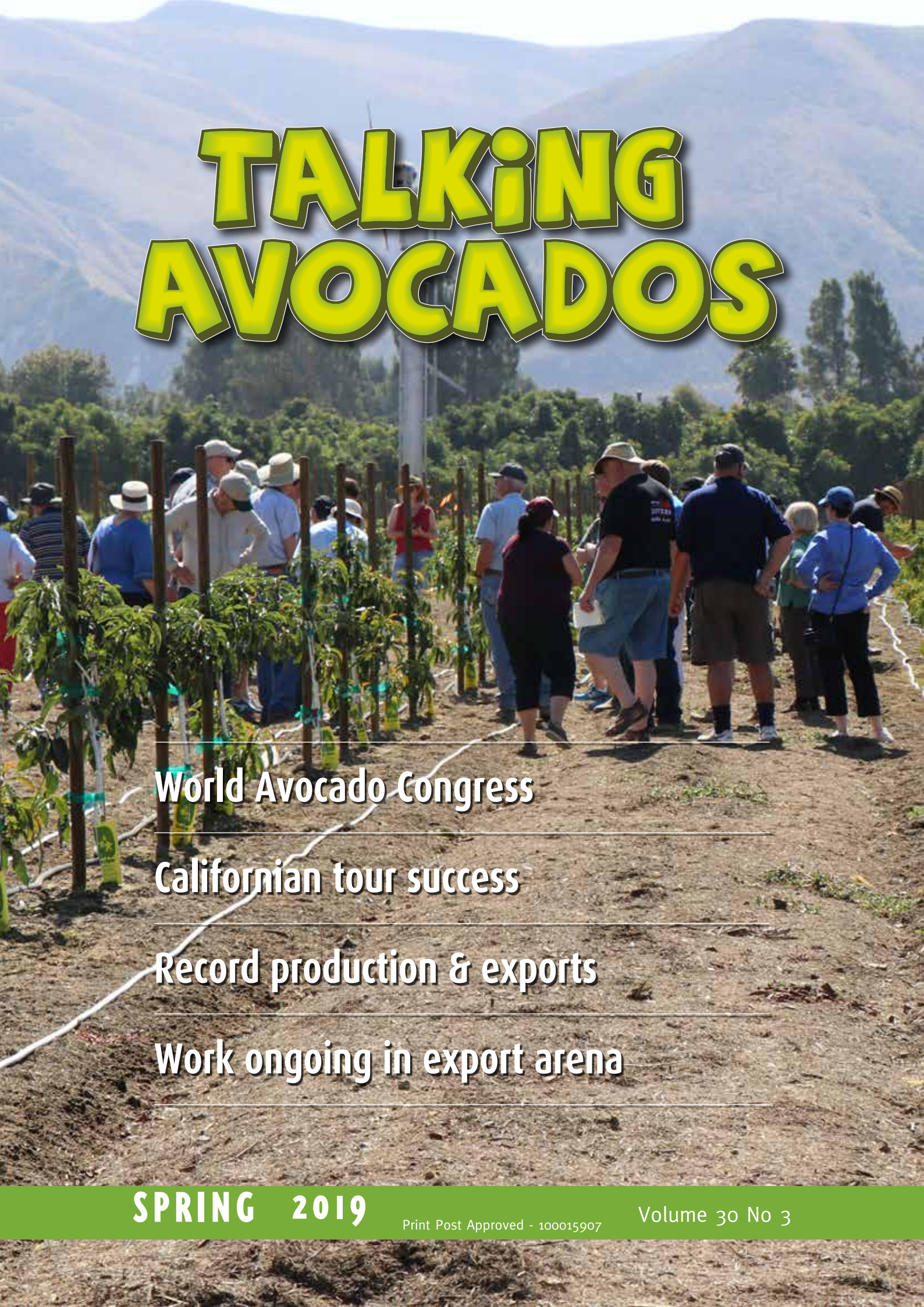

TALKING AVOCADOS

World Avocado Congress

Californian tour success

Record production & exports

Work ongoing in export arena

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Avocados Australia Limited

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In this issue

Front cover *Read more about the Californian tour on page 14.*

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Chairman's Perspective

Avocados Australia Chair Jim Kochi at the North Queensland Regional Avocado Forum.

Well, 2019 has been a big year with production at a record 85,000+ tonnes, and exports at a record 3.73% of production.

On one hand, it's an exciting time to be a member of the Australian avocado industry. On the other, it's a clear warning that now more than ever we need to focus on producing premium quality fruit, for ALL our markets.

If a shopper walks into a supermarket in Perth, they need to pick up the best avocado we can produce. If a fruit & veg shop in North Queensland stocks up from a local grower, those avocados need to be good quality. If we dispatch to the central markets, yes, we need to be sending premium fruit.

In Australia, the domestic market is still going strong (consumption is up to 3.8kg/person per year and there's room to move!) but production is still going to increase into the future. Avocados Australia has a plan to help industry deal with this growth:

- identify new markets
- work to develop protocols
- help get our growers export ready.

Our industry has enjoyed great success in these past years, and it's the work of the growers who have made our industry "lucky".

You as growers pay the levies to support research and development, and marketing, for our industry like no other industry in Australia. (Read more on your levy contributions on page 21.)

In 2018/19, you as growers raised more than $6 million in levies to support the future of your industry. But we all know it goes beyond funding for the important work of research and marketing; we also know that what we do on the farm makes a difference, what happens in the supply chain makes a difference, what happens at retail level makes a difference.

Our long-term forecasts estimate that Australia will be producing at least 115,000t per annum by 2025. So, what does this mean for the industry? Opportunities and challenges.

Global consumption of avocados continues to grow, including the Asian markets which are the focus for Australian suppliers. While the USA, and to a much lesser extent Europe, are large, well developed avocado markets, markets such as China and India are set to become major avocado markets in the future and Australia is well positioned to take advantage of this growth. However, competition is strong and global production is also increasing, particularly in countries where the cost of production is much lower than Australia's.

It has to be said, the more we invest, and the harder we work, the luckier we get.

Jim Kochi

Jim Kochi, Chairman, Avocados Australia Limited

CEO's Report

Landline showcases avocado

The future of the Australian avocado industry was featured on ABC TV's flagship rural program Landline on Sunday, September 22. The main focus of the piece was the industry's famous "money tree" planted by Alec Kidd in the 1930s, and currently part of the orchard run by family members John and Lindy Williams. As well as John and Lindy, reporter Elise Kinsella spoke to Graham Anderson and Harold Taylor (Anderson Horticulture) and QAAFI's Dr Neena Mitter.

This was an excellent opportunity to discuss the future of the industry, and our export aspirations as domestic production continues to grow. You can view the story here: bit.ly/TA303abc.

Growers John and Lindy Williams with ABC Landline reporter Elise Kinsella and Avocados Australia CEO John Tyas. https://www.abc.net.au/landline/money-tree:-feeding-australias-avocado-obsession/11536042

2019 OrchardInfo Tree Census draw winners

Congratulations to the five winners of a $200 gift card each from Avocados Australia for completing your OrchardInfo Tree Census form!

The winners of the 2019 OrchardInfo Tree Census Prize draw are:

- Barry Trousdell (South Queensland)
- Bernard Schutte (Central NSW)
- Murray Collins (West Australia)
- Matt Dorrian (Central Queensland)
- Ross Fitzell (Tamborine/Northern Rivers).

We really appreciate everyone's time and effort in answering our requests for information. We strive to provide informative and useful reports to our stakeholders, that can benefit us all in the management and development of our industry.

The OrchardInfo Tree Census report has been distributed to contributors. This report aims to help the Australian avocado industry and individual businesses plan for the future. The data helps prioritise R&D, coordinate the domestic marketing effort, and assist in developing export markets based on future production estimations. It is also very important to know where avocado orchards are located in the event of a biosecurity incident.

This data is extremely valuable and many thanks again for your continued contributions.

RDC review

The Australian Government has begun a review of the country's research and development corporations (RDCs), with an eye to modernising the system.

Avocados Australia will respond to the current discussion paper and provide feedback on how the industry feels horticulture can be best served into the future.

Clearly, the Australian avocado industry has seen great benefits from levies and the RDC system over the past 30 years (check page 21 for more).

We have had major upheaval over the past four years with structural changes and we are looking forward to seeing our new horticultural RDC settle into a period of greater progress.

Australian Agriculture Minister Bridget McKenzie has made it clear she's looking for constructive feedback, not a round of self-aggrandisement from industry organisations and RDCs. We will

be pushing to ensure the voices of our horticultural industry are heard, both in the feedback on the discussion paper currently out and also directly to the Minister's planned advisory panel.

I have been appointed to represent the horticulture sector as part of the National Farmers' Federation's (NFF) Coalition of Industry Representative Organisations, to provide input into the proposed reform process.

The discussion paper, released in late September, outlines key focus areas to support a modern RDC system that will:

- deliver value for money for levy payers and the taxpayers who fund the RDC system
- drive collaboration and participation across the agricultural innovation system, with a focus on better cooperation and improved adoption of R&D
- target long-term cross-sectoral and transformative R&D
- improve levy-payer representation and advocacy.

The current RDC system was established in 1989 under the Primary Industries Research and Development Act 1989. The current 15 RDCs are established under 10 different Acts of Parliament. Hort Innovation, the horticulture industry's RDC, is an industry-owned RDC, and an Australian public company under the Corporations Act 2001. You can read more about Hort Innovation here: horticulture.com.au/hort-innovation/the-company/.

There are definitely improvements that could be made but any changes need to be considered very carefully and thoughtfully, rather than being driven by ideology.

Horticulture has recently been through major reforms following the review of Horticulture Australia Limited (HAL) and the formation of Horticulture Innovation Australia Limited (Hort Innovation). Many believe the reforms in the horticulture sector from 2015 resulted in 'the baby being thrown out with the bath water' but, under new management, we are now seeing some very sensible changes back toward how things were done before the reforms. It is important that this doesn't happen again and that, as we seek to make improvements, we hold onto what works well.

Avocados Australia CEO John Tyas and Industry Development Manager Liz Singh attended the World Avocado Congress in Colombia, part of a strong Australian contingent. More on Congress and the preceding Australian-industry tour of California can be found from page 12.

Do you know a new grower?

Do you know a new grower who isn't receiving industry communication? We encourage you to recommend they subscribe (for free) to the fortnightly *Guacamole* newsletter, for the monthly *Avo Alerts*, and for this magazine.

As we all know, new growers have joined the industry in every region in the last few years. It is important that new growers stay well informed about industry matters and we are very keen to engage with them.

Encourage new members of our industry to make contact via *admin2@avocado.org.au* or by calling 07 3846 6566 for more information about our various publications and activities.

John Tyas

John Tyas, CEO, Avocados Australia Limited

Around Australia

Central New South Wales Report

By Ian Tolson, Avocados Australia Director

The majority of the growers in the region have finished harvesting (as at early October). What a difference a year makes, both fruit size and crops were well down on the previous season. With dry conditions still prevailing across the region, Comboyne thought they were in luck when in mid-September relief was in sight when a storm threatened. The storm did bring up to 30mm of rain, however, that was accompanied by devastating hail which left some orchards unproductive for some years to come and a scene that resembled snow fields.

As mentioned, harvesting is done for most growers and thankfully growers are experiencing a good flowering and promising fruit set. As always rain is needed, preferably without hail, which of course is out of our control.

However, we should endeavour to control what is controllable. The vast array of resources/information available for growers is amazing, for instance with *Avo Alerts*, the industry even reminds growers what they need to be doing and when. No matter how much information is available, and how much research is conducted, unless recommendations are put into practice, spray, fertiliser and irrigation programmes are adhered to and updated as required fruit quality both internally and externally will not improve.

The much talked about increase in production is starting to make its presence felt in the market. Pricing on Premium grade fruit has been consistent throughout the region's peak harvest period, however, the market struggled at times with the lower grades. Returns to growers reflected the increase in production and are a sign of the times.

A September hailstorm on the Comboyne Plateau of Central New South Wales has set several growers back years, with the hail appearing more like snow.

Growers have a great deal of confidence in the avocado industry and this is reflected by the continued plantings across the regions. Increased production is a buyers' paradise, they will be spoilt for choice. The argument that 'even though it has a mark on the skin it is still good on the inside' has no place in the future of high production.

Consumers purchase produce that looks "good", if quality fruit is available all year round this will encourage customers to choose our product over the other 'super foods' available. When next you wander through the orchard, look at the fruit and ask who will want to buy this.

Western Australia Report

By Dudley Mitchell, Avocados Australia Director

The Western Australian season launched relatively early and into a market that was awash with first grade fruit. The talk at the time was what prices would do with the 50% forecasted increase in volumes over the previous year.

What we saw was relatively low volumes and good prices over July and August followed by a ramp up in September culminating in a record week at the beginning of October. Prices softened slightly but the major suppliers maintained good discipline and with the help of aggressive marketing activity, demand strengthened and prices are now creeping up again even after six weeks averaging more than 400,000 trays a week. This is a good sign for the future as we head into even more volume over the next five years.

One of the encouraging aspects of this season is the amount of export activity that is going on. While not yet anywhere near the 10% that the industry is aiming for, it certainly is above the 2% that we have been historically achieving. This again bodes well for the coming years and I'm sure as there is more product available, more formal channels will be created, supply chains will be shortened and net returns will improve.

