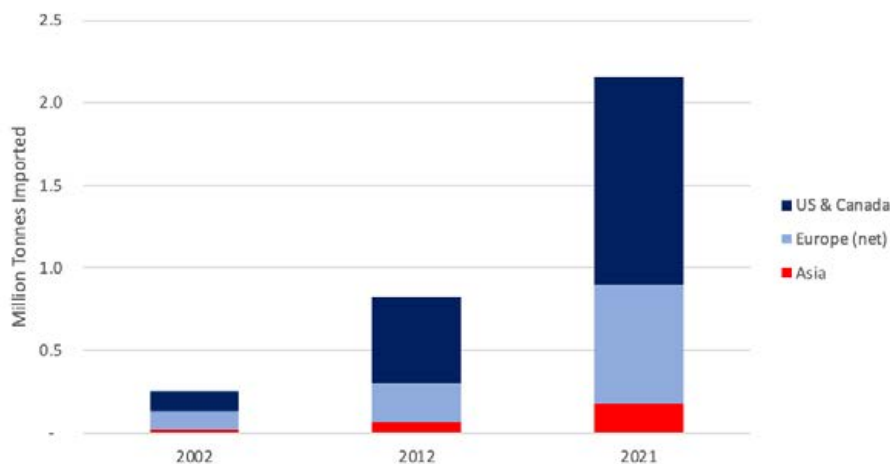
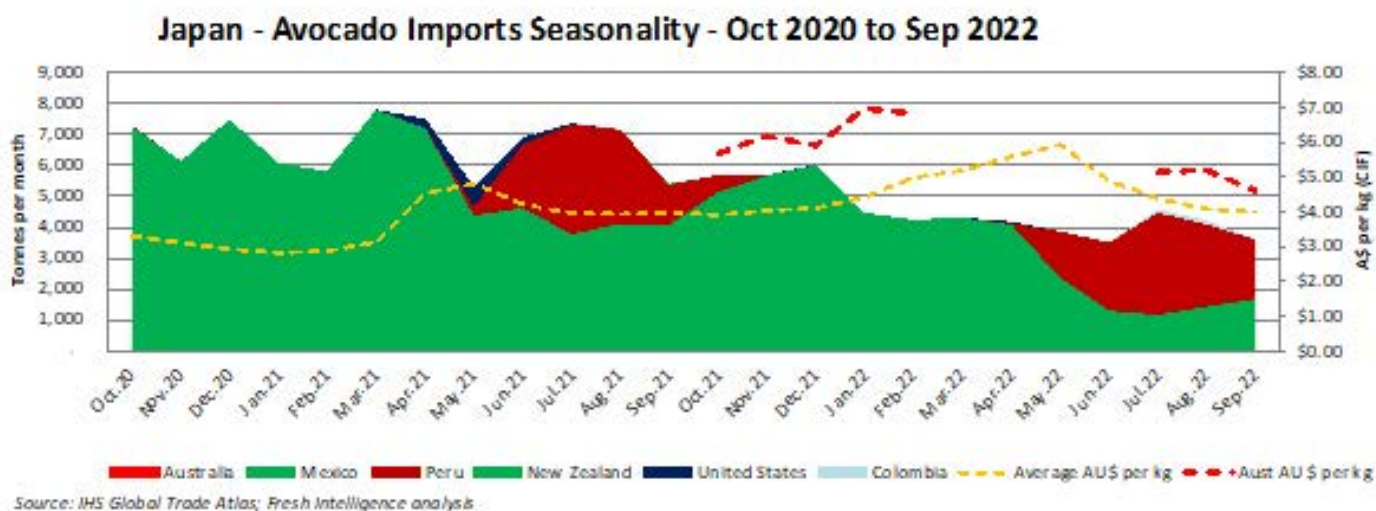
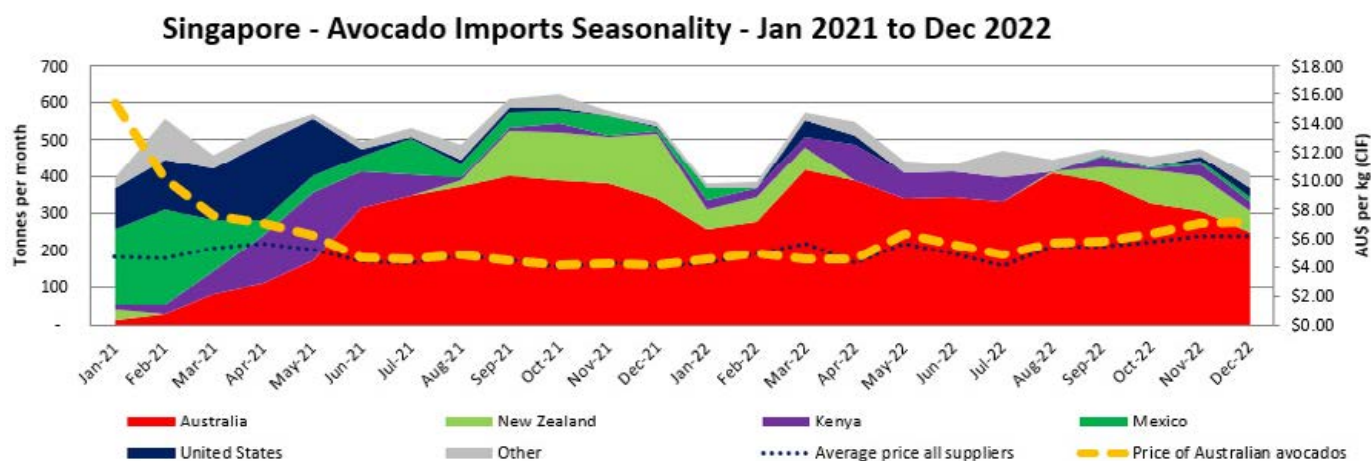


Figure 1. 20-year Avocado Import growth 2002 – 2021 by major regions.





**Figure 2.** Japan Avocado Import by month by supplier.



**Figure 3.** Singapore Avocado Import by month by supplier.

## Exporters

**Latin American producers including Mexico and Peru are the world's largest exporters.**

Mexico is the world's largest producer and exporter of avocados and sent 944 thousand tonnes of avocados to the United States and Canada in 2021/22 plus almost 35,000 tonnes to Asian markets including Japan, Hong Kong, and China. While Mexico remains the largest exporter their exports dropped 19 per cent in the 12 months to June 2022 to 1.04 million tonnes.

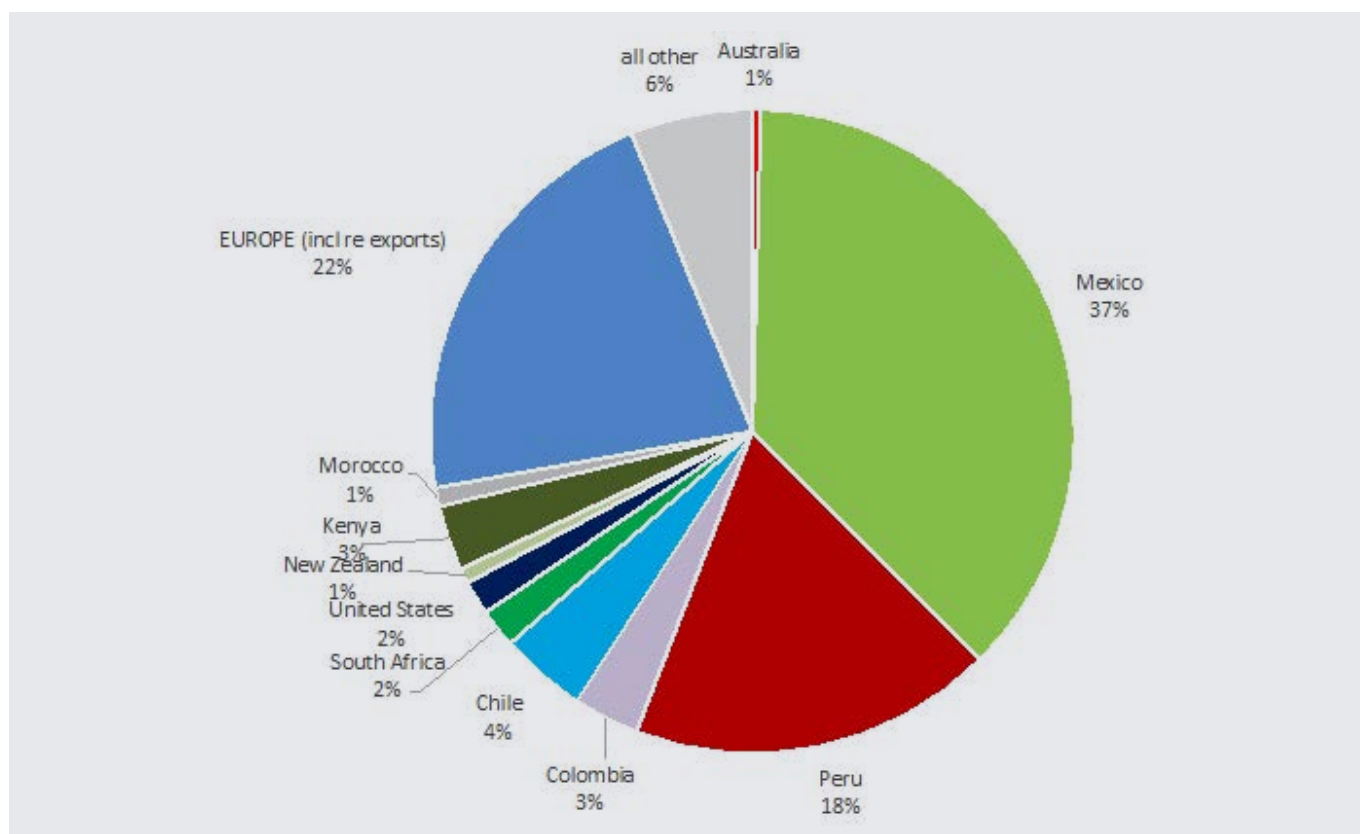
Southern Hemisphere export trade is dominated by the volume exported from South America, mainly Peru and Chile and increasingly Colombia, with combined exports of 740,000 tonnes.

Peru, the world's second largest exporter exported 541,000 tonnes mostly to Europe and United States. Even the 9 per cent that Peru exports to Asia exceeds 50,000 tonnes and is making a significant impact in Asian markets such as Japan, China, South Korea, and Thailand.

Colombia is a rapidly expanding exporter in South America, lifting 26 per cent to 96,000 tonnes with trade

mostly to Europe and new access to United States and Japan, although volumes are small. Chilean exports have been contracting, although we are starting to see exports increase again at around 107,000 tonnes per year.

In the large northern markets, the Netherlands is recorded as an exporter of some 368,000 tonnes, though this volume is all re-exported to other European markets from avocados imported from Latin America as well as Spain and Israel. Spain is the only measurable producer and exporter in Europe and their recorded exports combine significant re-exports.



**Figure 4.** Global Avocado Export Shares 2021.

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The United States recorded 61,000 tonnes exported mostly to Canada, although this is also distorted by re-export from Mexico.

New Zealand exported 22,000 tonnes of which 60 per cent was to Australia and 40 per cent to Asian markets. New Zealand is developing trade to Asia to reduce their reliance on Australia. Historically New Zealand has supplied more than 80 per cent of their export crop to Australia.

In global terms Australia is a small exporter even though Australia increased 268 per cent in 2021/22 with trade mostly to Hong Kong, Singapore, and Malaysia.

## Australian Avocado Export Summary

In 2021/22 Australia exported **11,626** tonnes of avocados valued at A\$51.74m which was 268 per cent higher than in 2020/21. The overall value increased by 135 per cent, helped by the lower unit values at AU\$4.45 per kg and increased usage of sea freight. Although the prices were low by Australian market expectations the price points enabled Australian avocados to be more competitive in the key markets.

Hong Kong was the lead market taking 5,367 tonnes or 46 per cent share of exports, up 277 per cent in the year followed by Singapore and Malaysia, which were both substantially higher. These three markets accounted for 96 per cent of Australia's 2021/22 exports.

There were 106 tonnes exported to Japan from Western Australia and small consignments to UAE and Kuwait. Figure 5 shows the dominance of Hong Kong, Singapore, and Malaysia for Australian exporters.

Weekly export data is now collated and provides timely insights at close to real time. Figure 6 shows where the exports by week were higher than the previous year for each week until August 2022. Since August the weekly export volumes have mostly been lower.

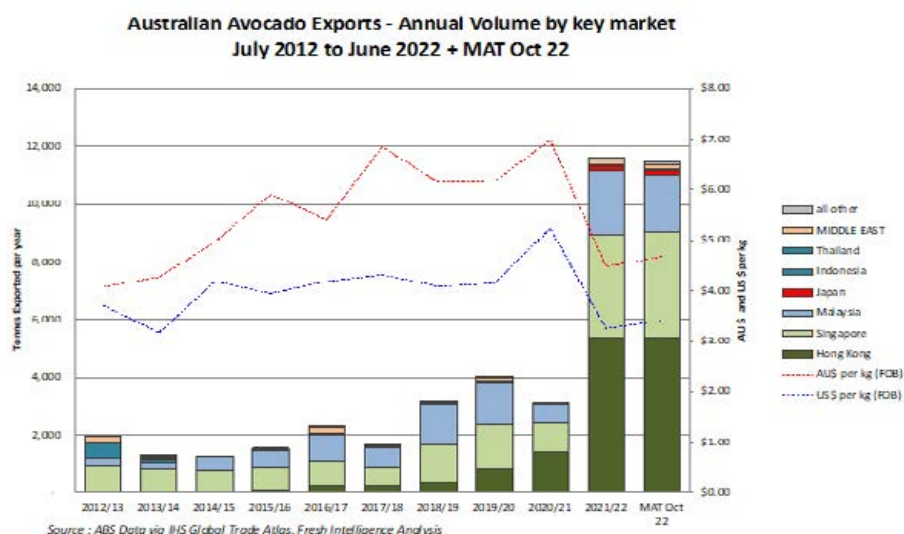


Figure 5. Australian Avocado Export by Market 2012 – 2022.

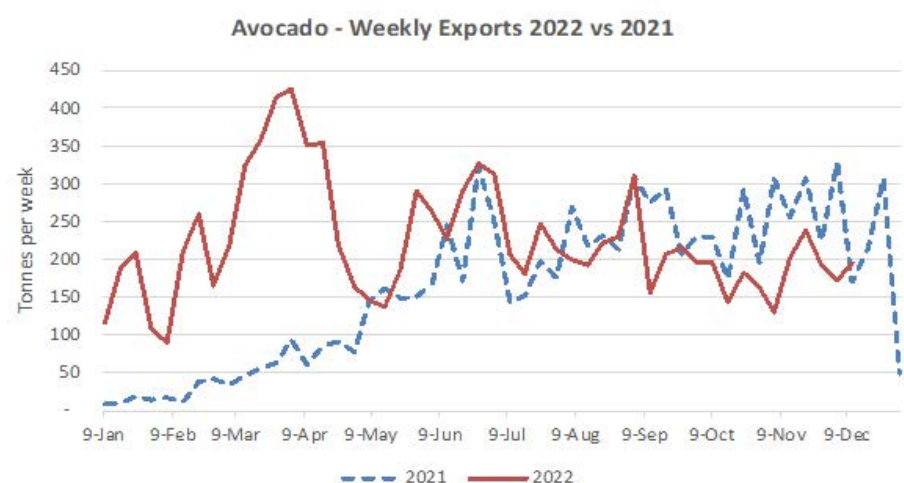


Figure 6. Australian Avocado Export by week 2021 – 2022.

For Australian avocados to continue to expand in line with production and targeted export growth the week-by-week exports need to be trending higher. Unfortunately for many, that involves remaining globally competitive in our strongest markets even when the domestic market pays a higher price. As we noted the demand in markets such as Singapore is steady, and they will switch suppliers based on price.

## More information

Monthly import and export updates and other relevant reports are regularly

uploaded to the industry's Best Practice Resource Library: [avocado.org.au/bpr/](https://avocado.org.au/bpr/).

## Acknowledgement

The *Avocado industry and market data capture and analysis (AV20000)* project has been funded by Hort Innovation, using the avocado research and development levy, and contributions from the Australian Government.

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Strategic levy investment

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# Southeast Asia Market Visits a success!

*Flora Zhang, Avocados Australia Export Development Manager*



The Avocado market access and trade development (AV20004) project has been busy, and we have a lot of activities planned this year. I will be providing you with information about these activities in issues of our enewsletter Guacamole and in Industry Notices so make sure you check your inboxes and read our emails! For now, I would like to provide you all with an overview of the Southeast Asia Market Visits that took place at the end of last year. The Southeast Asia Market Visits took place in order to support Australian growers and exporters with trade development in Asia. Avocados Australia organised the Southeast Asia Market Visits to Bangkok, Kuala Lumpur and Singapore in November 2022. This was the first tour that Avocados Australia organised of this kind and the tour proved to be highly successful. Sixteen businesses took part sending representatives who were able to network and generate business leads during the program of activities. In all, the program was very busy over two weeks and included attendance at Asia Fruit Logistica (AFL).