As I write we are heading toward the end of flowering. Conditions have been variable and a late cold front passing through at the beginning of November saw temperatures plummet and a smattering of small hail in some areas. Any negative effects will only be seen after the December drop but it was not well timed and definitely not welcome.

On that note I wish all the Western Australian growers the best for the coming season and as always please feel free to contact me if you have any questions.

Tristate Report

By Kym Thiel, Avocados Australia Director

With harvest now nearing completion for many growers, it's fair to say that 2019 has been a challenging year in the Tristate region. Optimism was high at the start of the season with a large crop hanging but a windy 2018/19 Summer, early frosts and a dry Winter all impacted heavily on fruit quality. Many growers began harvest very early in mid-late July only to find their size was well down and the fruit was carrying a huge amount of blemish, levels unlike which have ever been seen before. Across the board it has probably caused packouts to be a minimum of 30-40% below average. This of course has put pressure on the composite and Class 2 end of the market, severely hurting grower returns. What can we learn from this? Maybe not a lot in regard to orchard management as I have seen horrible looking fruit come from the best pruned blocks in the district, but on a marketing front it does show that for the first time in a number of years that even the avocado industry is not immune to supply/demand economics. Too much of one thing at one time will cause a decrease in price.

On a positive note the amount of fruit harvested and eating quality of the fruit has still been great with many growers picking record crops. What this means for next year only time will tell. I fear we are heading into or are in a very strong biennial bearing pattern at the moment with mother nature being the cause of this.

Our field day held in August at Renmark was once again incredibly well attended. There is a lot of good research going on in our industry and hopefully some of it can be practically applied in the near future.

One can't complete a Tristate report without mentioning water allocations and although they will probably reach 100% in South Australia, Victoria may not get there and given we have come out of Winter with storage levels well below where they were this time last year, it means the 2019/20 irrigation year could be incredibly tough if rain does not come in our catchment in Autumn/Winter 2020, especially given the predictions for a hot and dry Summer. Temporary water allocation prices are certainly reflecting this.

In the orchard during the August Tristate Avocado Regional Forum.

Sunshine Coast Report

By Robert Price, Avocados Australia Director

As I sit here putting some words together and reflecting on the previous report, I can see no improvement in the weather conditions. The bureau is reporting for our area that there will be no significant rain before the New Year, continuing to stress the trees. Temperatures are reaching high 30 degrees but the humidity is low. Although it is hot, this is a more comfortable atmosphere for us to work in and there is less fungal growth, however, it is taxing on the environment overall and the plant stress can be seen in the native plants.

However, being an optimist, I expect good rain to fall in the New Year to bring relief. In the meantime though, vigilance in monitoring the irrigation performance is critical, especially as

Around Australia continued

there is a very good fruit set for the coming season. Although I have noticed, and it has been reported, that quite a few trees across the area seemed to have shed their upper foliage at the time of flowering. Since then, most have grown more leaves which will shade the fruit but there may be some supplementary treatment administered for the more exposed fruit in the form of sun protection.

A news item which is unfortunate for the industry is the appointment of an administrator for Sunfresh Marketing. The fundamental reason for the failure is expressed by the Administrator as:

The decline in revenue was caused by the decline in throughput of produce from growers. The decline in throughput was further exacerbated by weather events over the last two years. Hail damage to crops in the Kumbia and Bundaberg region reduced production by growers up to 50% in 2017. Wet weather in North Queensland at the start of 2018 reduced grower production by up to 30. (Jirsch Sutherland)

Creditors voted to accept a Deed Of Company Arrangement proposal made by Natures Fruit Company ("NFC"). This was considered this to be the best outcome for the creditors. This will see Sunfresh growers be given the opportunity to join NFC and it will support the growers for 12 months with an optional further 12 months.

Central Queensland Report

By John Walsh, Avocados Australia Director

After a strong flowering across much of Central Queensland, we have had an average Shepard set and a generally good Hass set. The hoped for conversion from a strong flowering to above average fruit set failed to materialise after low night-time temperatures.

It has been very dry in Central Queensland, but growers did receive some short-term benefit from SunWater's decision to release water from Paradise Dam. This has allowed some pumping without impact on allocations in the short-term, however, medium to long-term there are definitely questions because of the reduction in dam levels down to 42%. Given the reduction in the dam holdings, we are definitely hoping to see some rainfall over summer.

Tamborine and Northern Rivers Report

By Tom Silver, Avocados Australia Director

Harvest in the Tamborine/Northern Rivers has finished for the year, internal fruit quality has been excellent, however, a lack of good size has been an issue for a lot of farms this year.

Early general observations for next year's crop are at this stage variable. Some farms are reporting a good set, however,

other farms are expecting sub-par sets on the back of good flowerings.

The extreme dry conditions that have affected this region for the past 17 months continue. This is currently culminating in an extreme bushfire emergency, with some orchards perilously close to out of control fires.

This area is generally associated with too much rainfall and therefore many growers haven't had the need to concentrate too heavily on irrigation or irrigation upgrades. With a lack of government supplied irrigation water source or infrastructure, growers need to find on farm water sources which can often be difficult. Unless things improve many growers will need to make expensive and difficult decisions about their irrigation options.

Unfortunately, the bushfire emergency played havoc with this region's field day in November. Initial plans to meet at the Nimbin hall and a farm walk around Barry and Vicky Kuhnell's property at Mountain Top were crushed when the hall was requisitioned as part of the bushfire evacuation planning. Thank you to Barry and Vicky for their initial offer, and Mick O'Reilly from Tropical Fruit World for offering their property as a late alternative.

Wishing all growers a safe Christmas season and a better 2020.

North Queensland Report

By Jim Kochi, Avocados Australia Director

The flowering season is now over in North Queensland and the berries are just starting to show, or more to the point, not show. It has been a long cool dry winter and there were were at least two significant frost events that are now showing their affect in the orchards.

Generally, it looks like a split fruit set in both the Shepard and Hass orchards at best, but in some orchards the last frost event (which occurred in September) happened to be during peak flowering in Hass, and has caused the pollination to be disrupted and result in a much reduced fruit set. Harvest volumes will be down on last year's, but it is still too early now in October to see the real detail of the fruit set.

I will repeat my usual rant on the need for timely and accurate submission of field forecast data into *OrchardInfo* and *Infocado* so our industry can better manage the supply chain.

South Queensland Report

By Daryl Boardman, Avocados Australia Director

I recently attended the World Avocado Congress in Medellin, Colombia, including a Congress pre-tour of the Pereira region, or Eje Cafetero as it's known because of its coffee production.

This is one of the major regions being expanded for avocado production, after being historically a coffee region up to 1800m

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Around Australia continued

above sea level. Now, from 1800m to 2500m, they are growing avocados. The 700m difference in elevation is going to allow Colombia to supply avocado for 12 months of the year, from this one region.

What does this mean? Colombia can supply the export market for 12 months of the year, similar to Australia, but they can do it all from one region.

Colombia, within five years, will have about 70,000 hectares planted, which is approximately seven times larger than the Australian production area (about 11,000ha).

After the Congress (read more about that elsewhere in this edition of *Talking Avocados*, I also had the opportunity to tour the Jalisco growing region in Mexico.

The total Mexican production area is about 160,000ha, or more than 14 times bigger than Australia. The scale of this production really hits home when you see it in person.

The exciting thing for me, having seen growing areas in both Colombia and Mexico, is that these countries are still planting. They still see a big future for avocado and a big increase in consumption in export markets, which gives me confidence that our industry is still in a good position, provided we all strive to grow premium, robust quality fruit for domestic and export markets into the future.

WAC huge event for Colombia

The 2019 World Avocado Congress in Colombia attracted the event's largest ever audience – more than 3,200 delegates from 50 countries, including Australia.

The Colombian industry is quite young, but they are taking learnings from across the world and are building their place in the world avocado market, rapidly expanding exports to Europe and the US.

Avocados Australia Industry Development Manager Liz Singh said external investment in the country's industry from large avocado players such as Westfalia, Camposol and Mission was pushing the industry to progress quickly.

"Some plantings in Colombia are high density Hass (approximately 4x4m) and after three years the canopies are already touching; they are managing this with techniques such as cincturing a branch each season and removing the branch once the crop is harvested," Ms Singh said.

"Canopy management in relation to height is front and centre in their minds. The industry is growing so quickly, however, that like the Australian industry they are finding it hard to access good planting material and are resorting to planting on either Hass or Reed rootstocks that have little tolerance to Phytophthora.

"However, that said Colombia has an extensive collection of planting materials that may make good rootstocks but they are only just starting to research the properties of this material."

Ms Singh said the World Avocado Congress brought a wealth of information together, with more than 150 speakers, 180+ lectures, talks and tours.

Trellising

Ms Singh said there has been interest in trellising avocados but the practicality of it has not been demonstrated.

"Trellising of trees could simplify canopy management and harvest in avocados but to achieve good results more information is required about the biology of the tree and how pruning would be conducted," she said.

"Given that pruning intensity would increase with trellising; this could potentially increase growth vigour which would negatively affecting production.

"Information presented on the trellising of the Maluma avocado variety has shown good results for management, light interception and production, but more work is needed on Hass."

Rootstocks

"World-wide there is talk about the impact of genetic uniformity/variability in the planting of clonal versus seedlings rootstocks, and this continued at the Congress," Ms Singh said.

"The production of good planting material cannot keep pace with industry development and the use of seedling material introduces production variability whereas clonal material maintains production uniformity.

"Growers are encouraged to purchase only clonal rootstocks. Many other horticultural industries have benefited from the use of clonal planting materials to ensure crop uniformity and production efficiency.

Phytophthora

"I attended a presentation on Phytophthora, and rootstocks Duke 7 and Dusa are considered the industry standards for Phytophthora tolerance," she said.

"A new Australian-developed rootstock SHSR-04, just recently protected under plant breeders' rights in Australia, is also highly tolerant.

"Information was presented about the importance of free water to germination of the zoospores that spread the disease, and the attraction of zoospores to the root exudates."

Avocados Australia's Liz Singh at the World Avocado Congress in Colombia.

Australian researcher Elizabeth Dann presents at the Congress.

Professor Neena Mitter explores microRNAs in her Congress presentation.

Simon Newett and Bridie Carr (Queensland Agriculture - third from left and far right) join avocado industry colleagues from South Africa at the World Avocado Congress in Colombia, including Tracey Campbell (far left).

Avocados Australia CEO John Tyas (far right of image), joins other world industry leaders during the IX World Avocado Congress in Colombia.

Australian grower Sandra Fishwick in Medellin.

Queensland Department of Agriculture's Simon Newett (right) during one of the Congress industry tours in Colombia.

Australian delegates gather in Medellin, Colombia for the World Avocado Congress.

Biennial bearing

Biennial bearing is a challenge for many avocado growers.

Ms Singh said New Zealand growers had tried to reduce the impact of the off/on year by pruning flowers in the 'on year', thus reducing the trees ability to set fruit at the expense of growing canopy required for the next year's set.

"Positive results were recorded but at a significant cost," she said.

"The use of plant growth regulators is another approach by UC Riverside. By examining the change in hormonal production and transport, Carol Lovatt has determined that the use of cytokinins with an auxin transport inhibitor may provide answers for rebalancing the off/on cycle to a stable cropping cycle.

"Work conducted by CSIRO (Harley Smith and Amnon Haberman, who had an article in the Winter 2019 *Talking Avocados*) is looking at how genetics, the environment, management and age determines variation in annual production and what role carbohydrates play in the irregular bearing story."

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.

Hort Innovation Strategic levy investment | AVOCADO FUND | Queensland Government

Californian tour success

The Australian industry tour group, at Irvine Ranch in California.

In September, the Australian industry organised a tour of California's avocado growing industry, in the lead up to the 2019 World Avocado Congress.

Avocados Australia Industry Development Manager Liz Singh said the group found plantings of Gem avocados were increasing in popularity in California, with many growers adopting the Hass-like variety.

"Gem seems to be able to withstand heat and wind damage better than Hass because the fruit is protected on the inside of the tree," she said.

"Gem has been reported to crop better than Hass, though the planting dimensions are dramatically different: Hass is traditionally 136 trees/acre (335 trees/ha) whereas growers Sal and Henry Dominguez are aiming for 50lb/tree (22kg/tree) out of their 545 trees/acre (1,346 trees/ha) planting of Gem."

Rootstock focus change

Ms Singh said the group also had a chance to inspect rootstock breeding, where the major change was the move from a focus on Phytophthora resistance to salinity resistance.

"The scientists believe that there will be new chemistry on the market in the coming years that will manage phytophthora, whereas the lack of water availability in California will make salinity a long-term management requirement," she said.

Water a key issue

"Water availability has become more regulated following an eight-year drought and the cost of water has increased," Ms Singh said.

"In California, 3.5 acre feet of water is required for an acre of avocados (approximately 10.75ML/ha).

"Some growers have access to ground water sources through bores but most access water through water boards and only have limited access to water. For example one of the growers we visited had access to water once a week for six hours."

Ms Singh said orchards (groves) were watered by drip or micro sprinklers.