At AFL growers and exporters had the chance to meet with trade partners and listen to the latest market insights in the Asian region. Australian avocados were featured by Austrade in cooking demonstrations that showcased avocado appetisers,

breakfast, and salad recipes. After AFL the Avocados Australia team and Southeast Asia Market Visit Group went to the Talaad Thai wholesale market which is the largest in the ASEAN (Association of Southeast Asian Nations).

In Malaysia growers and exporters had an opportunity to network with importers and retailers who shared their experiences with Australian avocados leading to interactive discussions. The industry provided an update joined by the regional grower representatives. The group heard from the Malaysian Commissioner, Melanie Harris, and Agriculture counsellor, Sanjay Boothalingam on the current outlook of the Malaysian market. In Kuala Lumpur the group spent time visiting the local wholesale market as well as retailers including AEON Group Malaysia and The BIG Group Malaysia where Australian Avocados were featured. They also visited the facilities of local importers Euro-Atlantic and Khaishen Trading HQ giving growers the opportunity to better understand the export supply chain.

The group was in Singapore for the final leg of the tour. There they kicked off with some retail store visits to CS Fresh, Little Farms, and FairPrice Finest. This was followed by a tour of the Singapore fresh wholesale market, Pasir Panjang



Wholesale Centre and a meeting with the Singapore Fruits and Vegetables Importers and Exporters Association.

The Southeast Asia market visits provided Australian avocado growers and exporters with a brilliant opportunity to meet importers, retailers, and other key trade contacts face-to-face and I know that good quality networking and lead generation was achieved.

On behalf of Avocados Australia, I would like to thank Austrade, Hort Innovation and the Western Australia Department of Primary Industries and Regional Development for their support and assistance with the tour.

An Avocado Global Tour with options for visiting Japan, the Middle East and Hong Kong is planned in February-March and expressions of interest were sought in December 2022. There are parts of the global tour that are tailored for Shepard avocado growers. See Figure 1 for a copy of the proposed timetable that is current as at 23 December 2022. This timetable may be subject to change.

### Acknowledgement:

This *Avocado market access and trade development* (AV20004) project has been funded by Hort Innovation, using the Avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.



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2023-02-13	2023-02-14	2023-02-15	2023-02-16	2023-02-17	2023-02-18	2023-02-19
		Supermarket tradeshow, Japan 15-17 <sup>th</sup> Feb 2023				DUBAI, UAE - Horticulture market visit
2023-02-20	2023-02-21	2023-02-22	2023-02-23	2023-02-24	2023-02-25	2023-02-26
Gulfood, Dubai UAE 20-24 <sup>th</sup> Feb 2023					Travel from Dubai, UAE to Saudi Arabia	Saudi Arabia market visit
2023-02-27	2023-02-28	2023-03-01	2023-03-02	2023-03-03	2023-03-04	2023-03-05
Saudi Arabia market visit	Qatar market visit		Hong Kong market visit	Australian Shepard avocado HK workshop and networking event		
Travel from Saudi Arabia to Qatar						

**Figure 1:** The Avocado Global Tour options timetable current as at 23 December 2022.

# Market Access Update

*Richard Magney, Avocados Australia*

Avocados Australia Limited (AAL) has, for many years, had a sharp focus on exports and market access. However, given the fast-evolving competitive international avocado market landscape, coupled with domestic market factors, the AAL Board have strategically chosen to double down on market access activities, and created a new role to help execute the goals of AAL's Market Access Strategic Plan 2022-2206. Richard Magney started in the new role as Chief of Exports – Market Access in early November 2022 and in this article, he provides an update on AAL's recent market access activities. This new role is not funded through a levy funded project but instead is funded directly by Avocados Australia.

## Indian Delegation

The new dawn of market access activity for AAL kicked off with a very busy schedule. On my first day at AAL on 30 October, I boarded a flight to South Australia, where I joined AAL Board members to participate in an Indian delegation visit. The Indian delegation was visiting the Tristate region to explore, and inspect, orchards and packhouses, with the intention to progress bilateral market access discussions. Also forming a key part of the Australian delegation were key members of the Australian Department of Agriculture, Fisheries and Forestry (DAFF). The three-day trip allowed for robust and progressive discussions about Australia's diverse avocado industry, and importantly allowed for quality networking time to help forge deeper trusting relationships.

Instrumental to the three-day visit, was our own DAFF Agricultural Counsellor, based in New Delhi, India, Mr. Kiran Karamil. Kiran demonstrated, and helped us understand, key cultural business idiosyncrasies. Throughout my time talking with Kiran on the trip, he explained the fast-growing consumer interest and demand for avocados, in particular, Australian avocados. Kiran talked about the emerging trend in India for mothers to feed their young children healthy avocado, and the burgeoning home delivery market for fresh produce, pioneered by Amazon Fresh. Kieran, himself, explained how he can place an order on his smartphone at 4pm in the office, and when he arrives home at 5.30pm, there is a chilled bag waiting at concierge of fresh produce; leafy greens, bananas, and a few avos... and maybe a little bit of chocolate! Although India is estimated to have reached a population of 1.3 billion, Kieran is of the firm view, that at least 5-10% of India are sophisticated, mature grocery consumers, and avocados are directly in their sights.

A major highlight for both the Indian and Australian delegation, was the networking dinner hosted on a Murray

Riverboat. Albeit the World Cup Cricket was on the television when we boarded the boat and took the Indian's attention away from avocados for a moment, we were all soon atop the riverboat enjoying a refreshing evening sundowner, as we drifted down the Murray, enjoying some good old-fashioned networking... whilst trying to spot some kangaroos for our tourists! As the sun set, and everyone adjourned to the dinner table on bottom deck, we were all treated to an avocado inspired degustation. We enjoyed some Avonara, a take of Carbonara without the cream. The chefs skilfully emulsified avocado into the delicious cream, and mixed in pasta, garlic, and mushrooms etc. Another highlight was the incredible avocado infused sorbet... there were seconds, and thirds being served up! The Indian delegation left the dinner understanding many alternative uses of avocado other than smashed avo on toast or guacamole.

DAFF continue to drive the bilateral dialogue with India, and we remain optimistic both Australia and India edge closer to an outcome that will open great opportunities for our industry.

## Southeast Asia Delegation

Departing the Tristate, I boarded a flight to Bangkok, Thailand, to join my colleagues at Asia Fruit Logistica. I was unable to participate on the opening two days of the expo, given my attendance in the Tristate, however my esteemed colleague Flora Zhang was flying the flag for exports, market development, and market access. I was fortunate enough to participate on day three where we took a trip to the Bangkok fresh produce markets. There was a group of about thirty Australian growers (including avocados), marketers, industry associates, and department staff, that participated in the market visit. We were able to learn of the current avocado wholesale and import landscape in Thailand, and see firsthand, avocados imported from South and Central American countries. I was able to engage in meaningful discussions with several importers to learn more about their challenges, and how they are trading with existing suppliers such as Mexico, Peru, and Chile.

Next stop was Kuala Lumpur, Malaysia, where Australia has a healthy trading relationship. Again, the delegation embarked in fresh produce market visits, where we saw lots of great looking Australian avocados from groups such as Avocado Collective and The Avolution Group. Our Malaysian Austrade team hosted a formal networking function, where we were fortunate to hear from many importers, wholesalers, and retailers about their current avocado businesses, and importantly how Australia can



trade with more confidence in the Malaysian market. Interestingly, Malaysia grows 95% of the world's palm trees, and therefore have a very limited domestic avocado industry. Avocado is becoming increasingly popular to local consumers, and food service chefs are adopting avocado like Australia's very own Bill Granger did in his cafes/restaurants in the late 90's. So, we hope to see hockey stick growth in the Malaysian market given the multidisciplinary uses of the avocado. We learnt firsthand from some foodservice businesses that there is still important work to do to continue improving the supply chain to ensure our fruit is in the best possible condition for consumption. And it was acknowledged that much of this work involves ongoing education and training on storage and last-mile distribution to store.

Next stop, Singapore, where many of the delegates were looking forward to some famous Singaporean chilli crab, and a few Singapore Slings! Singapore brought a much different look to the Southeast Asian avocado market. Singapore, with a significant population of expats, and a mature local pallet for fresh, and premium fruits, avocado was seen as a much-adored home fruit bowl staple to middle class families. The Singapore leg provided much deeper think-tank like round-table discussions. We learnt of the growing joint-venture partnerships between importers from Singapore with countries such as Japan, China, Vietnam,

and South Korea. In Singapore, similarly to Kuala Lumpur, we witness a fast-growing niche for boutique fresh-cut fruit and smoothie bars. Although they have been in existence for many decades, there is seen to be a race to the top to become the most premium and extravagant. I got an opportunity to be invited to the hub and spoke warehouse operations of SF Fruits, that now have 31 fruit and smoothie bars, and are of the highest sophistication. And significant revenue for their smoothie operations is avocado based smoothies... I got to try a freshly made avocado, fresh coconut water, coconut milk, coconut flesh, honey and crunchy macadamia meal. Yumo! SF Fruits is only one of dozens of fruit and smoothie bar operations emerging across Singapore, and with the visibility of avocado as a multidisciplinary fruit, we would expect to see even greater up-take of consumers making homemade avocado-based smoothies.

### Japan Inspector Visitation

From Singapore, I flew directly to Perth to participate in the annual Japanese inspection of registered grower lots and packhouses. The Japanese Ministry of Agriculture, Fisheries and Forestry (MAFF) conducted a weeklong visitation through the Western Australian growing regions of Donnybrook, Manjimup, and Pemberton. I was accompanied by DAFF, and aside from facilitating the inspection each day, was able to have many insightful

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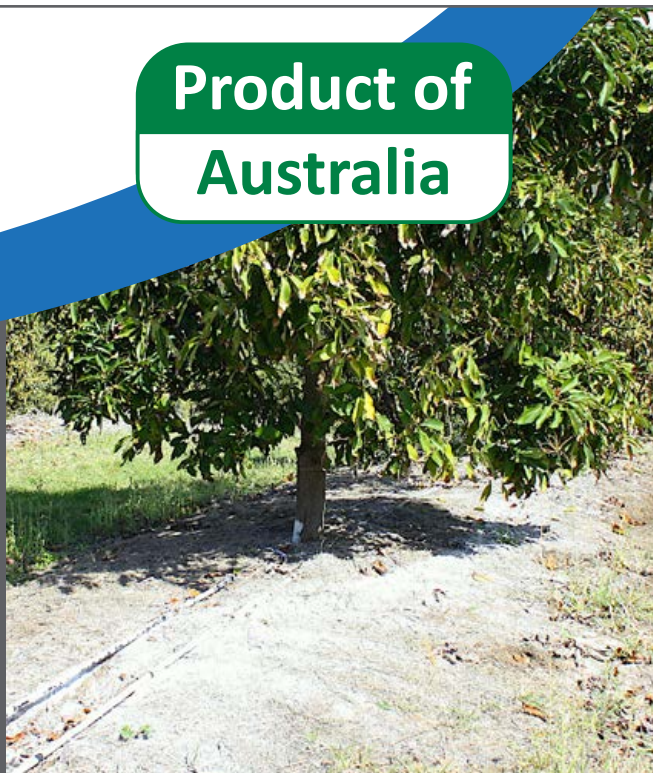
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discussions with the MAFF inspector, learning about their domestic harvesting hygiene, traceability practices, and pest controls. In total, we visited two registered packhouses, and 6 registered farms. We learnt that in Japan, they only use one swab in their traps, where in Australia, we use four. It was discovered that Australia chooses to use four, rather than one, because given the ratio of pheromone required, the chances of the pheromone dripping from just one swab is highly likely, reducing the impact and longevity of the trap. WA Department of Primary Industries and Regional Development, (DPIRD) hosted a small workshop on trapping Med Fly and Q-Fly. The MAFF inspector is a fruit fly expert, and thoroughly enjoyed the learnings, and updates, on what industry is doing to overcome barriers to exporting fruit from East Coast Australia. The Exit Meeting went as swimmingly as we could have hoped, with only a few minor remarks that require adaptation, and/or review, but overall, the final report looks to be a big tick for all encompassing. We are thankful to all the growers and packhouses that prepared diligently and participated openly. AAL are hopeful to see more WA registrations for Japan in 2023.

MAFF's involvement in the above initiative was funded by Hort Innovation through the Avocado market access and

trade development (AV20004) project using the avocado research and development levy and contributions from the Australian Government.

### Australian Fresh Produce Alliance (AFPA) Japan Delegation

In December, several Peak Industry Bodies (PIB's) were invited by AFPA to attend their inaugural market access visitation to Japan. Amongst the members of AFPA are avocado growers and marketers, Costa Group, and AUS Produce Partners. As part of the PIB contingent, AAL was accompanied by Citrus Australia, and the Australian Table Grapes Association. Dove tailing AFPA's strategic visit, all and sundry were welcomed to a closed-door workshop and networking event at the Australian Embassy with esteemed Australian Government officials, Murray Spence (Trade and Investment Commissioner), Tom Parnell (Counsellor), and Cindy Linburg (Business Development Manager). I had the opportunity to network with at least two dozen importers, wholesalers, and trading houses. I was fortunate to have a very interesting conversation with the Head of Fresh Produce with Costco. Costco have 31 stores in Japan, over 600 in the USA mainland, and circa 45 in Mexico, not to mention their global presence elsewhere. It was articulated



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that Costco Japan have traditionally always partnered with Mexican growers given the tight trade relationship back in the US, however they acknowledge it is now time to explore options from Australia as these are the wishes of the Costco members/consumers. We may see some tailwinds on the institutional buying side from Japan with sentiment like this from the local Japanese consumers. On the visit, the delegation was hosted by AEON, one of Japan's largest, and progressive retailers. It was a delight to see a beautiful display of Australian avocados, imported from Avocado Collective in Manjimup. As part of this display, was several levy funded marketing paraphernalia displaying great Australian avocado branding..."Grown In Good Nature".

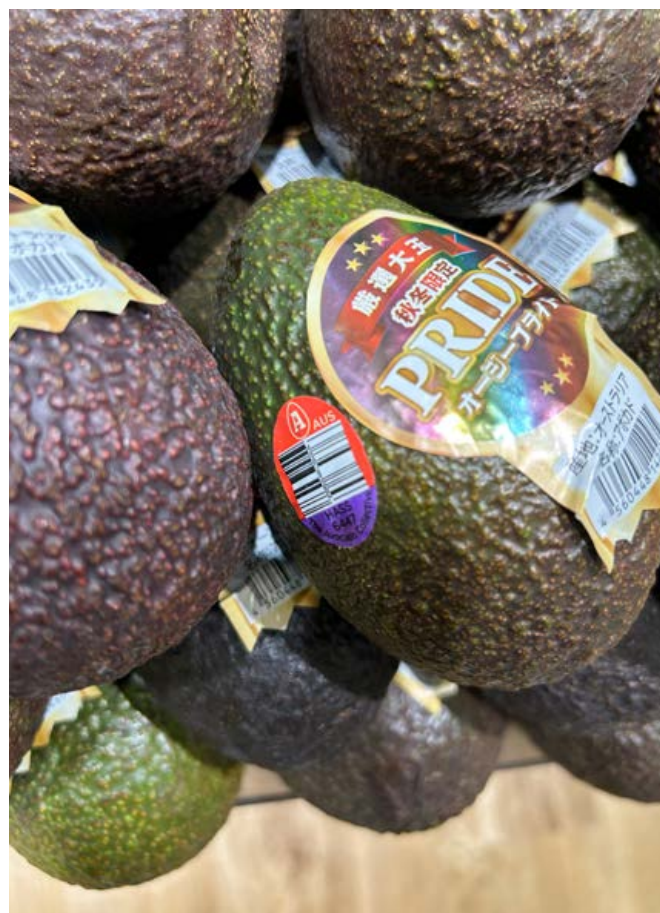
### General

Key takeaways from my visits, networking, and general day to day activity in a very short but intense period:

- Peru is demonstrating bullish marketing, advertising and pricing strategies.
- DAFF are working diligently to drive avocado market access, and we hope to hear some good news in 2023 on potential new markets.
- HIA, QDAF and NSW DPI, are embodying the critical mission of the Australian avocado industry to open new markets and assisting greatly in R&D opportunities to overcome Q-Fly barriers.
- Austrade are connecting the dots for the Australian growers and marketers in their respective posts and are driving positive market access conversations in target market ports with their counterparts.
- Market access for India and Thailand are moving in the right direction, but more work needs to be done. 2023 hopes to be a good news story.
- AAL is seeking to continue growing the WA registration pool for Japan.