"Capacitance probes and tensiometers are being used to monitor water movement in the soil profile but a lack of water access makes it hard to improve irrigation efficiencies," she said.

"Growers do fertigate but maybe only four times a year. The salt content of water and the need to use reclaimed water is certainly providing challenges for the California industry."

Production

Ms Singh said the Australian group also had the opportunity to discuss production with various industry members.

"Production is quite low considering the yield expectations of the Australian avocado industry.

Integrated pest management was on the tour agenda, with a visit to Associate Insectary's facility.

Visiting UC South Coast Field Station to look at rootstock and variety collections during the tour.

"Average yield per acre according to the Californian Avocado Commission is 7,700 pounds (approximately 8.6 tonnes/ha)."

Integrated pest management

The California avocado industry could have some good learning experiences for Australian growers looking to implement integrated pest management in their orchards. However, California doesn't have the notorious problem of fruitspotting bug to contend with.

"Their approach uses insects first to manage pests, either boosting the natural beneficial populations or bulk dosing beneficial insects into a problem area.

"If this doesn't work they select chemicals that will have the minimum impact on disturbing the beneficial insect populations."

The tour

In all, 35 members of the Australian and New Zealand industry took part in the tour, organised via AV17005. Between 17-19 September, the group visited California's largest avocado nursery, a number of orchards, a rootstock trial run by California Polytechnic University, a Mission Produce packhouse, an insectary, West Pak Avocados, the University of California's research station.

Australian avocado industry members at Brokaw Nursery. The largest avocado nursery in California, it produces about 250,000 trees per year, and plans to expand production to 400,000/year.

The tour including inspecting plantings of Gem avocados at a Mission orchard.

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.

Avocados Australia CEO John Tyas with the Californian Avocado Commission's Tim Spann. Tim helped organise the tour, and provided expert commentary during the visit.

Moving through Mission Produce's state-of-the-art facility with cooling and ripening rooms. They are also the only packing house in California that washes fruit in water

New Zealand to host 2023 WAC

The world's leading avocado growers and specialists will descend upon New Zealand's shores in 2023, after New Zealand won the bid to host the 10th World Avocado Congress (WAC).

New Zealand was one of three countries to bid for hosting rights, and was up against Mexico, the largest avocado exporter in the world and Kenya, the sixth largest exporter of avocados globally.

Attendees at the 9th WAC, however, gave the nod to New Zealand, which contributes just 2% of global production.

In a video message, New Zealand Prime Minister Jacinda Ardern invited voters to come and experience New Zealand's natural beauty, unique adventures, the countries friendly people, and to see first-hand New Zealand's incredible avocado industry.

It will be the first time this global flagship event will be held in New Zealand.

"We are incredibly proud to have won the votes of the global avocado community. It's been an amazing team effort to put forward this bid, across the NZ Avocado team, Tourism New Zealand, the New Zealand Embassy in Colombia and NZTE," NZ Avocado CEO Jen Scoular said.

"Our amazing unspoiled landscapes, a reputation for openness, fairness and equality, and a commitment to care for its land and people, provides an ideal environment for the global avocado industry to share its values with consumers and media around the world," she said.

Avocados Australia CEO John Tyas said the win was an exciting achievement for not just New Zealand but also Australia.

"The New Zealand congress team are planning to include

New Zealand Avocados' Jen Scoular (far right) celebrates as the country is named as the host of the 2023 World Avocado Congress.

Australian industry tours, so it will be a chance to showcase our industry internationally as well," he said.

The World Avocado Congress, held every four years, represents an extraordinary opportunity for New Zealand to highlight the country's innovative avocado and horticulture sectors.

The congress attracts more than 3,000 delegates including growers, researchers, marketers, tech innovators and investors.

The congress will demonstrate New Zealand growing practices, food safety and quality systems, and the ethical treatment of growers and communities that live in avocado growing regions. It also provides the opportunity to access innovation, global knowledge and science to support the growth of the sector.

"It is an amazing opportunity for all avocado growers in New Zealand to hear first-hand from avocado experts about current and emerging innovation and technology. And, of course, to network and share their avocado stories," NZ Avocado Chair Tony Ponder said.

NZ Avocados bid was supported by Tourism New Zealand, the New Zealand Embassy in Colombia and New Zealand Trade and Enterprise. The Ambassador in Colombia, Lucy Duncan hosted a VIP event and spoke at the Congress, strongly supporting New Zealand Avocado in their bid to win.

Facts at a Glance

By Daniel Martins, Avocados Australia Data Analyst

Production, consumption and exports were all up in 2019, according to the industry's latest *Facts at a Glance*.

Published in October, the full document is available online at *www.avocado.org.au/news-publications/statistics*.

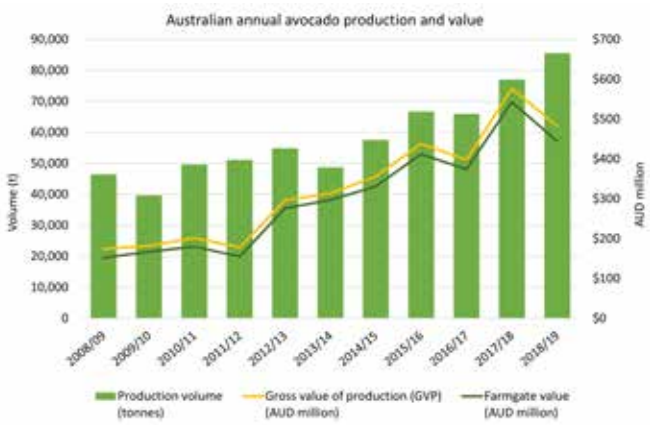
Volumes and dollars

During the 2018/19 financial year, Australian avocado growers produced 85,546 tonnes of avocados, a growth of 11% compared with the 77,032 tonnes produced the previous financial year.

Despite the growth in fruit volumes, there has been a decline in dollar values due to a lower national local wholesale price seen this past financial year: GVP declined from A$557 million to A$483 million (-13%), farmgate value from $543 million to $444 million (-18%), and domestic consumer market value from $958 million to $898 million (-6%).

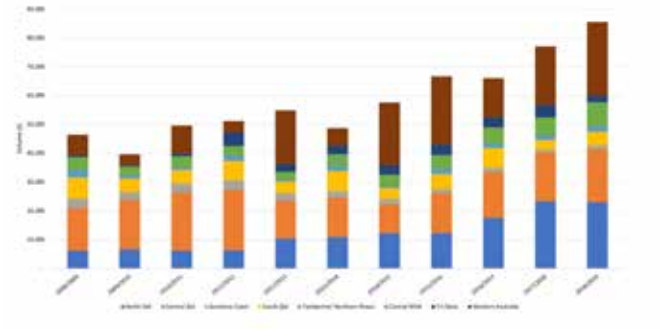
Export dollar values, however, have seen a sharp increase of 69% from $11.6 to $19.6 million, largely thanks to increases in volumes of Australian fruit being exported to the following countries:

1. Malaysia: from $5,419,900 to $8,885,659 (+ 63.95%).
2. Singapore: from $4,118,871 to $7,307,881 (+77.42%).
3. Hong Kong: from $1,376,646 to $2,365,463 (+71.83%).
4. Indonesia: from $66,081 to $655,087 (+ 891.94%).



Regions & states

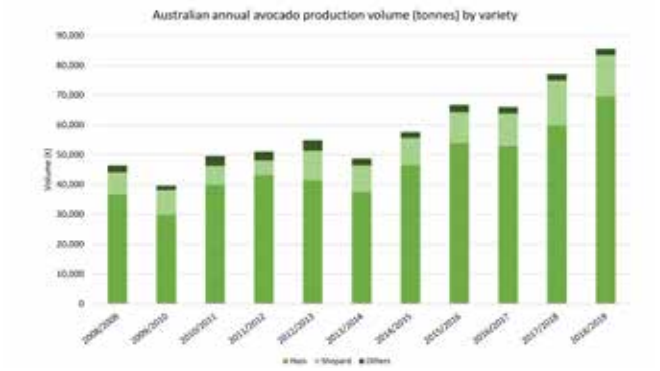
Queensland leads production by state, with 55% of the national output. The North Queensland region supplied the largest proportion of Queensland avocados, at 27% of national production, followed by Central Queensland with 21%, and South Queensland with 6% of the share. The remaining 3% was supplied by the Sunshine Coast and part of Tamborine/Northern Rivers.



Outside of Queensland, the states following in production volumes were Western Australia at 30%, New South Wales, South Australia, and Victoria with 14%, 1%, and 0.26% respectively. While New South Wales increased its output by 75% from 6,964 tonnes in 2017/18 to 12,202 tonnes in 2018/19; South Australia and Victoria had large decreases of 32% and 88% respectively between the same periods.

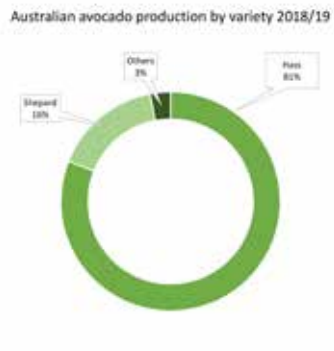
Looking at volume distribution by growing region, Western Australia is the region that produced the largest share of Australian avocados at 30%, continuing their rapid growth during the past few years.

Varieties



Much like in the rest of the world, Hass remains the main avocado variety produced and consumed in Australia, where it is produced almost all year round. In 2018/19 Hass represented 81% of production at 69,515 tonnes.

Shepard, which is harvested in North and Central Queensland through late Summer and Autumn, made up 16% of production at 13,775 tonnes, and despite a decrease of 9% from the previous financial year, Shepard is the only other significant variety, that



Facts at a Glance continued

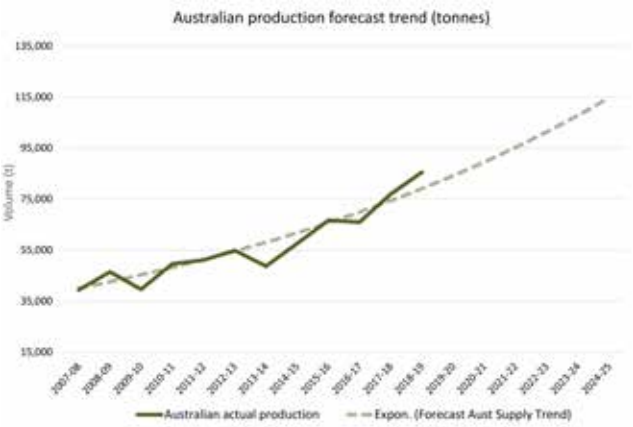
dominates the Australian market for that time of the year, when Hass volumes are in lighter supply.

The group 'Other' making up 3% of the market for 2018/19 is comprised by the following varieties: Reed (38%), Lamb Hass (21%), Wurtz (11%), Gwen (10%), Sharwil (9%), Gem (8%), Pinkerton (3%), Fuerte (2%), & Bacon (0.04%).

Consumption

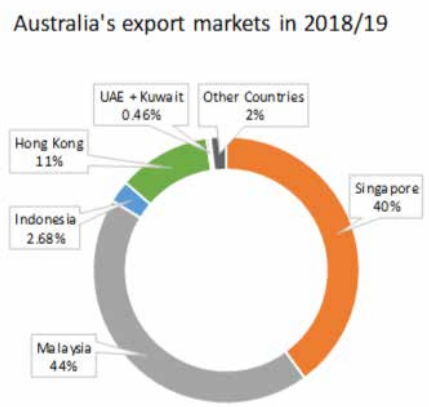
Consumption in 2018/19 reached 3.81kg/person, a 9% increase from the 3.5kg/person of the past financial year. These amounts are derived by adding Australian production (fresh + processed) to imports, subtracting exports and dividing by the Australian population, which at the time was 25,456,963 people.

Imported New Zealand fruit supplements Australian supply during their harvest season over Spring and Summer. For 2018/19 Australia imported 14,561 tonnes of avocados from New Zealand, a 29% increase from the 11,330 tonnes imported in 2017/18, and a reduction of 38% from the peak of 23,355 tonnes imported in 2016/17.



2018/19 production figure is tracking well along forecasts made in previous years that indicate Australian production may be reaching or surpassing 115,000 tonnes/year by 2025.

Exports



In 2018/19 Australia exported 3,195 tonnes of avocados, a 79% (volume) increase on the previous financial year, the highest annual volume of Australian avocados ever exported.

Malaysia and Singapore remain Australia's main avocado export destinations, but the numbers are growing in other countries where Australian avocados are gaining popularity, including Indonesia and Hong Kong.

Acknowledgement

The *Avocado industry and market data capture and analysis* project (AV16006) has been funded by Hort Innovation, using the avocado industry research and development levy and contributions from the Australian Government.

Hort Innovation
Strategic levy investment

AVOCADO FUND

Hort Innovation Avocado Fund annual report available

Pay a levy? Then you won't want to miss everything your levy dollars got up to during the most recent financial year, with the release of Hort Innovation's 2018/19 Avocado Fund annual reports. The report includes key investment and project information from the year, and is available to download from *www.horticulture.com.au/annual-report-portal*. From this link you can also access a copy of the Hort Innovation 2018/19 Company Annual Report, detailing activities and highlights across our entire portfolio of work.