Australian avocados on display using 'Grown in Good Nature' branding.



Avocado labelling.

# Board Changes

*Anna Petrou, Avocados Australia*

On 25 October 2022, the AAL Annual General Meeting was held at the Brisbane Markets in Rocklea. As some of you may know, Jim Kochi, who had stepped down from his position as Chair in November 2021, chose not to seek re-election in 2022 and this resulted in Matt Kleyn being elected, unopposed, as the new North Queensland director.

Matthew Kleyn and his wife Louise own Lakeshore Pty Ltd, a company based in Walkamin and Kairi North Queensland which grows avocados. They have been growing avocados for approximately 15 years and have expanded over this period into a large operation. They have also owned and operated a packing facility for 8 years in Tolga, North Queensland. Prior to growing avocados, Matthew had been involved and performed roles in many different industries from Hospitality and Wedding Planning, Retail, Agricultural machinery design and was even a courier for a few years. Matthew is enthusiastic about the future of our industry.

Jim Randell, who was Board appointed in December 2021, did not succeed in

the election that took place in 2022 so Lucia Philip replaced Jim as Central Queensland/Sunshine Coast director. There are two directors serving in the Central Queensland/Sunshine Coast growing region. Lucia (or Lucy as she is also known) joins Eric Carney. We thank Jim Randell for his enthusiastic service during 2022.

Lucy Philip is an avocado farmer in the Childers area, along with her husband Kevin they own Brooklet Farms Pty Ltd which has a long family history of growing tomatoes and avocados since 1973.

Lucy has an agricultural background with sales, marketing and export experience. Her husband is a third-generation horticultural farmer with strong ties to the region. Lucy and Kevin have had experience growing other produce such as Indian Sandalwood and hydroponic berries around Queensland and in the Northern Territory. She has completed a Bachelor of Agribusiness at University of Queensland, a Graduate Certificate in Agribusiness and is currently studying a Master of Commerce.



Above, Matthew Kleyn, the new director for the North Queensland growing region.



Above, Lucy Philip joins the AAL Board as Central Queensland/Sunshine Coast director.



# Jim Kochi awarded Life Membership

On Tuesday 25 October John Tyas, CEO of AAL, awarded Jim Kochi with Avocados Australia Life Membership at a special presentation. Jim was presented with a framed Life Membership certificate and was thanked for his eighteen years of service to the Australian avocado industry. Avocados Australia Life Membership is the highest form of award that Avocados Australia (AAL) can bestow when recognising exceptional and lengthy service to the avocado industry.

Jim Kochi, who had stepped down from his position as Chair in November 2021, chose not to stand for re-election in 2022.

According to John Tyas, Jim has always been dedicated to the advancement of the industry and his eighteen years of service shows how dedicated he has been to the industry. Jim served as director for the North Queensland growing region, and as AAL Chair. Jim also served on a range of committees (including various committees guiding the levy investment) providing input on behalf of the industry.

*“Over the last eighteen years Jim has played multiple roles in the Australian avocado industry, he was North Queensland director, served as AAL Chair, and was a brilliant media spokesperson for his region and the broader industry,”* said John Tyas.

Jim and his family have plans to continue growing avocados and playing a part in the industry. He looks forward to contributing and seeing continuing progress to support and improve the avocado industry in Australia.

Jim has had made a positive impact on many members of the industry and we wish him well. Below we share some parting comments from some of his colleagues and friends.

**Simon Newett, Principal Extension Horticulturist, Queensland Department of Agriculture and Fisheries:**

*“Jim’s omni presence and outstanding leadership in all things ‘avocado’ will be sadly missed as will his insightful editorials and regional reports from NQ, and let’s not forget Jim’s clever wit and humour. Jim’s recognition as a Life Member is very well deserved, the time and effort he has devoted to the industry have been enormous and the high esteem that the avocado industry is held in Australian horticulture bears witness to that.”*

**Kym Thiel, grower and director for the Tristate growing region:** *“Jim’s most valuable asset was his experience. He had seen it all from the bad to the good and everything in between. He was always a great sounding board and when things were challenging you could always rely on Jim to be in there battling for the growers as his number one priority.”*

**Tom Silver, grower and director for the Tamborine and Northern Rivers growing region:** *“Jim’s knowledge and experience allowed him to cross over into wisdom! Jim always looked at everything from a whole of industry, Australia wide perspective and acted accordingly. Thankyou also to Jim’s wife Mary, their children and his brother and business partner who kept the home fires burning whilst Jim looked after our industry.”*

**Matt Kleyn, grower and director for the North Queensland growing region:** *“I would like to take this opportunity to thank Jim Kochi for all the years of hard work he has contributed to the industry over many years for our benefit. I would also like to thank Ed Kochi for allowing Jim the time needed away from the family farming business.”*



## New staff members for AAL

Two new staff members have joined the AAL team. Grant Telford is the Project Manager for the Avocado Biosecurity Strategy Project. Richard Magney is the Chief of Export – Market Access.

Grant Telford joined the Avocados Australia team to oversee AAL's new 5-year biosecurity strategy project. Grant's 33 years in biosecurity, working across all facets of biosecurity, makes him the ideal candidate to take on the project management and coordination role for AAL. Grant's interest in working with AAL in avocado biosecurity was first sparked with his participation in the upgrading of the ANVAS scheme. Grant was provided with the opportunity to work not only with AAL but also a number of avocado scientists in developing the new Avocado Nursery Stock Specification which underpins ANVAS.

Grant's article providing an update on the avocado biosecurity project appears in this issue.

Richard Magney joined the Avocados Australia team at the end of October 2022. His role is to drive market access for Australian avocados into priority new markets. Richard's main focus will be to develop and drive our export market access strategies. He has extensive export and commercial business experience and will also work closely with Flora

Zhang, the Avocado Export Market Development Manager to support the implementation of export protocols.

From here on Richard will provide market access updates in each issue of Talking Avocados magazine.



Grant Telford is the Project Manager for the Avocado Biosecurity Strategy Project.



Richard Magney is the Chief of Export – Market Access.

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# AAL celebrates 20 years!

*By Anna Petrou, Avocados Australia*



In 2003, members of the Australian Avocado Growers Federation formed a new national organization in order to “share a common vision to create individual success” and Avocados Australia Ltd was born. Avocados Australia was formed on the belief that the industry must be a strong national community. To be so the industry needed to agree on common goals and unite to ensure “our collective and individual success”.

Twenty years on the industry has grown and production has also grown rapidly. This year Avocados Australia celebrates its 20th Anniversary and we are celebrating the occasion in a number of ways. In April the Avocados Australia 20th Anniversary Celebration will be held during the World Avocado Congress that will be a members-only cocktail style function. This will be followed by a special Avo Connections event happening in early June. We will also be producing a commemorative issue of our quarterly magazine, Talking Avocados, and members of the industry are invited to contribute photos.

## **Avocados Australia 20th Anniversary Celebration**

The Avocados Australia 20th Anniversary Celebration will be held on the evening of Monday 3 April from 6.30pm to 8.30pm (NZST) at the Grand Millenium Hotel (71 Mayoral Drive, Cnr Vincent Street, in Auckland New Zealand). Only AAL members are invited to this event and we hope you can make the journey across to New Zealand. The evening

will include speeches and a visual presentation of Avocados Australia images showing highlights from all of our events and the people who played a part. Look out for AAL's email for the details closer to the event.

## **Commemorative issue of Talking Avocados magazine**

The Autumn issue of Talking Avocados will include a centre page spread of photos from industry contributors that depict some of the key events that have occurred over the years. We'd like to invite members of the industry to contribute photos in the Autumn issue so we can look back over the AAL activities that took place from 2003 to 2023.

If you took a photo when you were at an AAL event, be it a workshop, conference, orchard walk, board meeting or any other AAL related gathering, that you think is worth sharing, please share it with us!

Email your image and a brief explanation to Anna Petrou at [co@avocado.org.au](mailto:co@avocado.org.au). Or if you have more than one photo feel free to send us a dropbox link to your images. Or if you use WhatsApp send your images to 0488 384 222. Contributors who supply a photo that is published will be acknowledged in the magazine. If your photo has a story behind it let us know the details in an email!

All enquiries about this initiative can be directed to Anna Petrou call 07 3846 6566 or email [co@avocado.org.au](mailto:co@avocado.org.au).

# Austchilli Smart Avocado Farm – creating a sustainable & autonomous orchard

By Anna Petrou, Avocados Australia

In the Autumn 2022 issue of Talking Avocados we spoke to David De Paoli from Austchilli about their involvement in the pilot Smart Farm project (*Digital remote monitoring to improve horticulture's environmental performance* (ST19024)). David spoke about why he chose to get involved with the project and be an early adopter of the technologies in use by the project. Nine months on the Smart Farm technologies have proved their worth. We asked David and his senior agronomist, Kaushal Gunasekara, to share their insights with us.

## About the Project

To recap, Bundaberg avocado growers Austchilli have established a pilot smart farm to develop new technologies and tools that will help Australian horticultural businesses improve nutrient, water, and labour use efficiencies. Austchilli is the largest chilli grower in Australia, they also have avocado orchards. The business is family owned and operated, and has vertically integrated on-site production, processing, and packing.

The project came about in October 2019 when Hort Innovation secured a \$2.9 million grant through Landcare's Smart Farming Partnerships program, supported by the Australian Government. Through project ST19024, and together with some levy contributions, the funding is allowing Hort Innovation to work with partners, like Austchilli, to raise the horticulture sector's environmental performance.

The project involves collaborators including Hort Innovation, Applied Horticultural Research, Freshcare, Hitachi Vantara, Landcare and industry bodies Avocados Australia, Greenlife Industry Australia, AUSVEG, the Australian Banana Growers' Council and Growcom.

With a focus on protecting ecosystems in horticulture growing regions, the project comprises four demonstration 'smart farms' in the Great Barrier Reef catchment area. Remote technology is being used in the continuous monitoring of environmental indicators such as nutrient leaching, sediment run-off, water and energy use efficiency and more. The demonstration sites are used to help growers understand digital environmental monitoring and its use in business decision making and good environmental stewardship.

The new systems, developed by Applied Horticultural Research (AHR) and Hitachi Vantara, focus on real-time data collection and modelling combined with a user-friendly interface. This combination can help farmers maximise nutrient and water

use efficiency and minimise inputs of inorganic nitrogen and phosphorus, reducing potential run-off.

The establishment of the AustChilli pilot smart farm allows these technologies to be tested in a working avocado farm environment.

## The Austchilli Smart Farm in action - Insights

Kaushal, the senior agronomist at Austchilli, was involved in the Smart Farm project from its initial stages. He carried out a gap analysis to select the type of sensors and technologies that would be needed for the Austchilli Avocado Smart Farm system. He also helped design the trial layout by strategically placing the sensors to collect representative data. He also had input into the way it aligned with Austchilli's future plans.

### Has the process of installing the smart technologies on the Austchilli avocado farm been straight-forward?

Kaushal: After the initial planning, the process has been fairly straight forward. We are frequently monitoring the Smart Farm. Translating the outputs and insights from the dashboard to instructions and guidelines for the operators to tweak the orchard operations. We also coordinate with our project partners like Hitachi and AHR to communicate the information on discrepancies and potential improvements on the dashboard.

### Have the smart technologies helped to improve orchard operations?

David: Mostly by providing a means of monitoring the crop health, water use efficiency and nutrient use efficiency in real-time as well as providing a forecast for the next few days in terms of weather and irrigation requirements.



Dendrometers and sap flow meters at work in the Smart Farm.



Kaushal: I would say there have been some significant improvements in our operations, especially in the areas of irrigation and fertigation. Before the project, we only relied on soil moisture content as the only criteria for irrigation scheduling. With the help of the array of sensors, we are now taking the other factors such as environmental factors, ETc (crop evapotranspiration), plant-based parameters such as maximum daily shrinkage, and stem growth rate. Further, we are considering the forecast which is provided by the dashboard on plant water usage. We also adjust our fertigation based on those predictions and plant growth patterns.

***Has the Smart Farm improved efficiencies as a result of the smart technologies?***

David: We have improved somewhat by adjusting our practices. Integrating so many different types of technologies provided us with a better understanding of the behaviours of the crop and provided some understanding of what to expect in the immediate future, whilst visualizing our issues. We are also looking forward to getting the solutions derived from the dashboard by utilizing it for the automation of irrigation and fertigation decisions in order to minimise human errors.

Kaushal: We are using a low volume drip irrigation system to minimise water usage as well as to improve water use efficiency. With the system, we can plan better based on the prediction of water use provided by the dashboard as well as the alarms. We also have customised the rootzones that

we are interested in based on the age of the crops as well as rootstocks. This provides us with a better insight into the seepage and percolation losses and calibrates our irrigation volumes and fertiliser dosing rates to improve efficiency. We now have zero allowance leaching losses for fertilizer. With our dendrometers, we are monitoring our growth rates and making small adjustments to our fertilizer regimes to match the site-specific minor variations of the avocado phenology.

***Has the Smart Farm become more sustainable as a result of the Smart Farm technologies?***

David: We certainly are moving in the right direction. We always knew there is a problem with not having a holistic approach to optimizing irrigation and fertigation. Now we are getting evidence from the dashboard that there are deficiencies in the optimal usage of resources with conventional orchard practices through the sensors and alarms based on the sensors covering atmosphere, soil and plant-based sensors. We think the automation based on the dashboard will provide a solution to the problem and will create a sustainable system in the environmental as well as economical landscapes.

***What have been the main benefits of using the Smart Farm technologies on farm?***

David: Currently, the biggest benefit we are gaining is real-time monitoring of plant water use, plant stress, the efficiency of irrigation and irrigation water loss. Further, the predictions



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provided by the dashboard are utilized to plan irrigation and fertigation planning to avoid potential water and nutrition losses whilst providing optimal water and nutrient levels for avocado production.

Kaushal: The main benefits of the dashboard so far are to have real-time information on tree growth patterns, soil moisture status, weather parameters and most importantly the forecast of irrigation water requirements all in one dashboard.

***What unexpected outcomes have arisen as a result of using the smart technologies?***

Kaushal: There were quite a number of unexpected outcomes. Especially in the areas of the spatial variation of the nitrate content of the leachate collected, identification of unexpected tree stress events (which were unnoticeable to the naked eye) which were confirmed by NDRE<sup>1</sup> drone imagery later on.

***Overall, has the smart farm conversion of your avocado orchard been worthwhile? Would you change anything?***

David: The smart farm has experienced some glitches from time to time. However, we move forward by resolving most of the problems we encounter. I think the learning experience has also triggered us to think differently about orchard management and priorities.

Kaushal: We have been able to harness some significant benefits out of the dashboards so far. However, now that we know the extent of the issue of inefficiencies, we are looking forward to utilising the data from the dashboard to automate irrigation and fertigation to minimize human subjective judgements. We are looking forward to improving our fertilizer regimes and nutrient use efficiencies further based on the nitrate leach threshold values which are currently being developed. We understand that the dashboard is currently under development, and we are hopeful that the dashboard will come as a complete solution package that would most likely be utilised in future.

***Has the Smart Farm and its improved orchard operations helped your business earn Reef Credits as you had hoped?***

David: The reef credit process has been fairly slow moving with avocado and vegetable crops still at lower levels of the priority list. However, the models are being developed and validated. We are expecting the reef credit process to be finalized sometime in 2023.

***What other positive outcomes have arisen as a result of being part of the Smart Farm project?***

David: With the development of the platform, we are seeing it getting more and more customizable for individual farm operations. We think it is a good feature as the operation

and requirements are different to each and every operation, even though the overarching objective is to improve the processes whilst enhancing sustainability. We are also seeing the platform being able to be integrated with a wide array of technologies which can be inter-changeable with other crops to share the best management practices. We are also expecting the dashboard will be able to provide and facilitate a wide range of solutions to the issues in orchards and transferring real time data to physical action so we can move towards an autonomous orchard.

Kaushal: During the progress meetings we have been able to see the progress of our fellow growing partners and their utilization of different arrays of technologies in their dashboards. This boosts our confidence level in the customizability and flexibility of the platform. We see the benefits of customizability and flexibility as very important in the Agtech space and agricultural technologies are getting developed exponentially and we should be able to utilize and integrate novel IoT (internet of things) and AI-based technologies into one platform to maintain the simplicity of farm operations.

**For more information:**

For more information about the pilot Austchilli Smart Farm project (*Digital remote monitoring to improve horticulture's environmental performance* (ST19024)) contact Henry Hyde, research scientist at Applied Horticultural Research, by email to [henry.hyde@ahr.com.au](mailto:henry.hyde@ahr.com.au).