Avocado impact assessments 2019

During 2018/19, Hort Innovation engaged independent consultants to evaluate the impact of avocado research and development over the five years ending 30 June 2018.

Assessment provided insights into the type and magnitude of impacts generated from Avocado Fund investments.

The evaluation revealed a range of economic and social benefits being generated for avocado growers, supply chain participants and the community at large. No environmental impacts were identified.

Project Code	Project Name	Present Value of Benefits ($M)	Present Value of Costs ($M)	Net Present Value ($M)	Benefit-Cost Ratio
Strategic Investment Plan Outcome 1: *By 2021, domestic demand for Australian avocados has increased by at least 20%.*					
AV12007	Data Collection to facilitate supply chain transparency	0.00	0.54	NR	NR
AV13010	Health professional education and research program	0.83	0.38	0.45	2.19
Strategic Investment Plan Outcome 2: *By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality.*					
AV10019	Reducing flesh bruising and skin spotting in Hass avocado	1.26	0.26	1.01	4.90
AV14000	Achieving more consistent yields of quality fruit in the Australian avocado industry	2.26	0.62	1.64	3.65
AV15010	Supply chain quality improvement – cool chain best practice guidelines	2.20	0.61	1.59	3.58
Strategic Investment Plan Outcome 4: *By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram.*					
AV09024	Mechanisms of cultivar – and race-based disease resistance in avocado	0.00	0.21	NR	NR
AV11021	An analysis of fruit spotting bug activity in avocado crops from fruit-set to harvest	0.00	0.20	NR	NR

A pool of Avocado Fund research and development (R&D) projects was identified, completed between June 2013 and June 2018, with a Hort Innovation-managed investment of at least $80,000.

From this pool of 27 projects with a Hort Innovation investment value of $9.97 million, a random selection of seven projects was selected:

- *Mechanisms of cultivar- and race-based disease resistance in avocado* (AV09024)
- *Reducing flesh bruising and skin spotting in Hass avocado* (AV10019)
- *An analysis of fruit spotting bug activity in avocado crops from fruit-set to harvest* (AV11021)
- *Data collection to facilitate supply chain transparency* (AV12007)
- *Health professional education and research program* (AV13010)
- *Achieving more consistent yields of quality fruit in the Australian avocado industry* (AV14000)
- *Supply chain quality improvement - cool chain best practice guidelines* (AV15010).

These seven projects had a nominal Hort Innovation Avocado Fund value of $1.91 million (19.2% of the overall investment value). Two of the projects aligned with the avocado Strategic Investment Plan (SIP) 2017-2021 Outcome 1 (increase demand), three aligned with Outcome 2 (improve quality), none aligned with Outcome 3 (increase exports) and two aligned with Outcome 4 (increase yield).

The results demonstrated that the benefits of research and development (R&D) investments in the Avocado Fund represent a sound return on investment for growers, with the benefit-cost ratio of the seven sampled projects coming out at between 2.84 and 3.78 to one. Together, the benefits of the seven projects are expected to deliver some $8.39 million in additional value to the industry and community over the next 30 years (considering the present value of their benefits, minus the present value of their project costs). Keeping in mind that while some impacts were valued, other benefits weren't quantifiable – meaning these results give a conservative estimate of the true benefits that will be realised.

Some of the economic impacts identified included:

- additional sales for avocados with improved fruit quality (from AV10019) and improved understanding of the health benefits of avocados (AV13010)
- improved efficiencies and reduced costs along the supply chain (AV14000).

Social impacts were also identified, including increased knowledge of avocado pests and diseases (AV09024), increased industry service provider capacity (AV11021) and the productivity/profitability benefits generated for communities in avocado growing areas from profitable avocado sales.

More information

Individual project impact reports: *bit.ly/TA303impact1*

MT18009 factsheet: *bit.ly/TA303impact2*

Hort Innovation
Strategic levy investment

AVOCADO FUND

Your contributions to building your industry

Since 2003/04, Australia's levy paying avocado growers have contributed almost $23 million to industry research and development.

"Our industry's levy payers have also funded avocado marketing efforts to the tune of almost $35 million," Avocados Australia CEO John Tyas said.

Based on figures sourced from various avocado industry reports from both Horticulture Australia Limited (HAL, the previous research and development corporation for horticulture) and Hort Innovation, grower levies for R&D between 2003/04 and 2018/19 sits at $22.9 million, and marketing in the same period is $34.7 million. The industry's R&D efforts have been boosted by contributions from the Australian Government, adding $19.3 million to that important work.

All commercial avocado growers in Australia pay statutory national levies which are used for research and development (R&D) and marketing (managed by Hort Innovation), and biosecurity (managed by Plant Health Australia).

Mr Tyas said the growth of the industry was clear in the increasing levels of annual levies.

"In 2002/03, growers contributed about $390,000 to R&D. In 2018/19 that has increased to $2.6 million," he said.

"In 2002/03, the marketing levy raised about $730,000 and last financial year it raised $4 million."

The levies paid by commercial avocado growers are collected by the Australian Government, via the Department of Agriculture (*bit.ly/TA303levy*) and managed by Hort Innovation.

The current levies and their rates are:

- research and development – 2.9 cents per kilogram (managed by Hort Innovation)
- marketing – 4.5 cents per kilogram (managed by Hort Innovation)
- Plant Health Australia – 0.1 cents per kilogram (managed by Plant Health Australia)
- Emergency Plant Pest Eradication (EPPE) – set at 0 cents per kilogram (this levy provides a mechanism for the industry to meet its funding obligations in relation to plant pest eradication if and when required).

"The *Avocado Strategic Investment Plan 2017-2021* guides how these significant levy funds are invested on behalf of industry," Mr Tyas said.

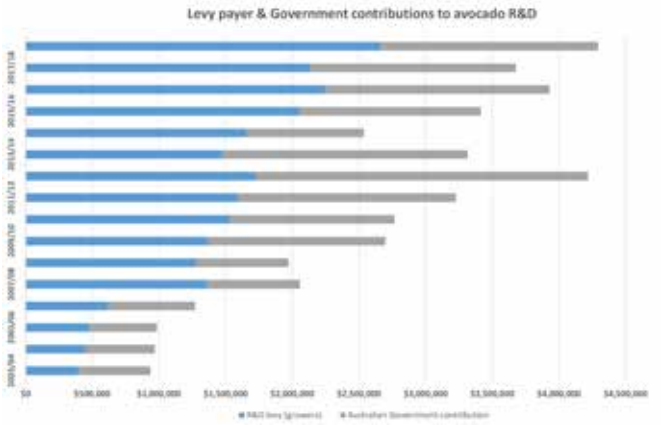
The avocado Strategic Industry Advisory Panels (SIAPs) provide advice to Hort Innovation in relation to the strategic investment of R&D and marketing levies.

"The benefits of these levy contributions can be seen from the orchard to the retail shelf," Mr Tyas said.

"The industry marketing levy has certainly helped to increase demand with per capita consumption of avocados in Australia now more than double what it was 15 years ago."

Mr Tyas said alongside that growth in consumption, had been improvements in fruit quality, handling and growing.

"The Australian avocado industry has consistently backed itself and strongly invested in its future through the new levy system."



The "A" to the "O" of AvocadO

The first AvoSkills workhop has been held in North Queensland, centred around Mareeba in July.

The AvoSkills workshops, covering the "A" to "O" of avocado orchard management, are tailored toward growers who have recently joined the avocado industry, re-sellers, farm supervisors and farm managers. In this practical, fun and hands-on workshop, the group tackled the essentials of growing good quality fruit productively.

The feedback from attendees, a mix of growers, farm managers, farm staff, new and prospective growers, resellers and agronomists, was overwhelmingly positive.

More AvoSkills workshops are planned for Western Australia and Central Queensland in 2020, and in South Queensland and Central New South Wales in 2021.

More information

If you would like more information on future AvoSkills, contact Simon Newett, *simon.newett@daf.qld.gov.au* or 07 5381 1326, or Bridie Carr, *bridie.carr@daf.qld.gov.au* or 07 5381 1327.

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.

Queensland Government

Hort Innovation Strategic levy investment

AVOCADO FUND

The orchard-based activities proved popular.

Geoff Dickinson from the Queensland Department of Agriculture and Fisheries (DAF) talks orchard establishment, site selection, site preparation and planting, at the first of the AvoSkills workshops.

The orchard portion of the first day of the Mareeba AvoSkills workshop was hosted by Blue Sky Produce.

Avocados Australia Chair Jim Kochi hosts the orchard walk portion of day 2 of the Mareeba AvoSkills workshop.

Extension back on the road

The Avocado Regional Forums have continued across the country, with events in North Queensland and Tristate.

The *Avocado industry development and extension* project is led by the Department of Agriculture and Fisheries (DAF) Queensland and co-delivered with Avocados Australia with collaboration from the Western Australian Department of Primary Industries and Regional Development (DPIRD).

There were 66 attendees at the Tristate event in Renmark on 14 August. The speakers at this event included CSIRO's Harley Smith discussing the use of plant growth regulators (PGR) in avocados (including a grower discussion), and his colleague Amnon Haberman who presented on maximising yield and reducing seasonal variations (an update of project AV16005, which is investigating how to limit fruit drop in the orchard).

The take home messages for growers from the PGR presentations and discussions was that the impact of PGRs in avocados are not fully understood, and a better understanding of the way they affect the biology of the Avocado is required to maximise the benefit of these products for the industry. The IMTRADE trial viewed in the afternoon, could show that PRGs might be used to impact canopy size and may have a use in future canopy management strategies. Results are still required to understand how long the growth regulation will last and the future impacts on production.

Avocados Australia CEO John Tyas gave an industry update, and QDAF's Bridie Carr provided an overview of the new fruit management and handling project (AV18000). Brett Kennedy from Primary Industries and Regions South Australia (PIRSA) provided an update on Queensland fruit fly and the role of community education in their efforts to maintain the area's pest free status. This included information on a new awareness campaign, and the induction of migrant workers. The day ended with an orchard walk at Nick Hobbs' Chinoola Orchards.

There were 82 attendees at the North Queensland event on 28 August at Mareeba. Once again, John Tyas provided an industry update, and DAF's Geoff Dickinson provided an overview of AV1800. The day had a soil health focus, with DAF's Tony Pattison discussing soil health in terms of constraints, indicators and solutions. DAF's Simon Newett discussed the importance of soil health for avocados and Bridie Carr covered mulching. After a panel discussion, the day ended with a visit of John Jenning's orchard, with a presentation from Northern Gulf Resource Management Group's Sally Fields.

Northern Gulf Resource Management Group's Sally Fields talks soil health in John Jenning's North Qld avocado orchard.

The key take home messages for growers from this event included:

- Australian (and international) avocado production is increasing rapidly. Good fruit quality is becoming more and more critical to improve consumption and to support efforts to find export outlets to relieve pressure on the Australian market
- AV18000 will identify and promote improvements to practices in supply chains between the farm and the retail distribution centres
- soil health is not magic. Develop an action plan that identifies your most limiting constraints and tackle them first to start to build resilience in your orchard
- mulches are a great place to start improving avocado orchard soil health, but soil health is more than just mulching.

The meeting notes from these events are available in the Event Proceedings section of the Best Practice Resource library (*avocado.org.au/bpr/*).

What's coming up

A regional forum is planned for Central Queensland this year. Keep an eye on the events calendar on the Avocados Australia website for dates, including those in the New Year.

More information

Check the fortnightly *Guacamole* newsletter and the events calendar at *avocado.org.au* for future dates.

If you would like more information on the project, contact Avocados Australia Industry Development Manager Liz Singh, 0499 854 111 or *idm@avocado.org.au* (Mon-Thurs 9am-3pm), or at DAF, contact Simon Newett, *simon.newett@daf.qld.gov.au* or 07 5381 1326, or Bridie Carr, *bridie.carr@daf.qld.gov.au* or 07 5381 1327.

Acknowledgement

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Queensland Government

Hort Innovation Strategic levy investment

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Sally Fields expounding the benefits of improving soil health at the North Queensland event.

John Jennings (left) explaining his soil health measures, as part of the North Queensland Avocado Regional Forum at Mareeba.

Hazel Gaza from DAF at South Johnstone demonstrating some of the tests they are developing to measure soil health.

Morgan Lewis, Stoller Australia, with Marcello and Katrina AVolio, Gorge Creek Orchards at the North Queensland event.

Jim Kochi, Avocados Australia, Liz Darmody, Fleming's Nursery, Corrine Jasper, Hort Innovation in Mareeba.

Gaya Rajagopal and Ebony Faichney from Queensland Agriculture with Ali Zenel, Oji Fibre Solutions and Clayton Lynch, Mackays Marketing.

Simon Newett and Tony Pattinson, Queensland Agriculture, with John Tyas, Avocados Australia in Mareeba, Queensland.

Bridie Carr, Queensland Agriculture with Nicola Mackay, Costa, in Mareeba.

Peter Ward & Hamish Hope at the Avocado Regional Forum in Tristate.

Matt Maunder and Ben Schaefer, Costa in Renmark for the regional forum.

Nicole and Trevor Radloff, Ellerslie, at the Renmark regional forum.

Nick Katis, Costa and Luke Grayling, Ripe Horticulture in Renmark.

Bill Ruediger, Jackson Sanders, Southern Cross Farms, with Elders representatives Matt Ward, Lanita Steer and Molly Black at the Renmark Club.

Majority of Australian households buy avocados

The good news about domestic avocado consumption continues for the industry.

The most recent *Facts at a Glance* produced by Avocados Australia shows an increased annual consumption from 3.5kg in 2017/18 to 3.8kg/person/year in 2018/19 (see page 17 for more).

And the most recent data from Nielsen, provided via the Harvest to Home dashboard, shows 72% of Australian households purchasing avocados in the 12 months to September 2019.

According to the Harvest to Home avocado dashboard, New South Wales grew the most of all states in terms of dollar sales, with 7.0% in the 12 months to 7 September 2019. Victoria grew the most in terms of volume, with 22.2% (*Figure 1*).

Again reflecting the information shown in our *Facts at a Glance*, while the amount purchased has increased (up from 5.2kg/year to 5.9kg/year), the spend has remained relatively stable, at $40.05 per household per year.

While that's only a small increase in the dollar spend, avocados are performing well. In terms of dollar sales change, avocados gained 4.5%, compared to bananas, which gained the most within the competitive set with 8.9%. Total fruit dollar sales increased by 3.9% in the same period (the 12 months to 7 September, 2019).

In terms of kilogram sales, avocados also performed strongly, increasing 19% on the previous year, compared to a drop of 3.4% for total fruit. The only other fruit to record an increase in sales kilograms was berries (see *Figure 2*).

According to the Harvest to Home dashboard, in terms of dollar share, avocados comprised 12.1%, compared to berries, who led the competitive set with 29.8%. Viewing volume (kg) share, avocados comprised 9.6%, lower than bananas, who led the competitive set with 34.1%.

Households also increased the number of times they purchased avocados in the 12 months to September 2019, up from 9.9 times to 11 (*Figure 3*).

Who's buying our avocado?

Senior Couples (those where the head of the household was over 60) spent an average of $44.58 over the past year, the most of all life stages. Senior Couples also led life stages in buying occasions, with 12.3 trips during the last year, compared to 11 trips average for all shoppers.

Figure 1

KEY METRICS BY STATE

	$ Sales Growth	Volume (kg) Growth	Percentage of Buying Households		Annual Household Purchases (Value)		Annual Household Purchases (Volume)	
			This Year	Year Ago	This Year	Year Ago	This Year	Year Ago
National	4.5%	19.9%	72%	71%	$40.05	$39.69	5.9kg	5.2kg
Queensland	5.2%	16.2%	76%	75%	$42.19	$41.80	6.0kg	5.0kg
New South Wales	7.0%	20.8%	73%	71%	$39.99	$39.00	5.8kg	5.0kg
Victoria	5.4%	22.2%	72%	70%	$40.23	$39.73	5.0kg	4.6kg
South Australia (incl. Northern Territory)	-7.4%	6.3%	65%	62%	$32.32	$37.25	4.7kg	4.8kg
Western Australia	-4.1%	15.2%	68%	71%	$39.76	$41.63	6.1kg	5.3kg

Source: Nielsen Homescan for the 52 weeks ending 07/09/2019 for the Australian market. Copyright © 2019 The Nielsen Company.

The next highest purchasing group was established couples (20.6% of dollar sales). Independent Singles (35-years or older) were at 16.2% in the 12 months to September, Young Transitionals (younger than 35) at 6.3% and Start-up Families (having a child under six) at 6.5%.

About the dashboard

Nielsen Homescan® is a continuous panel of 10,000 households who record all take-home packed and fresh grocery from all retail outlets. The sample is demographically and geographically representative of the Australian household population.

Each household is equipped with either a small handheld terminal or an app on their mobile phone through which details of all purchasing are entered - product, quantity, price and outlet. This information, along with the date of purchase, is linked with demographic details of the household and the household purchasing history. Data are projected to represent take-home purchases of the Australian household population.

Estimates produced from Nielsen Homescan® are subject to sampling variation which means that every number reported has a standard error associated with it. For example, at a Total National level, a 40% share of trade number, will be subject to a 1% standard error at a 95% confidence interval. This implies there is a 95% chance that the true value of the estimate lies between 39 to 41%.

More information

The avocado industry now has access to regularly updated data from Nielsen, as part of Hort Innovation's Harvest to Home. Visit *bit.ly/TA294DATA*. New data is added periodically.

Figure 2

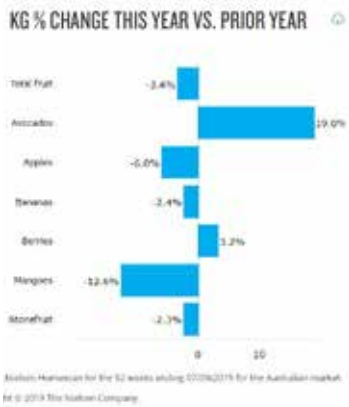

Figure 3

Hort Innovation
Strategic levy investment

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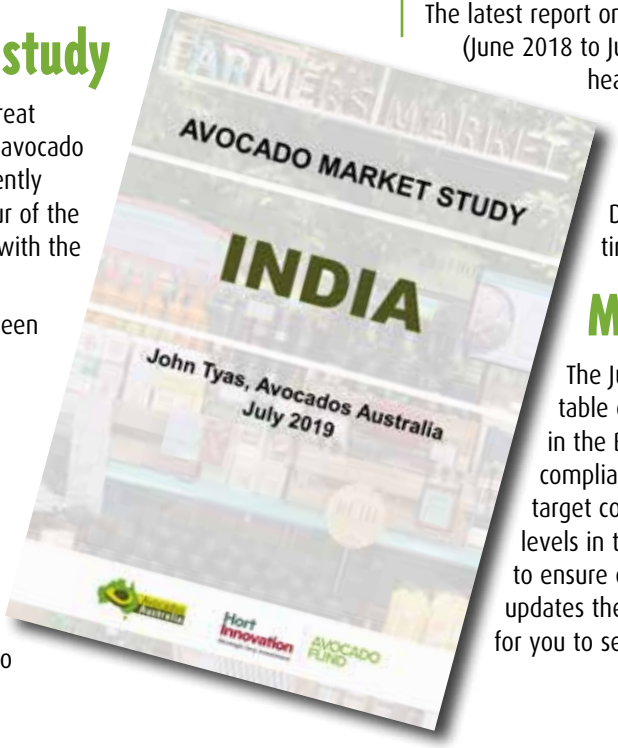
The latest in your BPR

Workplace health and safety is an important part of any business. The Avocados Australia Best Practice Resource has an entire section dedicated to helping growers manage WHS, and there are new resources available from relevant state bodies as well.

Indian market study

The Indian market shows great potential for the Australian avocado industry. CEO John Tyas recently participated in a market tour of the country, finding familiarity with the fruit, as well as interest.

India is a market that has been identified as a high priority within the *Avocado Export Strategy – 2019-2021*. Australia does not yet have market access for fresh avocados to India, but Avocados Australia is in discussions with the Australian Government Department of Agriculture to progress our application.



You can find John's comprehensive report under the Exports heading in the BPR Library.

Export reports

The latest report on Australia's avocado exports and imports (June 2018 to July 2019) is now available under the Exports heading in the BPR Library. In this 12 month period, Australia exported 3,202t of avocados to markets including Malaysia, Singapore, Hong Kong, Indonesia, Brunei Darussalam, the Middle East and, for the first time, Japan.

Maximum residue limits

The June 2019 Maximum Residue Limits (MRL) table can now be found under the Exports heading in the BPR Library. All fruit you export must be compliant with the maximum residue limits for your target countries, and you must monitor the residue levels in the fruit you are sourcing for export markets to ensure compliance. Please note that each country updates the MRLs from time to time, so it is important for you to seek up-to-date information on MRLs.

Have you been missing the related resources?

At the top of many of our BPR articles, you may have noticed a drop-down tab for resources related to the topic of the article.

We've made these related resources easier to see, as this simple tab can often contain a range of useful, relevant further reading, from checklists to research reports.

Don't forget the WHS

At any time of the year, workplace health and safety should be a key consideration for members of the Australian avocado community.

The Best Practice Resource (*avocado.org.au/bpr/*) WHS module contains a range of avocado-specific resources, including guides, plans, registers and checklists. These resources were developed with the Australian Centre for Agricultural Health and Safety and are provided free of charge to help you plan and better manage your WHS.

There are also a range of links to external information sources in the BPR Library's WHS resources section, by state.

The latest additions are links to WorkSafe South Australia's new factsheets on the use of elevating work platforms (EWPs). These sheets cover the safe operation of EWPs, crush risks and training minimum standards in South Australia.

These resources are from the country's various work safe departments. Please be aware that third party sites are not under the control of Avocados Australia Limited (AAL). Therefore, AAL can make no representation concerning the content of these sites to you, nor can the fact that AAL has referred you to these sites serve as an endorsement by AAL of any of these sites. AAL provides these references only as a convenience to you.

Acknowledgement

The content of the Best Practice Resource is maintained through the project *National avocado industry communications* (AV18003), which is a strategic levy investment under the Hort Innovation Avocado Fund.

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Japan inspections for 2019

Avocados Australia has been working with the Australian Government Department of Agriculture to facilitate the visit of an inspector from Japan's Ministry of Agriculture, Forestry and Fisheries (MAFF).

This visit in November was held in the lead up to the second registration round for those in Western Australia exporting into this new market in our second year of access.

In 2018/19, just 0.1% of avocado exports from Australia were destined for Japan, but this is expected to be a growth market for Australia.

Avocados Australia's work in the export field is supported by the *Avocado Export Readiness and Market Access Project* (AV17000), funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government.

Hort Innovation
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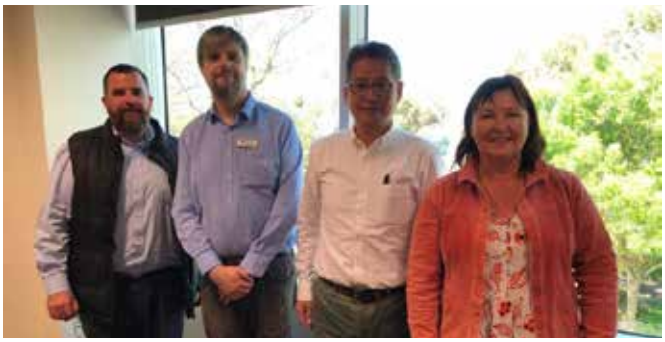
AVOCADO FUND

Avocados Australia Director Brad Rodgers farewells the Japanese Government Ministry of Agriculture, Fisheries and Forestry (MAFF) Inspector after a successful inspection tour.



Australian avocado exporter Jennie Franceschi (right) and department staff greet Japanese Government Ministry of Agriculture, Fisheries and Forestry (MAFF) Inspector (second from right) as he prepares to inspect orchards and packhouses in Western Australia.

Asia Fruit – interest still high

A key opportunity for the Australian export industry is working with retailers to better display and promote Australian fruit, according to Western Australian exporter Jennie Franceschi.

Ms Franceschi and Antony Allen from The Avolution attended this year's Asia Fruit Logistica with support from the avocado export project.

"After I toured retail outlets around Hong Kong before the start of the Logistica, my take home from all retail outlets (from high, medium and low end), is there is more work to be done when it comes to presenting and merchandising avocados," Ms Franceschi said.

"If Australia was to make an impact in this market, then the opportunity would be to find a good retailer or one with not too many stores, and work with them to present Australian Avocados properly.

"With a ripe and ready program of well-presented avocados, it might be possible to eventually leverage a better price for our product.

"Hong Kong is currently a trader market and it's more about price than quality."

Ms Franceschi said another opportunity for Australian exporters would be to offer gift packaged fruit for festivals.

At the Asiafruit Congress, Ms Franceschi said the discussion of e-commerce could be of interest to the Australian industry.

"I think there would be opportunities within the Asian export markets to align with some e-commerce platforms in markets where we have access," she said.

At Asia Fruit Logistica, attendance was down in comparison to previous years because of the unrest in Hong Kong, but interest remained in Australian avocados.

Western Australian exporter Jennie Franceschi at the Avocados Australia stand within the Hort Innovation Taste Australia pavilion at the 2019 Asia Fruit Logistica.

Among those representing the Australian industry at Asia Fruit Logistica were the team from The Avolution including Dan Cork, Andrew McKillop, and CEO Antony Allen.

Acknowledgement

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Opportunities in China

Joy Tang, Avocados Australia Export Coordinator

Avocados Australia once again represented the industry during the 2019 China International Fresh Produce Conference, held in Beijing in September.

While Australia has yet to gain access to the Chinese market for our fresh, premium avocados, the market is one of great interest to our industry.

For the first time, avocado is on the list of the top 10 fruits imported into mainland China.

China imported 16,850 tons of avocado from Peru (a 39% market share and 153% increase from 2017), 14,963 tons from Mexico (34% market share, 71% increase from 2017), and 11,892 tons from Chile (27% market share, 29% decrease).

New Zealand also entered the Chinese market for the first time in 2018, with 154 tons.

In China, consumers are constantly looking for new and special products, with a change of focus from price sensitive to convenience, taste, health and exoticism to quality.

Avocados Australia Export Coordinator Joy Tang (centre) joined a panel of Australian industries presenting to attendees at the event in Beijing

The merchandising varies from loose product to retail prepacks, and a combination of both loose and prepacks.