**Acknowledgement:**

This project has been funded by Hort Innovation, using the Hort Innovation nursery products research and development levy and the Australian Government's National Landcare Program. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.



1. NDRE is an index that can only be formulated when the Red edge band is available in a sensor. It is sensitive to chlorophyll content in leaves (how green a leaf appears), variability in leaf area, and soil background effects. High values of NDRE represent higher levels of leaf chlorophyll content than lower values. Soil typically has the lowest values, unhealthy plants have intermediate values, and healthy plants have the highest values. NDRE is used if you are interested in mapping variability in fertilizer requirements or foliar Nitrogen, not necessarily Nitrogen availability in the soil. Source: <https://ageagle.com/micasense-blog/what-is-ndre/>





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**Hawk Group is a family-owned company that manufactures moulded fibre fruit packaging from its purpose-built facility in Hastings, New Zealand.**

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One of our primary goals is to make it easy for our customers to work together with us. As such, service excellence is at the forefront of our offering. Continuous improvement across product, service, systems, and strong industry understanding are areas we strive to excel in every day. Our trays are specifically designed for the protection of fruit during the packing, storage, and transport process - from packhouse to end customer. From consignment stock and virtual inventory management to tray design, marketing and automation - we have built an offering that supports all aspects of our customer's operations.

Energy efficiency and sustainability are key drivers in our manufacturing process. This is the best strategy to future proof not just our business, but our customer's business also. All products are made from 100% recycled paper. We do not use any bleaches, pigments, biocides, or toxic chemicals in our manufacturing. Our products are recyclable and compostable after end-use. Hawk is compliant with internationally recognised standards including HACCP Food Safety, ISO 9001:2015, ISO45001:2008 and FSC Chain of Custody Certification. Certificates are available to view or be downloaded from our website. For avocado, we have a full count range available from fruit size 16 to 30. We also have a full range of RDT trays for plastic crates available if required.

Please contact us or view our website for full product specifications at **[www.hawk.net.nz](http://www.hawk.net.nz)**.

We are here to help and answer all of your questions! Our Australian representative, Craig Fraser, can be reached on 041 931 1191 or call **freephone 1800 845 256** or email **[sales@hawk.net.nz](mailto:sales@hawk.net.nz)**.

Craig is happy to meet personally with you and discuss in more detail how Hawk can benefit your business.



# Sunnyspot trials robot in packing shed

Automation is not just happening in the orchard (with such things as driverless tractors) but also the packing shed. Recently AAL heard about South Queensland-based packing shed Sunnyspot Packhouse Pty Ltd trialing the use of a robot to assist in their packing shed. The robot was developed by Lyro Robotics. The robot works alongside their human packers. It's early days but the robot is showing promise.

We spoke with Sunnyspot Packhouse Pty Ltd director, Daryl Boardman, about the trial and its progress.

## How has the robot trial gone so far?

The robot is still in development but it is becoming more efficient. While the robot was being developed we provided hard avocados to Lyro Robotics to assist them with improving the robot's functioning and handling of avocados. We are early adopters of the technology so there is still a way to go.

The previous robot prototypes were not as good but the new robot trialed at the end of 2022 was better. The robot works in

conjunction with humans just like any other person in line.

## What prompted you to trial the use of a robot for packing?

Humans can be unreliable. Sourcing labour is a challenge. Then there are times when human workers just don't show up. Also, when Covid hit staff were falling ill and isolating at home unable to work. So having automation in the packing shed has the potential to address these issues.

## What is your arrangement with Lyro Robotics?

We are currently in the trial phase but we will look to use a per unit payment system for the hire of the robots once they are running commercially.

Though it is early days AAL is keen to track the progress of the Lyro robot at Sunnyspot and will share new developments with you as it happens.



LYRO robot in action in the packing shed.



# Australia-India - Tariff reductions applied as trade agreement enters force

Australian avocado exporters will benefit from tariff reductions under the Australia-India Economic Cooperation and Trade Agreement (ECTA). However, Australia does not yet have technical market access to India, so the benefits will only be realized once access is granted.

The agreement entered into force on 29 December (2022), bringing an immediate round of tariff reductions, followed by another round on 1 January (2023).

Avocados, macadamias and berries were among the products to have their tariff rates lowered under the agreement. Tariffs on these products will be phased down to zero within six years, according to a release issued by Australian minister for trade and tourism, Don Farrell.

The Australian government will manage the tariff-reduced quota system, according to AgNet Media.

The trade agreement will also support Australia's workforce needs, with an additional 1,000 work and holiday program places being made available to young Indian travellers.



India is Australia's sixth-largest trading partner and its fourth-largest export market.

"Australia and India are natural trading partners – this agreement will unlock the enormous potential in our trading relationship," Farrell explained.

Source: [Fruitnet.com](https://www.fruitnet.com).



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# Imtrade CropScience novel insecticides

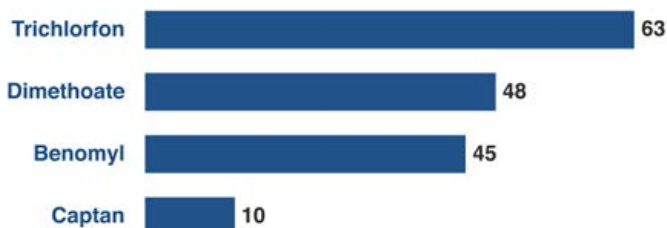
## Tyranex® VeripHy®

Imtrade CropScience recently launched “VeripHy” technology for Australian growers to assist in preventing alkaline hydrolysis. Alkaline hydrolysis is a rapid breakdown of active ingredient in high water pH. In such conditions, active ingredients susceptible to alkaline hydrolysis dissipate. To solve this issue, Imtrade CropScience have introduced the first product in their VeripHy® range, Tyranex® VeripHy® (500g/L Trichlorfon). “It has been widely researched and reported that Trichlorfon suffers from alkaline hydrolysis making it the perfect active to add VeripHy® technology to” said Ben Carville – Imtrade QLD State Sales Manager and Horticulture specialist. The standard for measuring how vulnerable active ingredients are to alkaline hydrolysis is to measure the time it takes at water pH of 8 to degrade to 50% of active ingredient and for Trichlorfon it takes 63 minutes. If Trichlorfon is used in water conditions like this, product performance issues and failures will occur as reduced active is going onto the crop. The chart below shows how quickly some active ingredients such as Trichlorfon breakdown at a water pH 8.0.

Mr Carville said “With Tyranex® VeripHy®, the ideal water pH where the product is stable and not degrading is between 5-6”. When Tyranex® VeripHy® is added to a growers spray tank the spray water will change colour indicating to end users if the solution is acidic (Yellow) or alkaline (Purple). If the solution exhibits a yellow colour, the active is stable. However, if the solution exhibits a purple colour, then an acidifying agent such as Imtrade Pro 700 will need to be added to bring pH level down. If water pH is acidic, the spray solution turns yellow, and there is no need to add an acidifying agent” Mr Carville added.

Tyranex® VeripHy® is manufactured by Imtrade CropScience in their NATA approved manufacturing facility in Kwinana Beach, Western Australia. All batches are subject to stringent testing and retention samples are retained of every batch.

### Time (in minutes) to degrade to 50% concentrate in water at pH 8.0



Source: Deer, H.M and R Beard. 2001. Effect of water pH on the Chemical Stability of Pesticides, Utah State University Extension.

## Cyborg® Plus

Cyborg® Plus is a novel co-formulation of Beta-Cyfluthrin with a known synergist Piperonyl-Butoxide (PBO). PBO has been added for improved efficacy in controlling Fruit Spotting Bug (FSB) in Avocado's and FSB and Nut Borer in Macadamias.

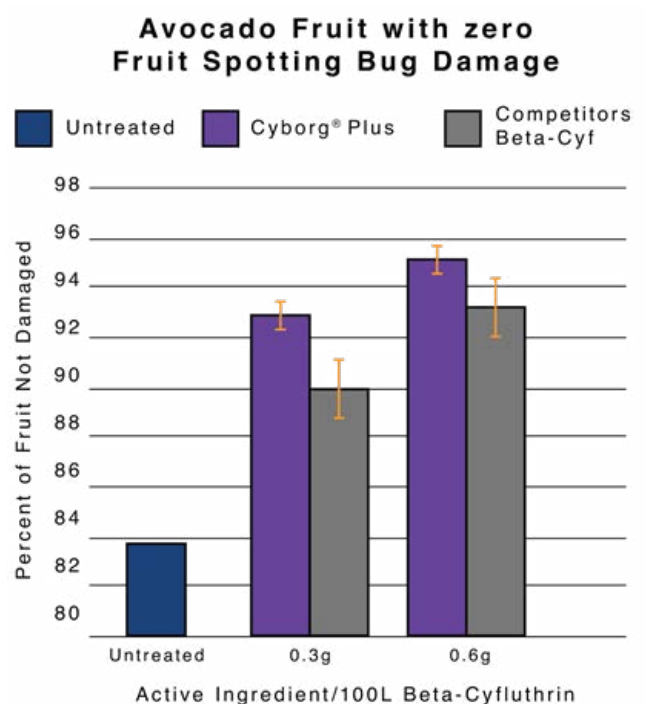
The chart below shows the percentage of Avocado fruit with zero FSB damage after applying Beta-Cyfluthrin.

The synergist PBO has been widely used to improve efficacy of insecticides and is in 280 APVMA registered products. It is non-toxic to birds, mammals and bees and has no chemical rating. Consequently, many household brand name products such as Mortein™ use PBO in their formulations.

PBO disrupts an insect's defence system called Mixed Function Oxidase (MFO) which they rely on to detoxify the active ingredient. With their MFO not working as designed, insects become more vulnerable to the active ingredient.

Imtrade's Ben Carville says “Beta-Cyfluthrin is a trusted and proven insecticide relied on for controlling FSB and has previously been available in a 25g/L formulation (Bulldock®, a registered trademark of Bayer). Cyborg® Plus contains a powerful 100g/L of Beta-Cyfluthrin + 300g/L of PBO. High-load compositions deliver increased coverage while reducing transport and deployment costs, significantly lessening our carbon and environmental footprint. Additionally, Imtrade can react nimbly and flexibly in meeting Australian needs.”

For more information about Tyranex Veriphy and Cyborg® Plus contact [bencarville@imtrade.com.au](mailto:bencarville@imtrade.com.au).





# Safety first with Quad Bikes and Side-by-Side Vehicles

Incidents involving quads are one of the leading causes of injury and death on Australian farms. Most deaths are due to crush injury and/or asphyxiation associated with quads rolling over, or by injury associated with the victim being flung onto a hard surface as a result of a crash. Farmers need to think carefully about their use of quads taking into account the safety risks.

Farmers who are employers or in control of the farm workplace have responsibility under work health and safety (WHS) law to provide safe systems of work for workers and visitors to the workplace, including operation of quads.

To best manage users' safety when using a quad or side-by-side vehicle on your farm make sure you meet the required WHS obligations. You should make sure to:

- 1) Machine or vehicle selection - Where possible select a machine that has a low risk of rollover. Consider the machines that can be fitted with a suitable operator protective device, including rollover protective structure and operator restraint. Many jobs on Australian farms can be undertaken using alternative vehicles to quads. If using a quad, fit a tested crush protection device.
- 2) Conditions of operation - Specify the jobs for which the quad /side-by-side vehicle is to be used, the conditions of operation (including speed and load and tow limits), the areas on the farm on which the machine is to be operated and define "no-go" areas.
- 3) Attachments and loads - The instability of quads makes them unsuitable for carrying loads or towing. For side-by-side vehicles make sure that attachments and loads comply with the specifications



- in the Operator's Manual, taking into account that loads will reduce stability. This information should be available from the supplier.
  - 4) Quads and passengers - Do not allow passengers on quads.
  - 5) Quads and children - Do not allow children under 16 years to operate or be carried as passengers on quads of any size.
  - 6) Training operators of quads and side-by-side vehicles - Make sure that operators of quads /side-by-side vehicles are trained to operate the machine safely.
  - 7) Induction to safe operation of quads / side-by-side vehicles - Make sure that operators receive a thorough induction to safe operation of the vehicle on the specific property.
  - 8) Maintenance - Ensure that machines are well maintained for safe operation.
  - 9) Helmets - Provide a suitable helmet and ensure that it is worn.
  - 10) Supervision - Supervise safe operation
- The WHS module on the online Best Practice Resource provides a comprehensive practical safety guide about Quad Bikes and Side-by-Side vehicles. Avocados Australia recommends that you refer to this guide to assist you with ensuring you meet the required WHS requirements. The BPR also provides useful links to content that applies to the State/Territory Health and Safety Authority in your region.
- To access the WHS content on the BPR login to the BPR at <https://avocado.org.au/best-practice-resource/> and click on "WHS" on the menu bar.

# Response Plan endorsed to eradicate polyphagous shot-hole borer

By Anna Petrou, Avocados Australia

The Emergency Plant Pest (EPP) polyphagous shot-hole borer (*Euwallacea fornicatus*; PSHB) was reported in Western Australia in August 2021. PSHB has a symbiotic relationship with a fungus (*Fusarium* sp.) that it cultivates to feed its larvae.

On 18 October 2022, *E. fornicatus* and the associated symbiotic *Fusarium* sp. were formally classified as Category 1 EPPs. This means that the pest is considered likely to have a major impact on the environment and on amenity flora, a nuisance impact on human lifestyle and relatively little impact on cropping sectors; therefore, the cost share of implementing a Response Plan is 100 per cent government funded.

On 21 October 2022, the National Management Group (NMG) met to consider the response to the PSHB/*Fusarium* sp. AF-18 complex in Western Australia.

The NMG endorsed a three-year Response Plan to eradicate *E. fornicatus*/*Fusarium* sp. AF-18 complex from Western Australia, with an upper limit of expenditure set at \$39.99 million.

The Response Plan is being nationally cost-shared under the Emergency Plant Pest Response Deed (EPPRD) and Avocados Australia has been and will continue to represent the avocado industry throughout this response.

*Euwallacea fornicatus*/*Fusarium* sp. AF-18 complex was formally notified under the EPPRD on 3 September 2021. The NMG recognised the extensive work that Western Australia has undertaken to date on emergency surveillance, tracing, containment, and eradication.



Photo: Pia Scanlon, DPIRD.

Based on international data, *E. fornicatus*/*Fusarium* sp. complex has over 680 known host species which it can potentially damage. These species comprise horticulture production, native and amenity trees. The adult beetles and their larvae can be hard to spot as they spend most of their lives inside a tree. The signs that indicate the borer could be found include multiple entrance holes in the trunk or branches or wilting or dying branches. Further information about PSHB/*Fusarium* complex is available on the [outbreak.gov.au](https://www.outbreak.gov.au) website (full link is <https://www.outbreak.gov.au/current-responses-to-outbreaks/polyphagous-shot-hole-borer>).

It was recognised that there is still a

high degree of uncertainty around PSHB/*Fusarium* complex and therefore Avocados Australia will continue to monitor the response as a signatory to the Emergency Plant Pest Response Deed (EPPRD).

If you live in Western Australia and think you have a tree showing signs of infestation with PSHB, please contact the Exotic Plant Pest Hotline on 1800 084 881 or report it through the Department of Primary Industries and Regional Development (DPIRD) MyPestGuide Reporter app (for more information about the app visit this website: <https://www.agric.wa.gov.au/apps/mypestguide-reporter>).



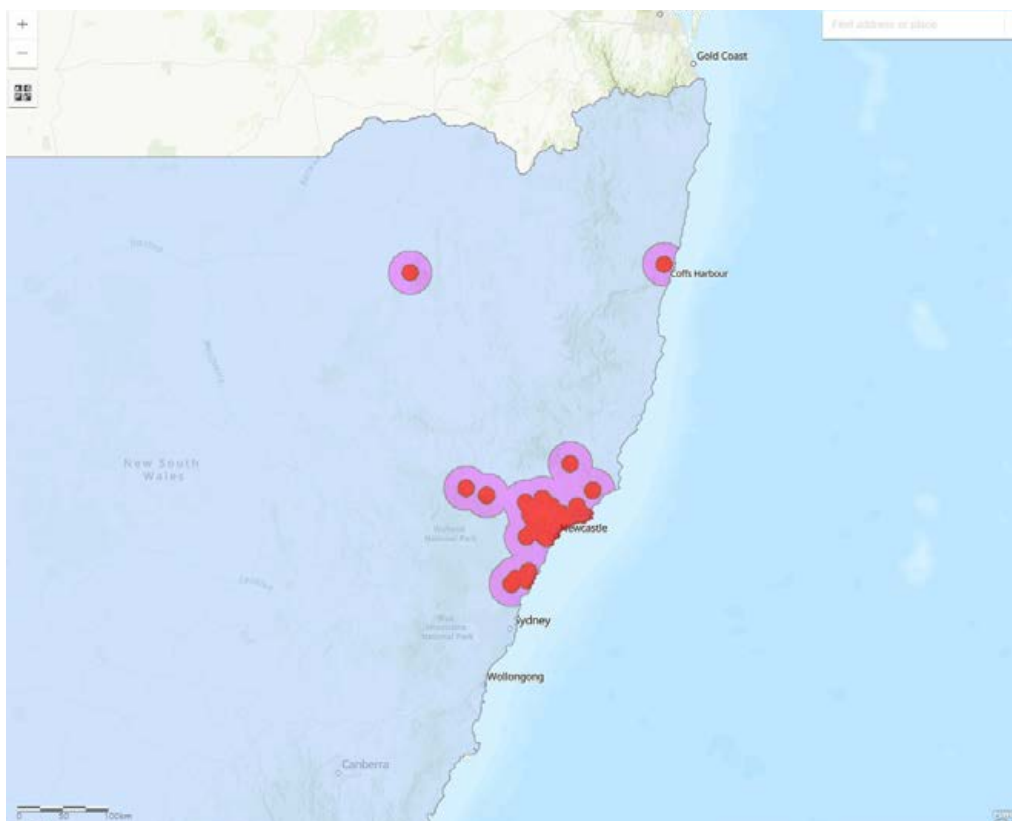
# Varroa mite incursion response update

By Anna Petrou, Avocados Australia

## Current Situation

The NSW Government continues to work through its emergency response to a varroa mite (*Varroa destructor*) incursion in New South Wales. As of 9 January 2023, the response has confirmed two new detections of Varroa mite, from properties at Bishops Bridge and Mulbring in the Hunter, both within recently extended boundaries of the red zone (the red zone makes up the 10km eradication zones where honeybee hives will be euthanized, see the Varroa mite emergency zone map provided). The new detections were made through analysis of sticky mats collected during ongoing surveillance. Recent detections demonstrate the importance of continued surveillance efforts in the purple zone and the importance of NSW DPI's cooperation with the bee industry to follow up and investigate all links to and from infested premises. The purple zone is the 25km surveillance zones, where officials are monitoring and inspecting managed and feral honeybees to limit the extent of these incursions (features on the map provided).

Bait stations for wild European honey bees are in action at Jerrys Plains, Narrabri, Calga, Somersby, Newcastle and Wyong. The second fipronil baiting program in Nana Glen has started. Euthanasia and disposal teams are continuing to work within the red eradication zones around Newcastle/Hunter areas. Just under 90% of hives have been euthanised (17,033 hives). Teams are in operation across the surveillance (purple) zones working to complete first round surveillance.



Varroa mite emergency zone map (map appears courtesy of NSW DPI).

Avocados Australia (AAL) recommends that avocado growers – who use commercial beehives for pollination – stay in regular contact with beekeepers in case of any changes.

### Avocados Australia - Part of the Response & Informing Industry

As you may be aware, Avocados Australia (AAL) is responsible for representing the Australian avocado industry on biosecurity matters. AAL is continuing to have input into the eradication response and as part of that process we heard about New Zealand's experiences dealing with their varroa mite incursion. This incursion may have a significant impact on avocado growers, either through: 1) The cost sharing of the eradication, or 2) If eradication is not possible, through the loss of free pollination from wild European Honey Bees and increased cost of managed hives.

Under the Emergency Plant Pest Response Deed (EPPRD) (in which AAL is a signatory) where there is an incident of an exotic pest or disease (or complex) the Australian Avocado industry may be listed as an 'affected party'. If so, AAL then becomes involved in the overall management of that incident and participates in the Consultative Committee on Emergency Plant Pests (CCEPP) and the National Management Group (NMG).

Varroa mite (*Varroa destructor*) has devastated bee populations in countries overseas, including New Zealand. In New Zealand now, wild bee populations are decimated and growers there are almost entirely reliant on using commercial crop pollination services. Discussions are in progress to determine the categorisation of varroa mite which will in turn determine the proportions of financial commitment required from industry and government. AAL will continue to

keep industry informed.

AAL recommends that Australian avocado growers view a video that outlines the impact of Varroa destructor on the New Zealand bee and pollination industries. To access the video use the QR code here.



Use the QR code reader on your mobile phone to access the video.

In short, the two New Zealand representatives that appear in the video strongly recommend that Australia eradicate varroa mite swiftly while there is a definitive boundary (marked



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by defined zones) and an epicentre. In New Zealand the varroa mite incursion eradication response was hampered by the fact that they couldn't get the definitive boundary, they didn't have the definitive links, and couldn't get "traceability". Australia's eradication efforts therefore have an excellent chance at being effective.

### Where to now

The varroa mite incursion can impact all Australian Avocado growers so staying informed about the status of the eradication response is important. AAL calls on all Australian growers to support the varroa mite eradication process. Categorisation of this pest is being finalised now. AAL will communicate the details to industry when it is announced. Once the categorisation has been confirmed work will begin on developing a Business Plan that details the eradication response including the related costs.

DPI, Local Land Services, NSW Police, NSW Rural Fire Service, NSW EPA, NSW National Parks and Wildlife and the wider community are all working together to assist the apiary industry to arrest the spread of the parasite.

The NSW Government has worked in consultation with the apiary and horticultural industries in NSW to carefully develop a plan through a risk-based approach. This enables critical business continuity and pollination services for commercial beekeepers and broader agricultural industries.

For more information about the NSW DPI response visit their website by using the QR code below.



Use the QR code reader on your mobile phone to access the NSW DPI website.

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# Avocado biosecurity project off to a flying start

*By Grant Telford, Avocados Australia Biosecurity Project Manager*

The Hort Innovation biosecurity project AV21002 - *Avocado Industry Biosecurity Strategy 2022 – 2026*, commenced in July 2022 and seeks to protect and secure the Australian avocado industry's biosecurity future.

Managed by Avocados Australia (AAL), the project considers both current and future biosecurity risks to Australian avocado growers.

"The project touches on each element of the biosecurity continuum," said John Tyas, CEO of Avocados Australia.

"It addresses prevention, preparedness, response and recovery when it comes to significant regionalised endemic pests and exotic pests that are not yet known to occur in Australia."

"Considering the impact that biosecurity pests are currently having across a number of other horticultural industries in Australia at the moment, we need to be on the front foot," he said.

The project directly enlists the support of the Queensland Department of Agriculture and Fisheries, Western Australia's Department of Primary Industries and Regional Development, Sunshine Coast University, Melbourne University and Plant Health Australia. Growers and other biosecurity agencies and researchers will also contribute to project outcomes.

The five-year project aims to:

- Improve avocado industry biosecurity resilience through the development and delivery of foundational exotic pest preparedness documents supported by exotic pest incursion and response exercises,
- Better understand the risk posed to the avocado industry from exotic pests by identifying current gaps in



DAF-lead avocado biosecurity workshop was held on 13 October to identify both significant endemic and exotic pests with the potential to cause real impact and harm to the Australian avocado industry.

- pest risk assessments,
- Provide pathway analyses and diagnostic capability,
- Increase the uptake of appropriate on-farm biosecurity practices by proposing reasonable and practical ways to address biosecurity risk.

The Australian avocado industry will - as a result of the project - see:

- An increased knowledge and understanding of biosecurity management across the avocado industry,
- Improved avocado industry biosecurity resilience by developing and implementing an industry preparedness plan,

- Greater understanding of the risk of high priority pest arrival and establishment by developing pathway risk models,
- A better understanding of the relationship between the benefits and costs of on farm biosecurity management,
- An enhanced industry responsiveness to an incursion by undertaking training exercises and other preparatory activities to help facilitate improved capability to assist growers impacted throughout a response to a plant biosecurity incident including support for Owner Reimbursement Costs,





Dr Mandy Christopher, from the Queensland Department of Agriculture and Fisheries, leads the first of a number of biosecurity workshops planned throughout the life of the project to determine regionalised endemic pests, and exotic pests, of importance to the Australian avocado industry.

- Improved response readiness from an organisational perspective.

The industry will also have a clear understanding of potential gaps or vulnerabilities with its industry biosecurity preparedness and management and future priorities will be addressed.

The project is still in its infancy, however AAL's Biosecurity Project Manager, Grant Telford, said "despite this being a five-year project we are already seeing the benefits of this initiative."

"Avocado biosecurity experts from across the country are talking and it's a very positive step to see these relationships growing."

"Cementing these relationships alone supports the industry in dealing with future biosecurity incursions."

"Outputs from the project will occur throughout the life of the project, not just at the end," he said.

### Acknowledgement


The *Avocado Industry Biosecurity Strategy 2022 – 2026 (AV21002)* project has been funded by Hort Innovation, using the Avocado research and development levy and contributions from the Australian Government.

Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

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## The Avocado Academy



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Lisa Fyffe

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As our domestic production increases, our fruit robustness needs to follow the same trend.  
The Irrigation & Nutrition Project is available now - To find out more scan the QR code on the left.

# MARKETING UPDATE

## Domestic Avocado Marketing Activities planned for 2023

Compiled by Anna Petrou, Avocados Australia

### Marketing Strategy for Financial Years 2023-2026

The domestic and export avocado marketing strategy for the next three financial years has now been finalised. The consumer goal is to drive conversion of sales and new category buyers. This article outlines what we can expect in the marketing activities happening in 2023.

A range of activities will be rolled out that underpin three strategic pillars. They are: 1) Cement the core proposition locally and globally, 2) Retailer, Shopper and Consumer Education, and 3) Own everyday meal occasions. See Figure 1.

The Avocado Marketing Strategy will work to change consumer thinking these “strategic shifts” appear in Figure 2.

The business-to-consumer domestic activities that will take place to achieve pillar 1 will reinforce key benefit communications and creative. This includes paid media (Masterbrand campaign), PR and social marketing (social content addressing seasons, lifestyle and culture).

The business-to-consumer domestic activities that will take place to achieve pillar 2 will focus on retailer, shopper and consumer education. This includes shopper focused education that will include content about ripening, handling, selection, varieties (at point of purchase) and at home ripening and storage content (social).

The business-to-consumer domestic activities that will take place to achieve

### F23-26 Avocado Marketing Strategy (Domestic & Export)

Consumer Goal	Increase HH Penetration of light buyers both domestically and abroad		
Key Category Benefit	Australian Avocado transforming meals from good to great (TBC in research)		
Strategic Pillars	PILLAR 1	PILLAR 2	PILLAR 3
	Cement the core proposition locally and globally	Retailer, Shopper and Consumer Education	Own everyday meal occasions
B2C Activities - Domestic	Key benefit comms and creative Paid Media (Masterbrand campaign) PR and Social – seasons, lifestyle, culture	Shopper focused education Ripening, handling, selection, varieties (Point of Purchase) At home ripening and storage (social)	Inspiration social content to buy and use (needs and occasions) Path to purchase media (proximity/instore, online) – planned and impulse Co-branded partnerships
B2B Activities - Domestic	Category planning Retail staff education/Merchandising	Season spotlights – variety / geography Retail staff education/Merchandising	Retail support / Merch program Food service program
B2C Activities - Export	Branding Solution, Content Production Retail support programs (e-commerce, POS, displays, promotions, sampling) Paid Media		
B2B Activities - Export	Trade shows, Trade seminars Market development missions Competitive Advantage Survey Retail Support programs	Direct marketing to importers and global retailers Season spotlights Retail staff education & support	Retail support program Food service program Australian sell story

Figure 1.

### F23-26 Avocado Marketing Strategy Strategic Shifts Sought

Vision	A globally competitive and trusted Australian avocado industry		
Business Goal	Increase domestic consumption of avocados to 150,000t by 2026 at profitable farm gate prices	Increase export volumes to 20,000t by 2026 at profitable farm gate prices	
Consumer Goal	Increase HH Penetration of light buyers both domestically and abroad		
Key Category Benefit	Australian Avocado transforming meals from good to great		
Strategic Pillars	PILLAR 1	PILLAR 2	PILLAR 3
	Cement the core proposition locally and globally	Retailer, Shopper and Consumer Education	Own everyday meal occasions
Strategic Shifts (B2C)	From: I don't think of avocados often. They aren't part of my weekly shop  To: I'm inspired to eat avocados all the time. They are so nutritious and tasty – they elevate my meal	From: It's hard to get a good avocado; I don't feel confident purchasing, selecting and using avocados so I don't buy them very often  To: I get a great avocado every time; I am confident I know how to choose, use, ripen and store my avocados so I now buy them regularly	From: I like avocados but don't know many ways of using them so don't buy them very regularly  To: I love avocados and have lots of quick and easy ways to use them regularly across breakfast, lunch and dinner
	Strategic Shifts (B2B)	From: I buy avocados from many different suppliers across many different countries. I don't really have a preference. To: I prefer Aussie avocados as my main source of supply because they are always available, are premium quality and my suppliers are great to do business with.	

Figure 2.



pillar 3 will aim to “own” everyday meal occasions. This will involve inspiration social content to buy and use (addressing needs and occasions), path to purchase media (proximity/instore, online) for both planned and impulse, and co-branded partnerships.

Business-to-business activities are also planned. Category planning and retail staff education/merchandising will address pillar 1. Season spotlights (in terms of variety/geography) and retail staff education/merchandising will take place to achieve pillar 2. To achieve pillar 3 there will be a retail support/merchandising program and a food service program.

## Marketing Plan for the 2023 Financial Year

In line with the FY23-26 Marketing Strategy, an annual domestic marketing plan for FY2023 was developed. An overview of activities to take place between December 2022 and June 2023 appears in Figure 3.

The activity aiming to cement the core proposition locally will involve paid media using the existing ‘Our Green Gold’ campaign assets. The marketing team aim to deliver a cost-efficient media buy of the ‘Our Green Gold’ core brand campaign to continuously reach all buyers of the category including light buyers, to drive top of mind awareness and consideration (mental availability) of Australian Avocados. The aim is for Australian Avocados to be top of mind and on the shopping list before people enter the store.

The campaign will aim for national reach targeting all people 18+ years of age. Success will be measured and aims to: 1) Maintain presence in the market at reduced investment level (1+ reach of main grocery buyers) and 2) achieve advertising recall at 23% or above while on air.

PR and social content planned will communicate the versatility and benefits of adding avocados targeting light buyers and non-users. The marketing team will develop and activate Public Relations ‘media

**F23 DRAFT Calendar of Domestic Activity for Avocados**

	Fund	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>1. Build confidence through education</b>								
1. Shopper Education (Pick, handle and store/ripen)	Marketing							
2. S2B - Retail staff education (with Field force trial)	R&D							
<b>2. Cement the core brand – Our Green Gold brand campaign</b>								
1. Brand Benefit and creative testing (Research)	R&D							
2. Paid Media (Our Green Gold) e.g. Radio, OOH, TV	Marketing			TBC	TBC	TBC	TBC	TBC
3. PR/Social content and management (Our Green Gold)	Marketing							
<b>3. Inspire everyday meal occasions</b>								
1. Inspiration content	Marketing							
2. Shopper media	Marketing			TBC	TBC		TBC	TBC
3. Co-branded partnerships	Marketing				TBC	TBC	TBC	
4. Food Service Strategy	R&D							

**Figure 3.**



The ‘Our Green Gold’ campaign assets to appear in 2023 marketing campaign.

moments’ that create mass, earned coverage, supported by always-on social media content to keep avocados top of mind. The aim is to build mental availability by inspiring light buyers to consume more avocados in everyday moments.

Varietal education and selection content will be developed suitable for use at point-of-sale. The program elements will involve educational materials at retailer touchpoints (in-store and online) and working with retailers with seasonal point of sale (POS) changeovers.

Shopper education will be involved in achieving pillar 2. A suite of instore POS, retail media and social media communications is planned to educate avocado buyers, especially light users on



The planned social content will aim to inspire light buyers to consume more avocados in everyday moments.

how to select, handle, ripen and store avocados, both instore and at home.