While in China, I saw Peruvian avocados in a CSF supermarket in Beijing selling for RMB9.90, or approximately AU$2 each. At the Xinfadi Wholesale markets (Beijing's largest wholesaler of agricultural products), Peruvian avocados were selling for approximately AU$61 per tray in September.

There is definitely interest from Chinese importers in Australian avocados; Avocados Australia continues to work with the Australian Government and Hort Innovation on the process to secure market access.

More information

Contact Joy Tang on (07) 3846 6566.

Acknowledgement

The *Avocado export readiness and market access* project (AV17000) has been funded by Hort Innovation, using the avocado industry research and development levy and contributions from the Australian Government.

Hort Innovation Strategic levy investment | AVOCADO FUND

Record exports in 2018/19

Joy Tang, Avocados Australia Export Coordinator

Australian avocado exports reached a record 3,195 tonnes in 2018/19 passing the previous record set in 2011/12.

The export volumes were 79% higher than last year, and valued at AU$19.68 million, with unit prices 5.5% lower at AU$6.15 per kilogram.

Malaysia accounted for 43% of all export volumes followed by Singapore with 40% share. Hong Kong was 12% and exports for the first time to Japan made up 0.1% of Australia's exports.

Malaysia and Singapore are Australia's key markets and both markets recorded higher volumes in 2018/19.

Avocado exports from Queensland increased 53% to 1,643 tonnes and accounted for 51.3% of Australian exports. Western Australia increased 188% to 793 tonnes and 25% share, and New South Wales also increased more than 300%. Victoria and South Australia (Sunraysia and Riverland) were marginally lower. Western Australia's much stronger results in the 2018/19 Summer has influenced the annual result.

Average returns per kilogram were 72% higher in 2018/19 compared to 2009/10 aided by the exchange rate depreciation.

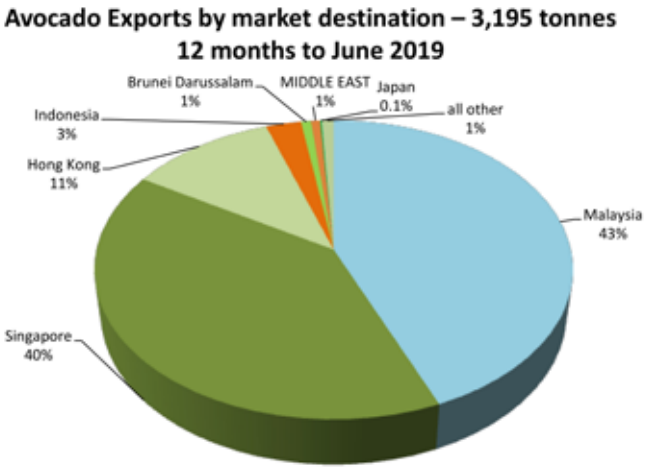
To provide some perspective on the Australian industry's exports, Asian markets imported 164,000 tonnes of avocados in 2018, which was 28% more than the previous year.

China has been the growth driver from zero to 44,000 tonnes in 6 years. Japan remains the largest importer in Asia.

Australia has a significant share of Malaysia and Singapore markets, which combined have a 5% share of all avocado imports in the Asian region.

Australia continues to import avocado from New Zealand. From July 2018 to June 2019 there were 14,562 tonnes of avocados imported to Australia from New Zealand worth AU$72.26 million, which was 29% above the previous season. Unit values were 20% lower at AU5.03 per kg.

Australia's domestic production will continue to increase, potentially leading to a reduction in imports from New Zealand (which is already building its Asian markets) and definitely requiring and increased focus on exports for the Australian industry.



Quality will be a key part of our export success, as Australia will primarily focus on premium export markets into the future.

More information

Contact Avocados Australia Export Coordinator Joy Tang on (07) 3846 6566, or read the full report in the Best Practice Resource Library, under the Export heading.

Acknowledgement

The *Australian avocado and exports and imports* report has been produced as part of the strategic levy investment project Avocado industry market data capture and analysis (AV16006), part of the Hort Innovation Avocado Fund. It is funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government.

Hort Innovation
Strategic levy investment

AVOCADO FUND

India: potential for Australian exports

John Tyas, Avocados Australia

India is a market that has been identified as a high priority within the *Avocado Export Strategy – 2019-2021*.

Australia does not yet have market access for fresh avocados to India, but Avocados Australia is in discussions with the Australian Government Department of Agriculture to progress our application.

As reported in the last edition of *Talking Avocados*, I participated in a fruit market study to India in July 2019, facilitated by Hort Innovation, with the detailed program of meetings arranged by Austrade. As well as Avocados Australia, there were representatives from the Apple and Pear, Citrus, Summerfruit and Tablegrape industries.

The study included meetings in New Delhi, Mumbai and Chennai; the visits primarily included importers, wholesalers, retailers, port facilities as well as meetings with officers from the Australian government. The study provided a good introduction to the avocado market in India.

India

India is the second most populated country in the world with 1.3+ billion inhabitants. Demographically, it is the youngest consumer market with 33% of the population younger than 15 years and 50% younger than 24 years. More than 60 cities in India have one million people and more than seven cities have 10 million people or more.

The level of disposable incomes is increasing, especially in tier-one cities. Households with a disposable income of more than US$10,000 has increased from around 2.5 million in 1990 to nearly 50 million in 2015. GDP growth is expected to increase at 6-8% per year.

The market

It is a price sensitive market, at least until a brand gets established (eg Zespri). Consumers purchase brands they recognise, so promotion and branding are important. Customers visit both traditional "mum and pop" (Kirana) stores and modern stores in the ratio 5:1 times on a weekly basis. Modern Retail currently has about 10% of market share.

Traditions and religion influences food consumption; 38% of the Indian population is vegetarian. There is a major spike in consumption around the marriage season which is aligned with lunar cycles.

Domestic production

Despite the lack of recorded production data from the Food and Agriculture Organization of the United Nations (FAO), India produces avocados, with the main season from June to March. However, they produce a green skinned fruit used mainly for smoothies. Little, if any, Hass is grown. There is a looming crisis with India becoming drier, and monsoons are getting shorter. There are restrictions on farm size ownership, but conflicting information was provided, so it is not clear what the restrictions are. It is expected that the growth in India's demand for food will exceed supply.

Avocados Australia CEO John Tyas assessing the place of avocados in India's diverse fresh produce markets.

Imported fresh produce

Imported fruit is considered much more valuable than locally produced fruit. Imported avocados are considered by importers we visited as a fruit with a lot of potential in India and the category is growing rapidly (albeit off a small base).

Peru is a newer supplier of avocados which are sea freighted with quoted shipping times of 50 to 55 days, using controlled atmosphere (CA) technology. According to importers, AU$50 per 4kg tray of avocados from Peru is considered the lower end of the wholesale market price. However, tariffs are high (30%).

New Zealand has been increasing their supplies to India during the past five years.

The potential

While it is difficult to understand how large the premium niche market is from just one visit, clearly it is growing and will continue to grow with the changes that are occurring in the Indian economy. (It is also worth noting that even a niche market can be significant in a young, upwardly mobile population of 1.3 billion.)

The upmarket retailers had a very good understanding of avocados with excellent displays of premium fruit. The health and nutrition of avocados is an important selling point and is widely promoted. Most of the avocados in these stores were a large size, with plenty of ready-to-eat fruit available. Retail price points over AU$25/kg were commonly observed.

The prominence of Hass avocados in retail stores was very surprising. The opportunities in India for Australian avocados are excellent with more detailed investigation warranted. Avocados Australia will continue to seek the progression of market access with the Australian Government.

More information

A comprehensive report is now available in the Best Practice Resource, under the Export heading in the Library.

Acknowledgement

The *Avocado export readiness and market access* project (AV17000) has been funded by Hort Innovation, using the avocado industry research and development levy and contributions from the Australian Government.

Hort Innovation Strategic levy investment | AVOCADO FUND

India: building connections

Avocados Australia Director Brad Rodgers had the opportunity to meet with a delegation of Indian Government representatives in October, including Shri Atish (pictured, on right), from the Indian Department of Agriculture, Cooperation and Farmers Welfare. The event was part of a visit between the Indian Government representatives and the Australian and Western Australian Governments. Avocados Australia is keen to add India to the list of export destinations for our premium fruit. Mr Rodgers said the delegation was interested in the possibility, insisting local Australian avocado be included in every course of the official dinner in Perth.

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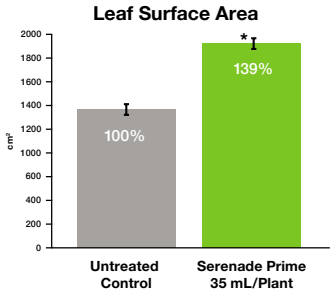

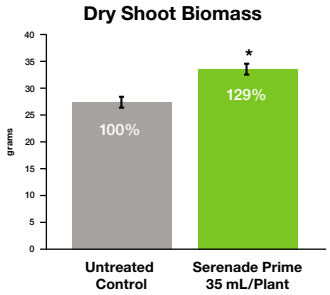

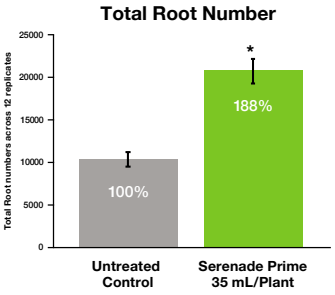

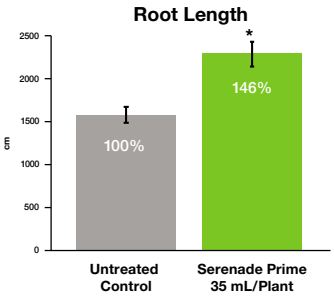

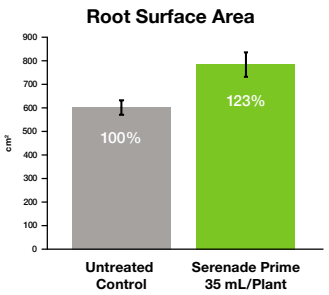

★ = indicates significance compared to UTC

Trial ID: Evaluation of Serenade Prime on various tree crops - Avocado. Mahmood. West Scramento. December 2018

Find out more at serenadeprime.com.au

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Technical enquiries 1800 804 479 enquiries.australia@bayer.com. Ph (03) 9248 6888 Fax (03) 9248 6800.

Staying safe on the farm

October's national Work Safe month, was a timely reminder for agriculture, with an increase in on-farm deaths and injuries this year.

According to Safe Work Australia preliminary data, as at 26 September 2019, 116 Australian workers have been killed at work this year, including 28 in the agriculture, forestry and fishing industries. This is an increase on the same period last year (23) and puts agriculture at number two on the list, after the transport, postal and warehousing sector.

A report from the National Farm Injury Data Centre (NFIDC), based on a review of media articles, found Queensland had more non-fatal injuries in rural workplaces than the rest of Australia combined for the first six months of 2019.

The review of more than 38,000 media articles also found Queensland had 13 farm fatalities for the six months, followed by Victoria (seven) and New South Wales (six). Quad bike use was the main cause of death and injury across the country.

The statistics detail both workplace and non-workplace deaths and injuries. The overall number of farm deaths was higher than the corresponding period in 2018. Six of the 34 deaths involved a child aged under 15 years.

Nine of the 67 injury incidents involved children aged under 15 years and quad bike related injuries accounted for over 20% of all incidents. Horses, tractors and utilities featured heavily in the injury statistics as well. For quad bikes, there were 21 extra injuries that occurred off-farm. You can read the report here: *bit.ly/TA303safe*.

This report comes as the Commonwealth Government is considering Australian Competition and Consumer Commission recommendations for mandatory rollover protection for quad bikes.

Quad users are again urged to implement safe systems of work, including selecting the correct vehicle for the task, ensuring attachments are fit for purpose, training operators, and wearing a helmet.

WHS in the Best Practice Resource

Specific resources have been developed for the avocado industry which will help you to manage Work Health and Safety (WHS). There are three practical resources which form the base of the information included within the BPR:

- Avocado Growing and Packing – A Practical Safety Guide – this provides practical safety information for avocado growers and packers and focuses on the main hazards and ways you can control risks
- WHS Implementation checklist – this outlines the steps to implement WHS and Injury Management in your business
- WHS Policy and Plan – this outlines all of the elements that need to be included in a sound WHS system. It is a downloadable template that when customised by the employer and developed in conjunction with workers, demonstrates your commitment to WHS.

There a lots of templates that you can use and modify for your own business such as Safety Inductions and Hazard Checklists. Log in at *avocado.org.au/bpr/* and visit the WHS module for more information or to download the resources.

Elevating work platform reminder: South Australia

As part of Safe Work Month, WorkSafe SA has released three factsheets on the use of elevating work platforms (EWPs): safe operation, crush risks, and training minimum standards.

To find the three factsheets, visit *bit.ly/SafeWorkSA*. Links to all three can be found in the "further information" and "downloads" sections at the end of this page. Alternatively, links to the factsheets have also been added to the BPR Library, under WHS.