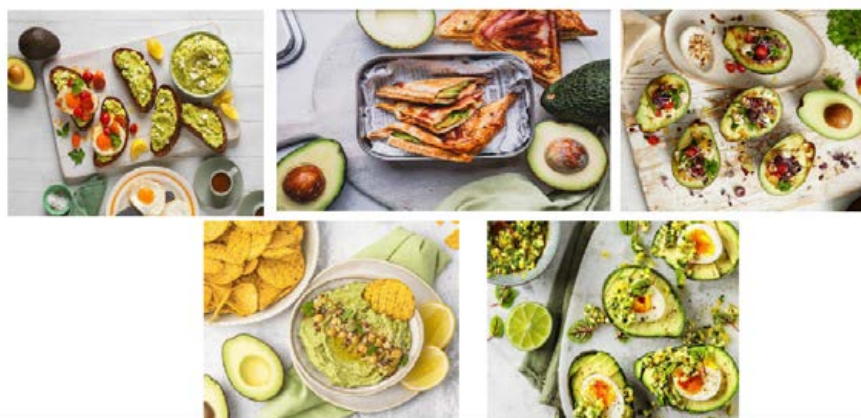
Program elements involved in shopper education for pillar 2 includes:

- Shopper strategy and mapping of messaging and touchpoints
- POP on how to choose an avocado that suits consumer needs
- Shepard specific education
- Retail media communications for online shoppers – how to ripen and store at home
- Content extension into social - how to store and ripen at home

Inspirational social content is planned in order to achieve pillar 3. It will involve eating occasion content that inspires consumers (especially light buyers) to use avocados in everyday meal occasions. Communications will build know-how on quick and easy ways to use avocados across breakfast, lunch and dinner (rather than elaborate, food-focused recipes).

Like last year the domestic marketing activity planned for 2023 will use path to purchase media to achieve pillar 3. This means sales/conversion driving communications in media channels that are in close proximity to and on path to purchase – both instore and online.

Planned cross-brand collaboration will also support pillar 3. This involves



Eating occasion social content will appear that inspires consumers (especially light buyers) to use avocados in everyday meal occasions.

creating brand partnerships and cross-brand promotions with complementary products to inspire shoppers with more easy ways to use avocados and build longer term meal occasion associations.

A foodservice strategy will work to achieve pillar 3. It will involve utilizing new and existing data, the development of a strategy and implementation program for avocados to leverage growth opportunities within the fast-changing food service landscape.

A copy of the Domestic Avocado Marketing Plan for FY23 and its related details is available on the Best Practice Resource. To access it login to the BPR (here's the URL <https://avocado.org.au/best-practice-resource/> or use the QR

code provided) then click on “Library” on the top menu then scroll down and click on “Marketing Reports”. The document also contains the full marketing plan (domestic and export) with the background data and insights that underpin the plan (46 pages).



You can use this QR code (using your QR code reader on your mobile) to access the BPR.



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# Marketing Aussie avocados internationally:

## Hong Kong Avocados Campaign overview

*Compiled by Anna Petrou, Avocados Australia*

This article provides an overview of what was involved in the recent Hong Kong marketing campaign, and provides some outcomes and learnings. The 2022 marketing program for Australian Avocados began at the end of August and concluded in late November. The marketing effort utilized the “Grown in Good Nature” program.

The Export Marketing Program’s Campaign Objectives were to:

- Engage with the local audience promoting brand advocacy for the Grown in Good Nature program.
- Drive sales of Australian avocados and contribute to an increase of additional orders with retailers and importers.
- Showcase the vast array of health benefits associated with Australian avocados.
- Educate locals on the many ways in which Australian avocados can be consumed and build a competitive value proposition.
- Become the reference product in Hong Kong’s consumers mindset in terms of both quality and taste.

### Campaign Overview & Activity Summary

The Grown in Good Nature campaign in Hong Kong for Avocados comprised of both offline and online activities including the distribution of point-of-sale materials, food services promotions, e-commerce engagement and social media support. The rollout in each platform was nuanced to how the audience consumes the medium which paved the way for the marketing team to generate good results. This overview of the activities undertaken also provides the corresponding results as well as the challenges faced throughout.

Here are the highlights of the activities in Hong Kong:

- In-store display – Distribution of point of sale (POS) material across three major retail partners – AEON, Wellcome and ParknShop – across 30 stores for one-month duration.
- Retail promotions – W Trained local staff attracted shoppers and triggered sales in supermarkets. A total of 84 sessions across 28 stores were conducted over a 3-week period.
- E-commerce engagement – Reached out to and engaged a broader audience via e-commerce platforms Freshie.hk and Chunto Fruit to boost the sales and increase the awareness of Australian avocados. A mix of activities such



as advertising banners, promotional discounts and social media posts were delivered from mid-October to mid-November.

- Food services promotions – Partnered with Australia-style cafes and restaurants to create special menus with Australian avocados as the hero product. A total of seven outlets took part in this activity during two weeks at the beginning of the campaign.
- Social media support and YouTube advertising placement – Promoted Australian premium produce on the Grown in Good Nature official social media channels, including both Facebook, Instagram, and YouTube.

### Activity Breakdown

#### ***In-store activity***

Display and the use of in-store sales staff was extended across a total of 30 stores, encompassing both Wellcome (20 stores) and AEON (10 stores) throughout October and November. All stores implemented POSM (Point of Sale Marketing), and shelf displays as well as taking part in the distribution of leaflets to local shoppers. The retail program was highly successful according to retailers with a rising demand from consumers for Australian premium produce. In-store sales staff give brands the opportunity to capture customers while they are in the mindset of food shopping and at the same time increasing education and understanding of the different varieties. To ensure that the staff on-ground are equipped with the right messages and information, an online course was

conducted 1 week prior to the beginning of retail activities. With a total reach of more than 60,000 shoppers over the 3-week period, the total reported sales were AU\$38,700 across 84 sessions, equivalent to 11,802 units sold.

### **E-commerce engagement**

Responding to the growing significance of e-commerce activities throughout Hong Kong, the Grown in Good Nature campaign optimize Freshie.hk and Chunto Fruit – two of the most trending e-commerce platforms for imported and premium fresh produce to promote Australian avocados directly to consumers, as well as encourage sales conversions. The primary method of execution were banner advertisements that targeted a wider audience, accompanied by promotional discounts (up to 15% off for customers who purchased a dozen avocados), as well as social media posts with a giveaway campaign. While the number of units sold was not disclosed by the platform due to confidentiality reasons, both platforms have indicated that they almost ran out of stock at the end of the promotion, which is very encouraging for future campaigns.

### **Food services promotion**

The main objective of this activity was to collaborate with local restaurants to raise awareness about the premium nature and creamy taste of Australian Hass avocados and create some interest for a product that can be consumed in many ways. A total of seven restaurants and cafés took part in this activity and created a special menu featuring Australian avocados as the main ingredient for a two-week duration. Based on the success of this activation, most of the outlets decided to keep it on the menu for another week or two. It was reported that more than 100,000 people visited these restaurants during the promotion and the sales of dishes with avocados increased by up to 450%. Fast Gourmet Yuen Long, Fast Gourmet Central, House of Grace, Sean Café, Lemongrass restaurant and The Years Café also posted on their social media channels and launched a series of giveaway campaigns as a means to engage with their existing audience and drive engagement.

### **Social media and e-commerce engagement**

In late August, the Australian Avocados campaign was launched on the Hong Kong Facebook and Instagram Grown in Good Nature Australia accounts, with the purpose of tapping into the market of this region. There were 26 social posts shared across the platforms, aimed at driving awareness and engagement in the market. This was conducted through content deployed by educating target audiences on the value propositions of Australian Avocados through identifiable Australian imagery.

The content that was used was captured at the photoshoot conducted in April 2022 and was predominantly video based. The content was crafted under three key content pillars: provenance (Fresh from Australia), recipe inspiration (Taste the Best) and quality (Premium Quality). All content also included an overarching focus of showcasing Australiana through key tourist destinations with talent seen consuming



Australian avocados on display in a Hong Kong retail outlet.

#### **In-store display (AEON)**



#### **In-store display (Wellcome)**



#### **Recommendation sales – Wellcome**



In-store sales staff assisted shoppers.



an Australian Avocado dish at each site. Paid content was amplified through Facebook's Ads Manager and optimized towards an engagement objective using both ThruPlays and true engagement metrics (reactions, comments, and shares). The paid media strategy was focused on driving engagements both with an organic audience (fans of the page), as well as an interest-based target audience, to increase brand recognition and loyalty. A key component of the paid approach was the ongoing review and re-allocation of paid media to ensure the strongest performing content received a higher weighting of support. Copy highlighting recipe inspiration or which spoke to the dish represented in the asset generated the highest post reach and engagements, particularly when paired with provenance-focused visuals. Top performing content by impressions and ThruPlays were videos, which showcased the storytelling elements of the dream sequence. The Great Barrier Reef prawn cocktail 15 second video asset was the strongest performing with 400,775 ThruPlays.

Overall, this campaign exceeded the benchmark set for ThruPlays, with the KPI exceeded by 311%, in addition to 3,812,584 impressions and 27,853 total engagements over the 2-month period. In parallel to the social media content published on Facebook and Instagram, a series of video assets were promoted on YouTube via advertising placement. The objective was to amplify the use of existing assets and generate scalable awareness through one of the most popular channels in Singapore. Indeed, with the rise of digital content, YouTube has now become the trendiest platform in the region thanks to its ability to target effectively niche audiences via paid media. In terms of performance, the three types of videos achieved a combined total of 1,138,605 views with a completion rate of 17.64%.

## Insights

- The trading environment has already adapted to the Coronavirus pandemic. Many of the changes put in place to support physical distancing are expected to remain, with retailers starting to consider the implications for future store design.
- Hong Kong consumers expect better digital experiences. They have become more digital-savvy, selective and loyal to



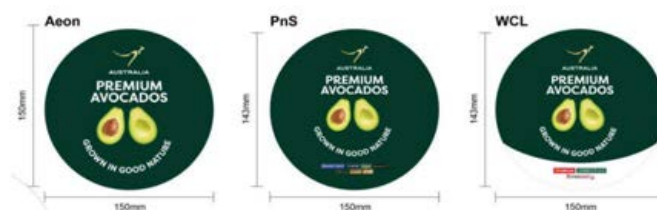
The Great Barrier Reef prawn cocktail 15 second video asset was the strongest performing with 400,775 ThruPlays.

brands they trust while making financial decisions in the wake of the Covid-19 pandemic.

- Australian avocados have been praised for their quality and creamy taste from both trade partners and local consumers. A premium product that is definitely drawing their attention in this competitive market.
- Providing samples in a safe and secure environment is key for customers. It is essential to respect hygiene measures and make sure the staff are aware of the protocol. Masks are compulsory, gloves highly recommended and all the fresh produce must be sealed before distribution.
- New POS material reflecting the premium positioning of Aussie produce. As part of the new branding strategy, a series of POS materials were created specifically for this campaign to introduce the Grown in Good Nature program. The focus was on the provenance of the produce, the premium positioning, and the product itself.
- Video content was overall the highest performer in driving overall reach, impressions, and engagements (through video views) for the lowest cost per result.
- Content showcasing recipe inspiration performed best across both platforms in terms of reach and engagement, particularly when the copy was paired with an asset which spoke to the dish displayed within the visual.

## POSM artworks

### Wobblers



### Posters

## Challenges, Learnings & Recommendations

- The training of the local staff ahead of retail activities is crucial to ensure the delivery of the right messages to the targeted audience.
- Less but better. It can be counter-productive to collaborate with too many retailers in one market and split the budget, which lowers the impact of in-store activities.
- The difference in buying decisions between online and offline used to be significant, but consumers have become more comfortable with e-commerce in the past few years. Offering free delivery is a great way to encourage customers to complete their purchase.
- E-commerce is developing rapidly in Hong Kong as more retailers set up their online presence and shoppers change their consumption patterns and lifestyles. With more than 4.5 million e-shoppers, the e-commerce penetration rate in Hong Kong was at 59.8% in 2018 and is expected to hit 75% in 2023.
- Given the open nature of the Hong Kong market and reliance on food imports, traders point to the ongoing issues with global shipping logistics as the culprit fueling food prices in the region.
- Expand the marketing campaign beyond the retail program and online promotions. Partnerships and collaborations with renowned local brands will certainly help increase the popularity and credibility of Australian Avocados.
- POS materials under the new Grown in Good Nature guidelines need to be reviewed in order to stand out in stores and spark people's curiosity when grocery shopping.
- With the growth in 'Reels' style content across Instagram, Facebook and TikTok it would be recommended that all content is shot to allow for a 9:16 format. The inclusion of TikTok into the marketing mix will also give a greater understanding of where audiences consume content and the platforms that they are most likely to engage on.

## Conclusion

The Avocados campaign in Hong Kong proved a successful venture for its inaugural campaign with strong interest from key market stakeholders, particularly importers. The multi-faceted nature of the campaign, including both online and offline activities complimented one another and enabled strong sales conversion across both platforms. For future campaigns earlier discussion with retailers could prove fruitful in creating an exclusive partnership with a key provider rather than multiple providers for varied timeframes. The combination of a retail program with the use of in-store sales staff, food services promotions and ecommerce engagement seem to be the perfect strategy for the promotion of the product in market, especially considering the premium nature of Australian avocados in a very competitive landscape. It is recommended that future campaign timelines be adjusted to coincide with the arrival of produce in the market, avoiding uncertainty around availability and offerings.



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# RESEARCH AND DEVELOPMENT

## Avocado retail quality update

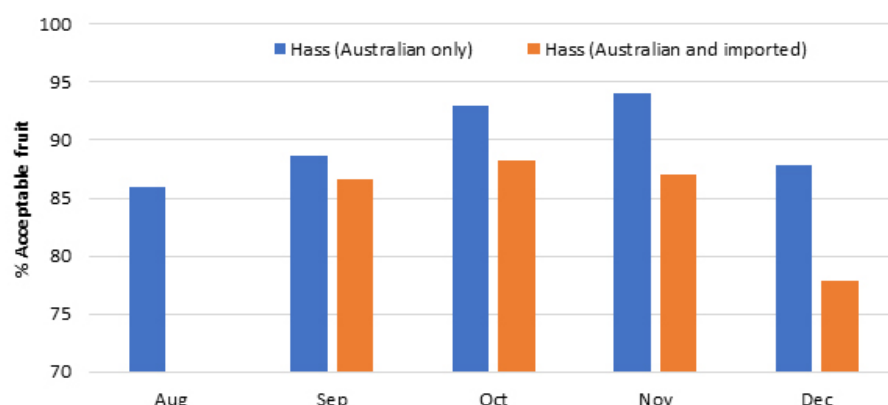
By Adam Goldwater, *Applied Horticultural Research*

Australian Hass fruit quality improved throughout spring, lifting from 86% acceptable fruit in August, to 94% in November. However, as imported fruit entered the retail market in September, the overall level of fruit quality declined (Australian and imported), reaching a low of 78% acceptable fruit in December, due to significant levels of rots in imported fruit. This is unfortunate for Australian suppliers, given that a consumer's intent to repeat purchase avocados is negatively affected by poor quality, regardless of the country of origin.

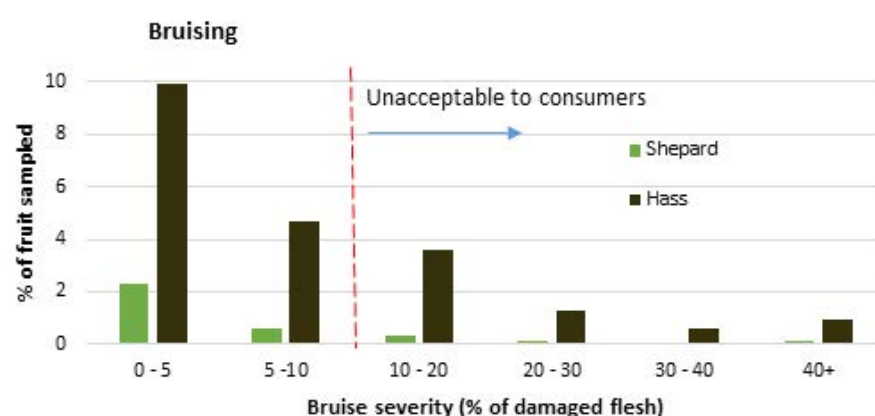
### Bruises and rots – how can severity of damage affect overall retail quality?

To maximise sales, the Australian avocado industry's quality goal is for all fruit to have no more than 10% internal flesh damage. To progress towards that target, it is useful to understand how severe the current damage is, and whether adoption of new pre and postharvest practices can realistically reduce internal damage to within the 10% target.

Bruising is the most prevalent internal quality issue for Australian grown Hass, with 21% of fruit sampled at retail over the past 2.5 years damaged by bruising. However, the size, or severity of bruising is important, given that a bruise which affects less than 10% of the total flesh is less likely to deter consumers from repeat purchase. Retail quality monitoring has identified 7%



**Figure 1.** Level of acceptable Hass avocados at retail during August to December 2022. Fruit are considered acceptable to the consumer if less than 10% of the flesh is damaged.



**Figure 2.** Bruise severity (% of damaged flesh) of samples of Australian grown Shepard and Hass avocados collected at retail between May 2020 and November 2022.

of Hass with bruising that exceeds 10% of the flesh. Of these, roughly half sit in the 10-20% bruise severity category (Figure 2).