This follows the release of a WorkSafe SA audit of elevating work platforms this year, undertaken after a series of fatal and serious incidents between 2014 and 2018. As part of the audit, SafeWork SA found 10 statutory notices had been issued in response to non-compliance, one improvement notice and nine prohibition notices in the farming/agriculture/viticulture/meat processing industries. This was the third highest number of statutory notices issued, after building and construction, and manufacturing.

However, the report says the data gathered does not suggest an industry-wide issue. Thirteen EWPs were audited in this industry, with nine Prohibition Notices issued to one PCBU (person conducting a business or undertaking) who was operating four EWPs. Only one Improvement Notice was issued for the remaining nine EWPs audited in this industry.

The Prohibition Notices issued related to poor PPE condition and maintenance, and non-compliance with maintenance requirements stated in the AS2550. This site had multiple harnesses that had not been inspected or maintained, and EWPs that had no evidence of three month or 12 month inspections.

New quad bike rules

Via new safety standards announced by the Australian Government in October, all new general use model (utility) quad bikes will have to be fitted with or have a rollbar integrated into the design, and meet minimum safety standards.

Within 12 months, all new quad bikes will be required to have warning labels alerting riders to the risk of roll over, meet US or European standards, display the result of a test for stability on a hang tag attached at the point of sale.

Since 2011, on average 16 people a year are killed in a quad bike accident, and an estimated six people a day present to

Staying safe on the farm continued

an emergency hospital department with at least two of these admitted with serious injuries.

"Quad bikes are the leading cause of fatalities in Australia of all consumer products that aren't regulated," Assistant Treasurer Michael Sukkar said in announcing the new measures.

The Australian Competition and Consumer Commission (ACCC) continues to urge state and territory governments to continue to support complementary safety measures, such as the use of helmets and protective clothing, prohibiting children from riding adult-sized quad bikes, and a continuation of rebate schemes to encourage the fitting of rollover protection devices to quad bikes currently in use.

"We know that around 60% of quad bike fatalities are caused by rollovers, and the operator dies from asphyxia in around half of these," ACCC Commissioner Mick Keogh said.

"Research indicates that roughly 50% of these operators would have survived the crash had they not been crushed or pinned by the quad bike."

Queensland labour hire update

More than 3,100 licences have been granted to labour hire providers in the first 15 months of the state's new scheme.

Queensland's *Labour Hire Licensing Act 2017* (the Act) started on 16 April 2018, establishing a mandatory licensing scheme to protect labour hire workers and support responsible labour hire providers.

However, Queensland Minister for Industrial Relations Grace Grace said not all applications had been approved.

"Since it came in, 13 licences have been refused, 13 have been given with conditions, 113 have been withdrawn for failing to provide compliance information, 14 have been cancelled and 140 have been suspended at some point, with 44 under current supervision," the Minister said.

"Before the new laws came in, you had to have a licence to sell a car and you had to have a licence to sell a house, but you did not need a licence to sell labour, and this was an untenable situation.

"The issues encountered by some workers in the labour hire industry have been well documented - cases of wage theft, sexual harassment, substandard housing and serious workplace health and safety risks."

For the Queensland labour hire requirements, visit *labourhire.qld.gov.au*.

Growers commit to Fair Farms

Almost 100 growers and other horticulture businesses from across Australia have joined the industry-developed Fair Farms Training and Certification Program since its launch in June, demonstrating industry's commitment to stamping out workplace non-compliance and worker exploitation.

"We are rolling out Fair Farms on behalf of industry in a bid to show who is doing the right thing and use market forces to drive out unethical and unlawful employment practices," Fair Farms Program Manager Thomas Hertel said.

"We're excited about the strong take-up so far and congratulate our participating growers and other supply chain members for showing industry leadership on this important issue.

"Of the almost 100 businesses registered to date, 60 have already completed the self-assessment against the Fair Farms Standard to identify areas for improvement.

"Fair Farms aims to have a critical mass of ethical suppliers certified against the Fair Farms Standard, so that wholesalers and retailers can make the switch and start sourcing their fruit and veg only from verified ethical businesses.

"Australian grown, Fair Farms certified, all the way to the grower level, is what we're working towards. When retailers and the consumer buy into that and reward ethical compliance, we expect to see real positive impact on the treatment of workers on farms," Mr Hertel said.

Participating Gold Coast vegetable grower, Belinda Adams said as an industry they want to show all stakeholders and peers that they are educated, resourced and prepared to demonstrate compliance.

"We've had enough of being lumped in the same basket of those businesses who are not playing fair," Ms Adams said.

Fair Farms is working closely with key stakeholders from across the supply chain including growers, wholesalers, participating retailers, trade unions, industry-bodies AUSVEG and the National Farmers' Federation to ensure the successful roll-out.

"We particularly thank Woolworths and ALDI for getting behind this industry-led initiative and are hoping to see other Australian retailers and the larger wholesalers join us soon," Mr Hertel added.

For more information on the program visit the Fair Farms website: *www.fairfarms.com.au*

Fair Farms is developed and delivered by Growcom with support from the Fair Work Ombudsman, The Federal Department of Agriculture and AUSVEG.

Pollination agreements with beekeepers prevent getting stung

By Farm Biosecurity Program

Spring brought with it the annual movement of bee hives across regions, as beekeepers move hives from one area of the country to another following the flower blossoms of nut, fruit and vegetable plants that need pollination by bees to produce a crop.

Plant Health Australia's National Manager for Surveillance Dr Sharyn Taylor said many commercial beekeepers moved their hives for pollination contracts and to follow honey flows as the season progressed.

"Around 200,000 bee hives are placed in orchards in north-west Victoria for almond pollination alone, which takes only a month to complete," Dr Taylor said.

"Hiring hives is the most common way growers get the hives their crops need for pollination. Long distances are travelled by some beekeepers in the migration, often between states."

This movement of hives, as well as the drifting and robbing habits of honey bees, means that any pests or diseases can be difficult to contain.

"Events like this can be a cause for biosecurity concern," Dr Taylor said.

"Every beekeeper should be using industry best practice guidelines to provide a high standard of pollination service by making sure hives are strong and disease free.

"When hiring hives for pollination, many beekeepers and growers find it a good idea to have a pollination agreement. This approach has the advantage that the growers can specify exactly what they need and what they expect to get."

Although they can vary, key aspects of a pollination agreement should specify:

- names, addresses, location of the crop and number of colonies
- timing of delivery and the strength (number of frames of brood and bees) of the colonies
- distribution of hives throughout the crop
- rental fees and terms of payment
- provision for an independent audit of hive quality and the name of an arbitrator
- protection of bees from pesticides.

"Agreements, or contracts, are useful because there's no confusion over what the grower thinks they are hiring and what the beekeeper thinks they need to supply," Dr Taylor said.

They become very important if there are any problems with what's supplied or something happens to the bees when they are working the crop. To get an idea of whether you're getting what you pay for, growers should have a look to see if bees are moving in and out of hives.

Beekeepers providing pollination services should be particularly vigilant for pests and diseases as they prepare hives for movement, and also when hives return back home, to make sure no diseases have been picked up.

If you see anything unusual on bees, call the hotline on 1800 084 881 and you'll be put in touch with your local department of primary industries.

Acknowledgement

Read more at *bit.ly/TA303bee*. The Farm Biosecurity awareness campaign is a joint initiative of Animal Health Australia (AHA) and Plant Health Australia (PHA) on behalf of their members.

Hort Innovation Marketing Update

Welcome to the Avocado Spring 2019 marketing update, where we give you a snapshot of the latest marketing activity that's helping Aussie consumers connect with Australian avocados. This activity is managed by Hort Innovation on behalf of the industry and is funded by the avocado marketing levy.

The goal of the industry's marketing program is to increase domestic demand for Australian avocados by at least 20% by 2021, and we have a range of ongoing work and exciting new activities to help us do just that. The current planning by Australian Avocados specifically targets occasional avocado buyers, with the goal of transforming them into avocado lovers.

Key to achieving this during this period was driving mass awareness and promoting the "Smash an Avo" creative and key messaging, while educating consumers around versatility and everyday uses.

Avotherapy

Following on from the success of the Good Fat pop-up restaurant in 2017, Australian Avocados organised the experiential event Avotherapy in Sydney in October.

Avotherapy was a weekend of avocado nourishment that Australia had never seen before. The event strategically aligns with avocados "making everything better" and the brand's nutrition pillar, communicating health message to reinforce the benefits of avocados.

This Australian-first avocado-inspired event was dedicated to making consumers feel good, and it was definitely a success based on interest in the avocado-themed sessions.

Hosted at the Paramount Recreation Club in Surry Hills, Sydney for one weekend only, attendees partook of Good Mood Food workshops, Avocardio fitness classes and much more.

You can read more about Avotherapy on p43.

Television

The television focus for this period has been a two-network deal with channels 7 and 9. A national metro campaign started on 1 September, ending in November, and taking advantage of a programming schedule that includes *Masterchef*, *The Block*, the Bachelor and consistently high rating news and current affairs programming.

As well as reaching metro consumers, a three-network deal has been negotiated in New South Wales, Victoria and Tasmania, to improve the reach of regional consumers and raise awareness of Australian Avocados. This is with the WIN, Southern Cross Austereo (SCA) and Prime networks.

It is currently predicted that the goal of reaching 4.9 million shoppers will be met or exceeded.

Cinema

As well as the small screen, the Australian Avocados "smash and avo" advertisement also appeared in cinemas from July to September, running in four-week bursts during school holiday periods. The role of cinema in the media mix is to provide additional reach in a high-quality and uncluttered environment. Supporting the commercial, campaign artwork was also shown on digital screens in cinema foyers, to increase impact during the cinema journey. This portion of the campaign takes advantage of the engaging environment of cinemas, with a captive audience. The activity expected to reach 881,000 main grocery buyers and was placed with films including *Secret Life of Pets 2*, *The Joker* and *The Lion King*

Radio

Radio provides another channel to engage with consumers and raise awareness and consideration for Australian Avocados. Radio helps raise awareness as consumers pre-plan their shopping, and on their way to purchase.

Through until the early November, Australian Avocados partnered with ARN (Australian Radio Network) programming including the *Kyle and Jackie O Show* and podcast to keep avocados in front of a large audience. The two week

Hort Innovation Marketing Update continued

sponsorship of Kyle & Jackie O was expected to reach main grocery buyers, at a frequency of 6.7 times.

ARN has a 16.9% share of Australian listeners, and Kyle & Jackie O have the number one FM breakfast program in Sydney, helping us reach a lot of avocado lovers (and those we know can be avocado lovers with a little encouragement!).

Out Of Home retail and street furniture

The Out of Home (OOH) activity for Australian Avocados ran from August through to November, keeping avocados top of mind as consumers are on their way to purchase their groceries. The panels aim to drive awareness and build frequency and reach consumers when they are commuting and planning their meals. The placement of these was in 100% proximity to Coles, Woolworths, Aldi or IGA. The outdoor campaign is expected to reach 2.8 million grocery buyers at retail and four million via street furniture at an average of nine times during this burst. Key urban areas targeted include Sydney, Melbourne, Brisbane, Perth, Adelaide and Geelong.

Retail

Investment has been focussed on Woolworths this quarter with a partnership to promote Australian Avocados at the Woolworths Customer First Trade Show (22-23 October), offering us the opportunity to engage Woolworths store managers from across the country. The objectives of this activity was to educate teams on how to handle and store avocados in-store, provide best merchandising standards, communicate how to pick the perfect avocado, offer sampling ideas and to provide tools and tips for store managers to take back and share with their teams.

Digital

Did you know the average Australian home now has 6.6 connected screens? Australian Avocados is taking advantage of this to target our consumers as they watch catch-up television and YouTube. All the way through until the end of December, the fact that avocados make everything better will be showcased on catch-up television channels including 7, 9, Ten, SBS and Foxtel, while on YouTube the content will appear across lifestyle and food content viewed by key avocado shoppers (women).

This activity is designed to embrace the rise of multi-screen activity and the significant viewing now taking place on catch-up television.

Digital is designed to reach younger audiences moving from traditional broadcast channels, driving awareness and impacting their purchase behaviour. This activity also draws on sophisticated targeting to connect with the right avocado consumer. The digital campaign incorporated programmatic video, YouTube and Spotify audio. Activity ran continuously from August to November with an expected reach of four million impressions.

MyFoodBook

This partnership concluded in October after delivering nine new inspiring avocado recipes with 27 stills and nine videos. This content was utilised through social, placed on the new avocado website, and was also used in the out-of-home creative that is currently in market. The MyFoodBook subscription partnership delivered 594,045 direct engagements with the Australian Avocados brand, including via 191,914 views and actions around the recipes, 190,079 video views & 25,815 cookbook downloads with Australian Avocados the feature. While the active partnership with MyFoodBook has ended, content will remain on the platform as well as on *australianavocados.com.au*. Check out the Winter digital cookbook for some great avocado recipes and tips: *bit.ly/TA303food*.

Paid search

The most recent search activity went live in early July, in line with the new burst of media starting. Having Australian Avocados appear in search results continues to drive quality website traffic maintaining the click through rates month on month. Keywords that had an increase in clicks month on month were "how to make guacamole" with an improvement of 49%, "fat in avocado" with an improvement of 47% and "is avocado healthy" with an improvement of 47%. Activity related to avocado recipes delivered the highest volume of clicks while activity related to awareness continued to drive a high number of impressions. An impression is the display of an ad to a user while viewing a web page. If a single web page contains multiple advertisements from one advertiser, one impression is counted for each ad displayed.