If the industry can reduce bruise severity, even slightly, then many of the

bruises in the 10-20% severity category would shift to below the 10% level. This could halve the level of Hass which are unacceptable to consumers because of bruising. Simple practices to reduce bruise severity include reducing the size and number of impacts during

handling by store staff and consumers, refrigerating ripe fruit, reducing time in the system from harvest to retail, and harvesting fruit with higher dry matter levels.

Flesh rots affect 13% of Shepard and 16% of Australian Hass avocados at retail. Fortunately, the majority of these rots only affect a small volume of flesh, where only 3.5% of Shepard and Australian grown Hass avocados have rots which affect more than 10% of the total flesh. As good as this sounds, there is a risk that changes to inferior pre and postharvest practices could increase the severity of rots, resulting in more rots exceeding the 10% damage level. For example, more time in storage could double rot severity, resulting in rots in the 5 to 10% severity category shifting to 10 to 20%, almost doubling the level of rotten fruit considered unacceptable to consumers (Figure 3).

### Maturity monitoring results

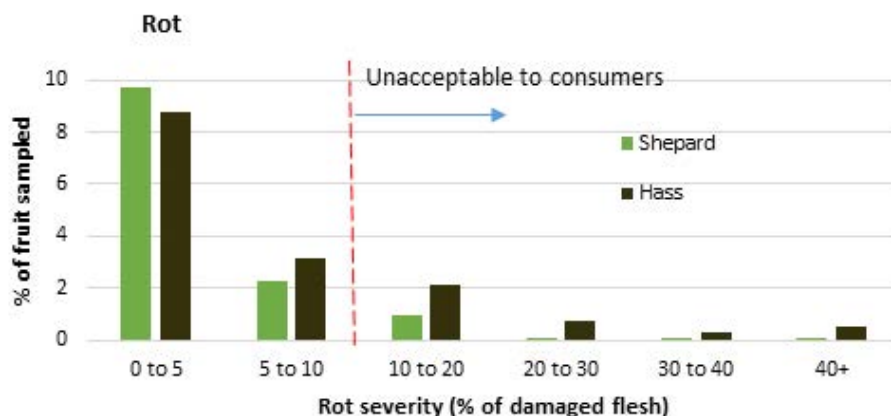
Maturity monitoring at the Sydney Markets continues, and since June, no immature samples of Hass were identified (Figure 4). The average dry matter through this period was 31.5% from samples grown in Central and South Queensland, NSW, Tristate and WA.

Although typically a period where there are fewer issues with immature fruit on the market, previous monitoring from 2007 to 2015 (AV11015) identified immature fruit from NSW, Tristate and WA during this period.

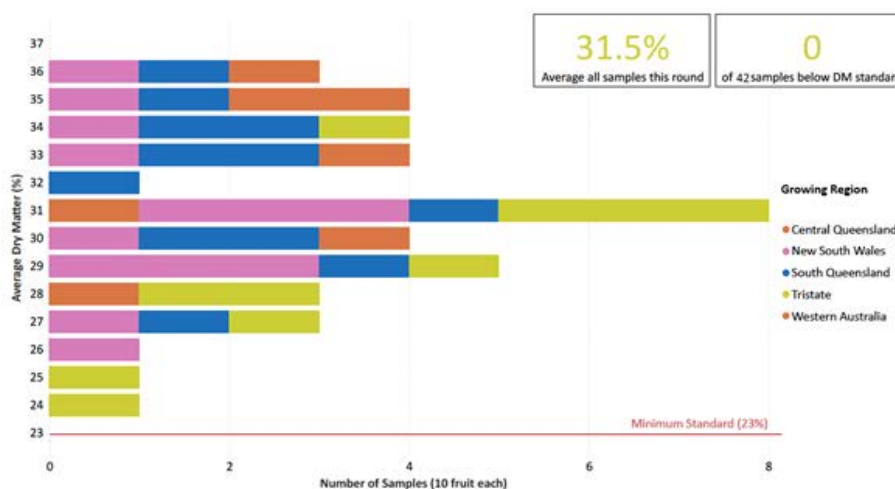
This result is consistent with the improvement in compliance with maturity standards seen earlier this year, where there was a lower proportion of immature Hass and Shepard fruit in the market during February to July 2022, compared with the same period over 2007 to 2015.

### More information

For up-to-date retail quality data, and more in-depth analysis, visit the Avocados Australia Best Practice Resource at [avocado.org.au/bpr/](https://avocado.org.au/bpr/), go to the 'Retail' tab, and select 'Retail Quality'.



**Figure 3.** Rot severity (% of damaged flesh) of samples of Australian grown Shepard and Hass avocados collected at retail between May 2020 and November 2022. Results are body and stem-end rots combined.



**Figure 4.** Hass dry matter by growing region from samples collected at Sydney Markets from September to December 2022. All samples met the Hass minimum dry matter standard of 23%.

Maturity monitoring results are available on the Best Practice Resource under the 'Packhouse' tab, followed by 'Maturity'.

For further details, please contact project leader Adam Goldwater at Applied Horticultural Research (AHR) on 0466 080 693 or [adam.goldwater@ahr.com.au](mailto:adam.goldwater@ahr.com.au).

### Acknowledgements

The Monitoring avocado quality in retail (AV19003) project has been funded by Hort Innovation, using the avocado research and development levy

and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

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# Good disease management is critical in La Niña years, even if the market price comes down!

By Noel Ainsworth and John Agnew, Queensland Department of Agriculture & Fisheries.

Do you apply fungicides like following a recipe, sticking to the same calendar-based schedule for the whole farm every year? If you answered 'Yes', your fruit quality is at risk and it's time to review the following tips.

A few quick tips for your spray operator

1. Be agile each season in designing your spray schedule to ensure the best control of avocado diseases? Even in "dry" regions like Tristate, fungal development can commence during overhead misting irrigation to cool the fruit.
2. Ensure your spray schedule is responsive to changes in your trees and the weather?
3. Change your spray schedule for each production block based on this or the past season's fruit quality reports
4. Review the fungicides you use to reduce the risk of resistance building up on your farm
5. If exporting, the choice of fungicide and timing before harvest is critical to avoid the risk of excess MRL levels and possible rejection of your produce
6. Check on the spray coverage each year in different sized and shaped trees? See YouTube link: <https://www.youtube.com/watch?v=tkKBJFZUyIk>
7. Calibrate your sprayer each year to know what volume (L/ha) you apply for various sprayer setups (tractor speed or gear selection) See YouTube link: <https://youtu.be/QZSCRICImW0>
8. Ensure air temperature is not too high (<35°C), the relative humidity is not too low (>40%) and wind speed is between 3 - 15km/hr before deciding to spray. Otherwise, you could suffer high levels of evaporation or spray drift.

There are three main fungicide components in an avocado spray program irrespective of your production district, which are mainly to manage anthracnose. The difference is that the number of sprays recommended will vary considerably between production districts and depends on the prevailing weather.

## 1. Protectants

Repeatedly apply a protective layer of copper fungicide every 28 days under dry conditions from fruit set until harvest. 'Wet weather' is if you get more than 1mm of rain on each of three consecutive days. If you get 'wet weather' between these 28-day sprays, reapply the copper after the wet weather event. This will often mean one extra fortnightly spray each

month in the wetter 3-4 months of the year. You can also use the biofungicide *Bacillus amyloliquefaciens* strain QST 713 (Serenade Opti®) as an alternative to copper, especially at fruit set because copper fungicides can be phytotoxic to flowers.

Note: One isolated day of 250mm or just heavy dew is not wet weather for good infection to be successful (Source: Lindy Coates, DAF Pathology).

## 2. Systemics

Some fungicides have a more systemic or curative action, including azoxystrobin (e.g., Amistar®) and fluopyram + trifloxystrobin (Luna Sensation®). Don't use them consecutively. Instead use them in rotation with other registered fungicides that have a different mode of action (e.g., copper-based chemicals). For timing, apply the first systemic spray at early fruit set, when the fruit are pea-sized.

- For fruit being sold in the Australian domestic market or exported to Hong Kong or Japan, growers should restrict their use of these systemic fungicides to a maximum of three foliar applications per season. The second spray should be after a decent patch of wet weather. The third and



The amount of rots that develop as fruit ripen can make or break the consumer experience.

final spray should be at least 7 days (Amistar®) or 3 days (Luna Sensation®) before harvest.

- For fruit being exported to Singapore, Malaysia, Indonesia, Kuwait, United Arab Emirates or Saudi Arabia, growers should restrict their use to the single application at early fruit set (Amistar® no less than 56 days before harvest or Luna Sensation® 70 days before harvest).
- Pack-sheds, especially those exporting, may request spray diaries from grower suppliers to manage the risk of fungicide MRL's (maximum residue levels) in fruit that they send to market.

### 3. Postharvest fungicides

The use of a postharvest fungicide treatment within 24 hours after harvest is recommended, as it reduces the expression of rots once the fruit begins to ripen at retail level or in the home. The two fungicide products currently registered include azoxystrobin + fludioxonil (Graduate A+™) and prochloraz (Sportak®, Protak®, Mirage®).

- For fruit being sold in the Australian domestic market, pack-shed staff can use either of these post-harvest fungicides, although azoxystrobin + fludioxonil is known to achieve better control over stem end rot as fruit ripen.
- For fruit being exported anywhere, pack-shed staff should only use prochloraz to avoid the risk of applying a non-approved fungicide or exceeding fungicide MRL's in fruit.

So, how did you go? Is your spray operator on top of this advice? The aim of an effective spray program is to minimise the infection of anthracnose into your fruit. This will serve two purposes:

- It will offer the consumer a good and safe experience when they consume the fruit, and
- It will offer people in the supply chain confidence that the fruit are robust and can withstand foreseeable storage and handling conditions.

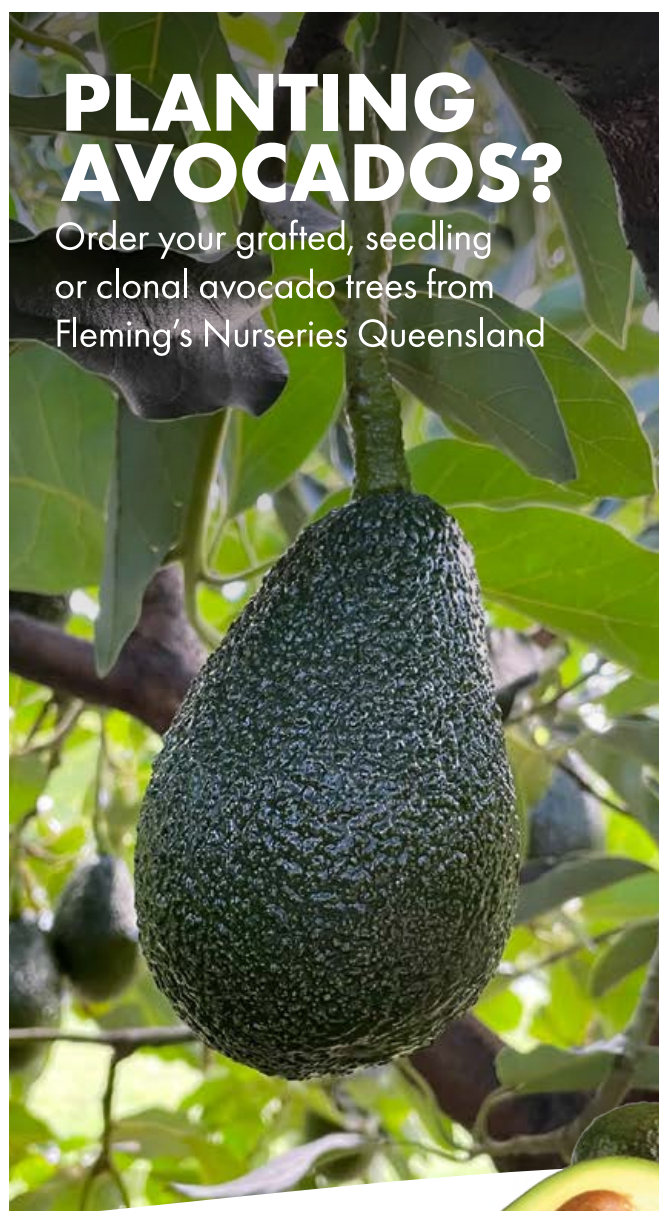
Information in this article is accurate according to chemical labels at time of publication but you should always refer to your product label and respective regulatory requirements before proceeding.

### Acknowledgement:

The project 'Implementing best practice of avocado fruit management and handling practices from farm to ripening DC' (AV18000), has been funded by Hort Innovation, using the Hort Innovation avocado research and development levy, with co-investment from the Queensland Department of Agriculture and Fisheries, the Department of Primary Industries and Regional Development, the Australian Government and support from Avocados Australia and Rudge Produce Systems.

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# Tracebacks reveal risks to avocado fruit quality

By Noel Ainsworth, Supply Chain Horticulturist with the Department of Agriculture and Fisheries

Over the past three years the avocado supply chain feedback project (AV18000) team have been tracking consignments sent to domestic markets and monitoring conditions, fruit quality and supply chain practices. This has been done to track quality trends, quantify the variability in quality, identify the root causes of quality issues, share information and improve practices.

From August 2020 onwards, tracebacks were conducted when a consignment did not reach the industry standard of at least 90% of fruit having less than 10% damage. These were undertaken with the supply chain partners to identify the most likely cause of the poor fruit quality.

Analysing the sixteen tracebacks conducted in that period has revealed the lead causes of poor fruit quality (Figure 1).

The lead cause of poor quality was missed or poor timing of fungicide

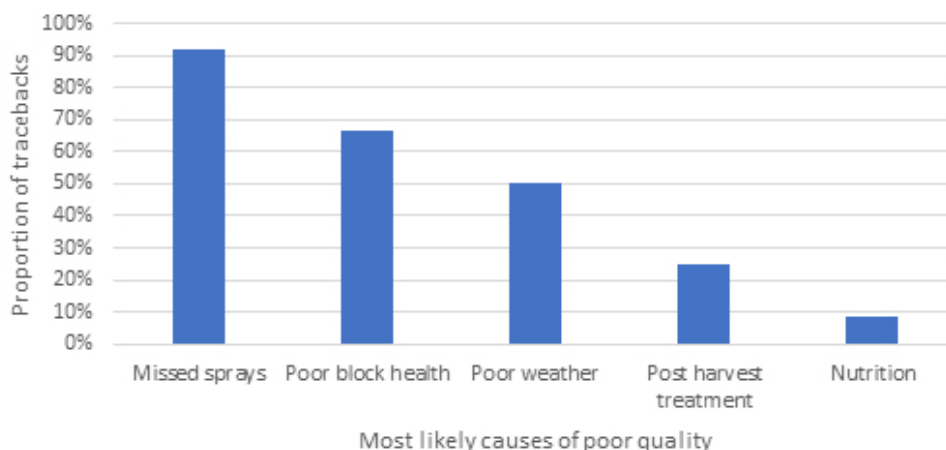
sprays (92% of tracebacks). This was closely followed by poor block health, often caused by phytophthora (67%) and extended periods of poor weather (50%). Other causes were poor or no postharvest fungicide treatment and poor orchard nutrition.

The effectiveness of sprays can come down to a few elements. Ensuring a good program of copper and Amistar® sprays through the season, well-timed around weather events, is important to ensure protection from anthracnose infection. Growers should also be aware that the selection of chemicals will be influenced by whether the fruit is likely to be exported to Singapore or Malaysian markets, as they have lower maximum residue limits (MRL's).

Ensuring good coverage is as important as selecting the right chemical and timing the application. This can be checked using water sensitive paper. It is good practice to regularly review the spray application achieved in blocks of different aged, pruned and sized trees.

Some factors that we expected to impact domestic supply chains turned out to be unimportant. Under short supply chain (<16 days) conditions, small variations in dry matter and temperature management were not found to have a significant influence on quality. However, these factors are likely to be more important in longer (>30 days) export supply chains.

We discounted tracebacks on four supply chains with results below the 90% standard. There were two reasons for that. The first was some sampled fruit had lignified skin as the fruit reached the medium to soft ripe stage, masking the fruit firmness at the most appropriate day of fruit quality assessment. The second reason related to consignment variability. When two sample trays in a single consignment were assessed, the first tray sample recorded just below the 90% industry standard (triggering a traceback), while a second sample recorded well above the standard.



**Figure 1:** The most likely causes of poor fruit quality.

In summary, while fruit may appear of high quality when it passes through the shed, effective disease management in the paddock and the shed plays a vital role in affecting quality that the consumer receives. Growers are reminded that more information is available on this topic in the Best Practice Resource.

### For more information contact:

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### Acknowledgement

The AV18000 project has been funded by Hort Innovation, using the Hort Innovation avocado industry research and development levy, co-investment from the Qld Department of Agriculture and Fisheries, WA

Department of Primary Industries and Regional Development and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture. Key project delivery partners also include Avocados Australia Ltd and Rudge Produce Systems.

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# Investigation into Citrus Blossom Bugs in Avocados – An Update

By Ian Newton, Queensland Department of Agriculture and Fisheries

The citrus blossom bug (CBB), *Austropeplus* sp., is a native mirid that is considered a minor pest of the Australian citrus industry. It is however thought to cause significant reductions in avocado crop yield by feeding on, and damaging, avocado flowers. It was first noticed in avocado orchards on the central NSW coast, and over the last decade grower reports of its presence in avocado orchards have increased. It has since been recorded in avocado growing regions along the east coast from the Gosford region to the Atherton Tablelands.

## What is it?

Citrus blossom bugs are mirids. This is a large group of insects that are typically associated with flowering plants. Most mirids are plant feeders that typically feed on the reproductive parts of plants such as flowers, fruits and seeds. Agricultural pest species of mirid often cause large amounts of damage and crop losses due to this feeding strategy.

## What does it look like?

Adult CBB range in size from 3.5 – 5 mm, females are usually larger and broader than the males. The body colour is generally yellow – green with dark brown - black colouration on the back and wings. Females are brighter in colour than males but both sexes have patches of yellow and red on the wings. Adults can be reliably identified in the field by the bright yellow - green “heart” or “V-shape” marking on the back and the presence of fine gold hairs on the wings (Figure 1).

CBB nymphs appear early in the flowering period, between bud break and panicle extension. Nymphs are green and range from 1 – 4 mm in size, depending on the stage. Nymphs can be identified by the red and white banding on the antennae, the red markings that extend over the eyes and a large red spot in the middle of the back in later instars (Figure 2).

## What does the damage look like?

Preliminary data suggests that high populations of CBB feeding on avocado flowers can negatively affect fruit set. Fresh damage from CBB appears as wet feeding lesions on flower buds, petioles and stems which darken to brown or black over time. When CBB numbers are high in orchards, this feeding damage may lead to excessive flower drop (Figure 3).



**Figure 1:** Adult citrus blossom bugs. The females (left) are more brightly coloured than the males (right).



**Figure 2:** Nymphs of citrus blossom bug are small and often difficult to spot in amongst avocado flowers.



**Figure 3:** CBB feed on avocado flowers (top left) and stems causing wet feeding lesions (top right) that darken to brown/black over time (bottom).

### What can I do about it?

Start monitoring weekly for CBB adults and nymphs after avocado bud break by observation or branch beating. CBB is most active on developing flower buds during the morning and will likely be in higher numbers on the sunny-side of rows. Monitor trees on the boundary and adjacent rows early in the season as CBB will appear there first before it moves into the rest of the orchard. CBB nymphs can be difficult to spot but they tend to prefer feeding in densely budding panicles.

### What research is being undertaken to help with CBB?

AV19000 is an ongoing project aiming to investigate the biology and ecology of CBB. As part of this objective, we will further assess the damage caused by CBB as well as identify potential control methods. In the coming flowering period, we will be conducting field trials to evaluate chemical control options while also collecting insect specimens to determine if multiple species are present, identify natural enemies and determine which other plants may be serving as alternative hosts for this transient pest.

Growers interested in participating by helping monitor for citrus blossom bug, collecting samples or allowing the project team to visit their properties are encouraged to contact Dalton Baker by email at [d.baker@uq.edu.au](mailto:d.baker@uq.edu.au) for more information.

### Acknowledgements

The Investigation into Citrus Blossom Bugs in Avocados (AV19000) project has been funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

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# Snapshots – International Avocado Research Update

This series of research snapshots is compiled from abstracts of published scientific papers accessed through CAB Direct as well as Google Scholar searches. Dates provided reflect the date research was published.

## PROPAGATION TECHNOLOGY

### **Perceptual factors influencing the adoption of innovative tissue culture technology by the Australian avocado industry** Australia (2022):

Avocado growers in Australia are currently experiencing long wait times for orchard-ready plants, limiting productivity and profitability. Tissue culture technology represents a faster and more efficient process of producing plants, offering a solution. However, the development of new growing technology comes with the inherent risk of industry nonacceptance and limited uptake, a costly problem for both innovators and industry. This study explored factors related to technology acceptance by the intended end-users of tissue culture technology within the avocado industry in Australia. The study provides key insights into the overall industry sentiment towards uptake and adoption of tissue-culture technology. An online survey was conducted with participants from the Australian avocado industry and demonstrated perceptions of tissue culture technology were generally positive and that, with appropriate extension services, adoption is predicted to be high across industry users. This paper contributes to the behavioural science of technology adoption by exploring perceived use and likely uptake prior to the broad extension strategies of a new technology. Read the paper here: <https://bit.ly/3hJmaZb>.

## HEAT STRESS MANAGEMENT

### **Canopy-cooling systems applied on avocado trees to mitigate heatwaves damages** Israel (2022):

With climate change, spring heatwaves have become frequent in the Mediterranean region. High temperatures combined with wind and low humidity are problematic for subtropical crops adapted to high humidity and mild climate. Avocado is a valuable crop-nutritionally and economically-and many new orchards are planted in Mediterranean areas. Spring heatwaves increase avocado fruitlets dropping, severely decreasing yields. Addressing and solving the problem are necessary to maintain the crop's profitability. This study presents a sprinkler-based canopy cooling method that uses the existing pressurized irrigation system. The study aimed to test the system's performance during spring heatwaves, after the flowering

season, in avocado orchards cultivated in a semi-arid region. The experiments examined the effect of various sprinkler types with varying flow rates and installation methods: sprayers, sprinklers and pulsing sprinklers, on foliage temperature, stem water potential, salt accumulation in the leaf, fruitlet survival and yield. The system reduced leaf temperatures by approximately 10°C, significantly decreasing the trees' drought stress and increasing yields by 8-12%. Using low-quality water is possible but requires adjustments to avoid salt damage to the leaves. The system can mitigate heat stress and provides a relatively simple solution for handling spring heatwaves. The evaporative cooling system is modelled for semi-desert and desert conditions; the dry, windy climate contributes to the method's effectiveness. Read the paper here: <https://bit.ly/3VfDZN7>.

## IRRIGATION SCHEDULING

### **Optimal irrigation management for avocado (cv. 'Hass') trees by monitoring soil water content and plant water status** Chile (2022):

Irrigation scheduling based on soil water content ( $\Theta_w$ ) sensors requires that  $\Theta_w$  be maintained within a range (management lines) that is optimal for plant growth. The lower limit or "breaking point" is determined following the soil water content dynamics on the transition of a rapid rate of depletion to a slower, under similar reference evapotranspiration. Although this criterion is practical, its implementation should be validated with plant water status measurement that contemplate weather condition, such as stem water potential "non-stressed" baseline ( $\Psi_x$  as a function of vapor-pressure deficit (VPD) in  $\Theta_w$  conditions that do not limit yield). A study was conducted on a mature cv. 'Hass' avocado orchard in Central Chile during two seasons. There were 5 irrigation treatments: T1, Control; T2 and T3 with 29% less and 25% more of what was applied in T1, respectively; T4 and T5 same as Control until first and second fruit drop abscission, respectively, and then with 29% less. T1 trees were irrigated using a continuous frequency domain reflectometry (FDR) probe to maintain the root zone between field capacity and the breaking point. There was biweekly monitoring of the  $\Theta_w$  prior to irrigation,  $\Psi_x$  and VPD. The  $\Psi_x$  declined proportionally to the intensity and the timing of water restriction; however, no treatment affected the crop load in either season. T2 did not show significant detrimental in fruit size, production and maturation, despite that frequently reached water content levels at the limit of the breaking point and showed lower levels of stem water potential than Control, being the treatment with the highest water productivity. The results confirm that breaking point is an effective criterion to establish irrigation management. Additionally, when comparing the baseline for our non-stressed trees with a

baseline from full irrigation treatments obtained from the literature, 30% water savings were achieved. Find paper access information at <https://bit.ly/3FyLb12>.

## PEST DAMAGE

### *Pseudophilothrips perseae* damaging Hass avocado fruits in México Mexico (2022):

During 2020, producers of Hass avocado (*Persea americana* Mill.) in the central region of Veracruz State detected atypical damage associated with infestation by thrips. Larvae and adults were feeding on developing fruits, causing wounds in the epidermis, producing necrotic spots, and reducing commercial value. Insects were collected from affected fruits, mounted, and identified using specialized keys. Images of damage were obtained, and numbers of affected trees and fruits were quantified. Thrips specimens were identified as *Pseudophilothrips perseae* (Thysanoptera: Phlaeothripidae) with an incidence of 1.6% in the orchard examined. Damage by *P. perseae* in this work differed from that usually caused by other thrips species that feed and oviposit on tender tissues of avocado trees. We reported for the first time, damage caused by *P. perseae* in developing avocado fruits. More study is necessary to determine distribution and potential to increase in abundance and affect crop production. Find paper access information at <https://bit.ly/3v4BYZy>.

## PROCESSING TECHNOLOGY

### Effects of ascorbic acid and melatonin treatments on antioxidant system in fresh-cut avocado fruits during cold storage Italy (2022):

Fresh-cut fruits have a limited postharvest life compared to fresh intact fruits; they have gained considerable market share. In this study, we investigated the effectiveness of melatonin (1 mM) and ascorbic acid (20 mM) treatments, alone or in combination, on qualitative traits and antioxidant systems of fresh-cut avocado fruits during 14 days of cold storage ( $4 \pm 0.5$  °C and RH  $95 \pm 0.5\%$ ). The results showed that the combined melatonin and ascorbic acid treatment delayed colour changes, thereby retarding the ripening process and weight loss compared with separate melatonin and ascorbic acid treatments. Furthermore, melatonin and ascorbic acid treatment showed a synergistic effect on fresh-cut avocado, improving the enzymatic and non-enzymatic antioxidant system during cold storage. Compared with the control, the total polyphenol and flavonoid contents in the treated avocado were increased, and a higher antioxidant activity was observed. The combined treatment improved catalase, ascorbate peroxidase, and superoxide dismutase activities; decreased polyphenol oxidase and guaiacol peroxidase activities; and effectively reduced membrane damage by influencing lipoxygenase activity. These results indicate that the combination of melatonin and ascorbic acid could be a useful, reliable, and eco-friendly postharvest treatment to maintain physicochemical



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and nutraceutical features, reduce oxidative stress and enzymatic browning, and extend the shelf life of fresh-cut avocado. Find paper access information at <https://bit.ly/3WphuX2>.

## REMOTE SENSING

### Potential of time-series Sentinel 2 data for monitoring avocado crop phenology Australia (2022):

The ability to accurately and systematically monitor avocado crop phenology offers significant benefits for the optimization of farm management activities, improvement of crop productivity, yield estimation, and evaluation of crops' resilience to extreme weather conditions and future climate change. In this study, Sentinel-2-derived enhanced vegetation indices (EVIs) from 2017 to 2021 were used to retrieve canopy reflectance information that coincided with crop phenological stages, such as flowering (F), vegetative growth (V), fruit maturity (M), and harvest (H), in commercial avocado orchards in Bundaberg, Queensland and Renmark, South Australia. Tukey's honestly significant difference (Tukey-HSD) test after one-way analysis of variance (ANOVA) with EVI metrics ( $EVI_{mean}$  and  $EVI_{slope}$ ) showed statistically significant differences between the four phenological stages. From a Pearson correlation analysis, a distinctive seasonal trend of EVIs was observed ( $R = 0.68$  to  $0.95$  for Bundaberg and  $R = 0.8$  to  $0.96$  for Renmark) in all 5 years, with the peak EVIs being observed at the M stage and the trough being observed at the F stage. However, a Tukey-HSD test showed significant variability in mean EVI values between seasons for both the Bundaberg and Renmark farms. The variability of the mean EVIs between the two farms was also evident with a  $p$ -value  $< 0.001$ . This novel study highlights the applicability of remote sensing for the monitoring of avocado phenological stages retrospectively and near-real time. This information not only supports the 'benchmarking' of seasonal orchard performance to identify potential impacts of seasonal weather variation and pest and disease incursions, but when seasonal growth profiles are aligned with the corresponding annual production, it can also be used to develop phenology-based yield prediction models. Read the paper here: <https://bit.ly/3W8QE5L>.

### More information

If you would like more details on any of the snapshots, please contact Avocados Australia on 07 3846 6566.

### Acknowledgement

The *Avocado industry development and extension* (AV17005) project has been funded by Hort Innovation, using the avocado research and development levy, co-investment from the Queensland Department of Agriculture and Fisheries, and contributions from the Australian Government.



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# INTERNATIONAL NEWS

## World Avocado Congress - delegates from 28 countries expected

With over 1000 attendees confirmed from more than 28 countries the 10th World Avocado Congress (2-5 April 2023) in Auckland New Zealand a.k.a. Aotearoa) represents an extraordinary opportunity for the global avocado sector to come together, to share information and ideas, to collaborate and to collectively find solutions to the very real challenges the sector is facing across the world.

As part of the World Avocado Congress, topics will include the future of food, sustainability, climate change, food trends, food security, water and carbon lifecycles for avocado production, research and practical on-orchard application of research to achieve high-yield, agritech innovation, global supply chains, grower returns, and the ongoing challenges of food supply, to name a few.

With the global avocado market worth approximately \$8billion (USD) in 2020 and expected to grow to \$17billion (USD) by 2025, the World Avocado Congress has become the most prestigious global event to celebrate the avocado sector.

New Zealand has nearly 5,000ha of avocado orchards and contributes 2% of global avocado production. It is the world's ninth largest avocado exporter.

The event will attract growers, scientists, innovators, service providers, supply chain specialists and in-market experts from all around the world into one place. Visit [www.wacnz2023.com](http://www.wacnz2023.com) to register or contact [info@wacnz2023.com](mailto:info@wacnz2023.com) to learn more.

Source: Perishable News.

## Hass avocado is now Colombia's 5th most important agricultural export product

The avocado industry has expanded quickly in Colombia in the last decade. According to Jorge Enrique Restrepo, the president of CorpoHass (a guild of Hass avocado producers), 2021 avocado exports amounted to 97,000 tons worth 204 million dollars. This sector, which 12 years ago did not appear in any statistics, is already Colombia's fifth-largest agricultural exporter. Only coffee, flowers, bananas, and oil palm surpass it.

"It is the second most exported fruit after bananas and the leading non-traditional fruit export, as the banana sector has existed for decades and this fruit is already considered a traditional fruit in the country."

"The Hass avocado has only a 20-year history in Colombia and the producer association has barely existed for 10 years. According to official data, between January and September of this year Colombia has exported 76,000 tons of Hass avocado for a FOB value of 143 million dollars, i.e. 9% more than in the same period of last year."

The fruit has reached more than 30 destinations but five markets concentrate the bulk of exports, Restrepo stated. "The Netherlands is the main destination, usually accounting for 50% of all exports, on average, because the fruit enters Europe through Rotterdam, from where it is distributed to continental Europe. Historically the second destination was the United Kingdom, with a 15% to 20% market share, but this year it's been displaced by the US, which achieved a 20% market share. The UK ranked third with 10% and was followed by Spain and Belgium."

Colombia is the fourth-biggest avocado-consuming country in the world, but it consumes other varieties such as the Creole avocado, among others. "We don't know for certain what the consumption per capita is, but the internal market is a great opportunity for the Hass avocado."

Source: Fresh Plaza.

# Poor prices in 2022 will slow down Peruvian Hass avocado planting

Peruvian Hass avocado exports will continue to grow in 2023, predicts Fernando Cillóniz Benavides, the president of the consultancy firm Inform@cción. In 2022, 554,498 tons were shipped abroad.

This increase, he said, will take place because of the many avocado areas installed in the country in 2020 and 2021, when prices in the international market were very good; unlike in 2022 when avocado prices were very low.

“The price drop in 2022 won’t affect the production volume in 2023 because the trees planted in previous years are now coming into production. In addition, the productivity of the young plantations is increasing every year,” he said.

However, he added, producers will probably not increase their production area this year because of the poor prices in 2022.

“Year after year, the production and export of avocados have

grown. In fact, there are many avocado fields that have not even come into production. The same goes for blueberries and grapes,” he added.

This large number of avocado areas in Peru and in other countries has resulted in a significant supply, which has driven down prices, which is why Fernando Cillóniz recommends lowering the pace of planting new areas.

According to ProHass, the Peruvian association of Hass growers and exporters, last year Peru had 60,091 hectares devoted to Hass avocado. That is 19% more than the 50,699 hectares in 2021. In 2020, the area was 44,128 hectares (15% less than in 2021), the year before it stood at 38,042 hectares (16% less than in 2020) and in 2018 the area was 33,064 hectares (15% less than in 2019).

Source: Fresh Plaza.



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