Social media

As always, we are taking an 'always on' approach to social media, ensuring avocados remain top of mind for Australian consumers.

Through July to October, Australian Avocados continued to create and deliver engaging content that brought to life the creative pillars of 'food better','choose better' and 'bodies better'. This included creating content across Facebook and Instagram as well as the new addition of Instagram stories and video content. The results to date have shown a consistent engagement rate across both platforms compared to FY19 (indicating the content is relevant and engaging and that audience has affinity with the product).

Public Relations

An Australian Avocados partnership with Bauer is providing the opportunity to inspire and demonstrate the versatility of avocados to consumers, taking advantage of a large existing audience looking for accessible food inspiration. Recent activity has included a collection of 10 avocado recipes to "guac your world" on *Now to Love* (*bit.ly/TA303guac*).

Also in *Now to Love*, we had the chance to bust some avocado myths (*bit.ly/TA303myth*) letting our occasional avocado eaters know they can eat avocado every day, introduce them as a snack for babies and much more. (Did someone mention avocado desserts?)

Our partnership with Bauer involves online and print content, in a range of publications including the *Australian Women's Weekly* food website (along with social and website promotions), and advertorials in *Australian Women's Weekly* and *Good Health* magazines. As well, the September edition of had an eight-page avocado recipe booklet attached.

Total impressions through the campaign are estimated at 11.4 million.

Website www.australianavocados.com.au

Have you visited *australianavocados.com.au* lately? The entire

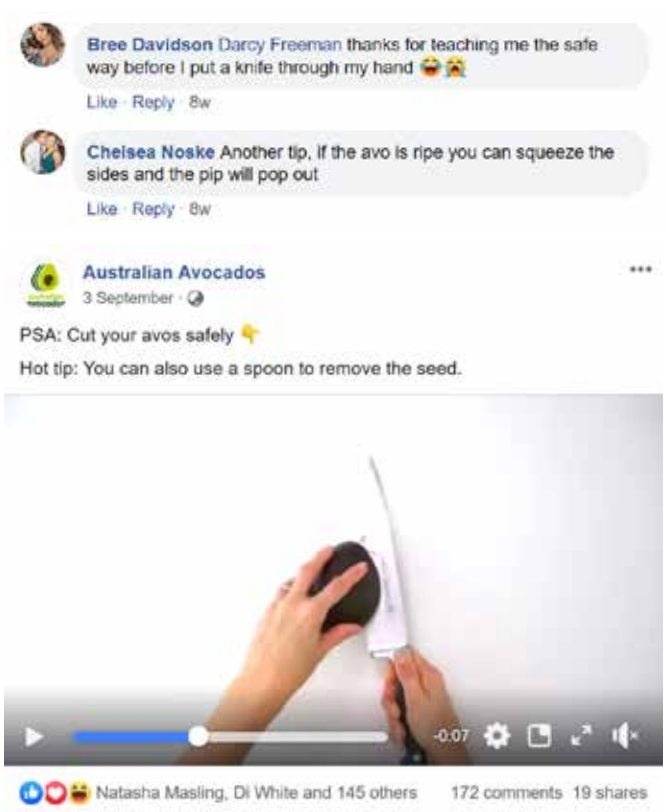
Hort Innovation Marketing Update continued

website has had a refresh with a host of new content. Nine new triple-tested recipes have been added to the revamped recipe section, and new content has been developed for health professionals on topics such as healthy hearts, mums & bubs, nutrition booster, diabetes and healthy weight.

One of the items we have promoted recently is a short video showing our consumers how to safely cut a fresh avocado. We shared the clip to the Australian Avocados' Facebook page on 2 September (*bit.ly/TA303hand*) and it has had 98,000 views.

This video is an important one for our consumers, as some people have hurt themselves while cutting into avocados, and our Facebook community was keen to be part of the conversation.

Avocados Australia CEO John Tyas says if anyone is concerned, advise them to rest the avocado on a cutting board and move the fruit around a stationery knife, and then remove the seed with a spoon. "We definitely don't want our avocado lovers injured, so kitchen safety should be top of mind," he says.



Acknowledgement

This activity is managed by Hort Innovation on behalf of the industry, and is funded by the avocado marketing levy.

Hort Innovation
Strategic levy investment

AVOCADO FUND

What is the one food all diets agree on?

Lyndi Cohen (The Nude Nutritionist) at Avotherapy

While the health world is constantly obsessing over the latest food trend, a leading dietitian has called out the one food that we can all agree on - avocados.

Dietitian and nutritionist Lyndi Cohen called on Australians to keep up their healthy obsession with avocados when presenting at the country's first wellness pop up event for the avocado obsessed, Avotherapy.

A Sydney event, Avotherapy was a weekend of avocado nourishment, an event dedicated to making consumers feel good.

"Whether it's vegan, paleo, keto, low-carb, gluten-free, vegetarian, Mediterranean or the DASH diet, all these ways of eating share one thing in common – avocados," Ms Cohen told attendees at the Avotherapy launch event.

"While I don't promote diets or any restrictive ways of eating, avocados have a health halo that make them one food on which we can all agree.

"The unique combination of vitamins, minerals and healthy fats found in avocados can help keep your immune system fighting fit, boost energy, enhance brain power, build bone, aid gut health, support healthy skin and even put you in a better mood.

"In short, avocados are a naturally delicious, versatile fruit that – quite frankly – make everything better," added Ms Cohen.

Shared messages from the event

Good mood food – Avocados contain a bundle of nutrients that help put you in a good mood, boost your energy levels and fight fatigue when eaten as part of a healthy varied diet. Avocados contain energy boosting nutrients niacin, pantothenic acid, folate and vitamin C.

Great for the gut – More and more research is showing how vital gut health is to our mood. In fact, around 90% of our serotonin (feel good hormone) is produced in the gut[1], which means a healthy gut can help keep our moods in balance. Research suggests that avocados help keep the gut happy by feeding the good gut bacteria with important dietary fibre.

Boost nutrients of other foods – This amazing fruit can also boost your ability to absorb nutrients from other healthy foods. Research shows adding avocado to a salad can increase your ability to absorb nutrients from other colourful ingredients five-fold (eg lycopene from red tomatoes and beta carotene from orange carrots)[2].

AvoCardio in action!

Glowing skin – Avocado looks after your skin from within thanks to its healthy fats, niacin and vitamins C & E when eaten as part of a healthy, varied diet. As a source of vitamin E avocados can also contribute to cell protection from free radical damage.

For more information on how avocados make everything better, please visit www.australianavocados.com.au or follow us on Facebook and Instagram.

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Katrina Myers (Barham Avocados), Matthew Dwyer (Hort Innovation) and Lyndi Cohen (The Nude Nutritionist) at the launch of Avotherapy

Acknowledgement

This activity is managed by Hort Innovation on behalf of the industry, and is funded by the avocado marketing levy.

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Phase 2 of research on managing six-spotted mite in WA avocados

Avocados subjected to heavy infestations of six-spotted mite (SSM) suffer excessive leaf fall and if this occurs in spring, the exposed fruit will be sunburnt and unmarketable. This situation is a challenge for avocado growers in the lower south west of Western Australia.

The Department of Primary Industries and Regional Development (DPIRD) in collaboration with Biological Services and with financial support from the Hort Innovation Avocado Fund completed a three-year project in 2019 to gain a better understanding of how to manage the mite.

This initial study:

- assessed the role of predatory mites
- clarified some aspects of the biology of the mite in WA avocado orchards
- developed tools and ran workshops to help orchardists identify the pest mite and predators
- clarified and made recommendations on the best time to apply miticide to prevent leaf fall in spring.

None of the commercially available species of predatory mite that were released were recovered from the field and therefore were regarded as having no role to play in managing SSM. However, near the end of the project, two other species of breeding populations of predatory mite were identified, in addition to the main species found before the project commenced that could potentially play a part in SSM management.

A new project, phase 2, has just commenced and will carry on and extend the work undertaken in phase 1. The second phase is combining a range of research areas to clarify the identification of the pest and develop monitoring and management techniques for the mite.

The project is being managed by the Department of Primary Industries and Regional Development (DPIRD) Western Australia with collaborators from Biological Services, Queensland Museum and the New Zealand Institute of Plant and Food Research. The project will run for three years and will involve on-farm monitoring, trials and demonstrations across multiple orchards in the south-west region of Western Australia.

By the end of the project, researchers aim to have a SSM integrated pest management (IPM) package for growers, containing information on:

- when and how to monitor for the pest and predatory mites
- the role of both naturally occurring and mass reared predatory mites in SSM management
- the relationship between tree health (nitrogen level), mite numbers and leaf fall, and
- chemical application recommendations that take into consideration resistance management, the impact of chemicals on beneficial species and the impact of timing and application method have on level of control.

More information

For further information on this project please contact Alison Mathews at DPIRD *alison.mathews@dpird.wa.gov.au*, (08) 9777 0122.

Acknowledgement

The *Management of six-spotted mite in WA avocado orchards - Phase 2* (AV19002) project has been funded by Hort Innovation using the avocado research and development levy and contributions from the Australian Government.

Hort Innovation
Strategic levy investment

AVOCADO FUND

Researchers now know the DNA of guacamole

By Charlotte Hsu

Australian scientists have been a part of a worldwide effort to sequence the avocado genome, shedding light on the ancient origins of this buttery fruit and laying the groundwork for future improvements to farming.

UQ Centre for Horticultural Science's Professor Neena Mitter, along with colleagues Dr Alice Hayward and Stephen Fletcher collaborated on the international research led by Professor Luis Herrera-Estrella that recently published the first draft sequencing of the Hass variety genome.

The study reveals for the first time that the popular Hass avocado inherited about 61% of its DNA from Mexican varieties and about 39% from Guatemalan ones.

The research also provides vital reference material for learning about the function of individual avocado genes, and for using genetic engineering to boost productivity of avocado trees, improve disease resistance and create fruit with new tastes and textures.

The growing global market for avocados was worth about US$13 billion in 2017, with Mexico, the largest producer, exporting some US$2.5 billion worth of the fruit that year, according to Statista, a provider of market and consumer data. Around the world, avocados are spread on tortillas, mashed up to flavour toast, rolled into sushi and blended into milkshakes (a popular treat in parts of South East Asia).

Scientists sequenced not only the Hass avocado, but also avocados from Mexico, Guatemala and the West Indies, which are each home to genetically distinct, native cultivars of the fruit.

The project was led by the National Laboratory of Genomics for Biodiversity (LANGEBIO) in Mexico, Texas Tech University, and the University at Buffalo, and the research published in the Proceedings of the National Academy of Sciences.

"Avocado is a crop of enormous importance globally, but particularly to Mexico," project lead Luis Herrera-Estrella, PhD, President's Distinguished Professor of Plant Genomics at Texas Tech University, said.

"Although most people will have only tasted Hass or a couple of other types, there are a huge number of great avocado varieties (and) these varieties are genetic resources for avocado's future. We needed to sequence the avocado genome to make the species accessible to modern genomic-assisted breeding efforts."

Empire Innovation Professor of Biological Sciences in the UB College of Arts and Sciences and a Visiting Professor at Nanyang Technological University, Singapore (NTU Singapore) Victor Albert said the study set the stage for understanding disease resistance for all avocados.

"If you have an interesting tree that looks like it's good at resisting fungus, you can go in and look for genes that are

UQ Centre for Horticultural Science's Dr Alice Hayward and Professor Neena Mitter were part of the international team that sequenced the avocado genome.

The avocado has about 25,000 protein-coding genes, roughly the same as humans, says UQ Centre for Horticultural Science's Professor Neena Mitter.

Professor Neena Mitter, along with colleagues Dr Alice Hayward and Stephen Fletcher collaborated on the international research led by Professor Luis Herrera-Estrella that recently published the first draft sequencing of the Hass variety genome.

"There is a lot of genetic variation in avocado, and this new genetic information, coupled with advances in big data means there's huge potential for future crop improvement and breeding that we can now tap into," Professor Mitter said.

UQ researchers in the Hort Innovation National Tree Genomics Program will now complete the final assembly of the genome.

"Unlocking the avocado genome will help us better target management practices by understanding the genetic controls for biological processes that influence commercially important traits," she said.

Hort Innovation's R&D Manager Dr Vino Rajandran said having a detailed blueprint of the avocado genome would provide the Australian industry with an important tool to drive future productivity.

"It will give us new insights into improved tree architecture and flowering, and the intensification of orchards, which are priorities of our National Tree Genomics Program," Dr Rajandran said.

The UQ team also provided sequence data for Velvick, a disease-tolerant rootstock that is widely sought-after in Australia for grafting new avocado trees.

"Avocados can be highly susceptible to diseases such phytophthora root rot, so having this new understanding of avocado genetics will be important in combatting the disease, and also disease like black spot," Professor Mitter said.

particularly active in this avocado," Dr Albert said.

"If you can identify the genes that control resistance, and if you know where they are in the genome, you can try to change their regulation. There's major interest in developing disease-resistant rootstock on which elite cultivars are grafted."

Family history

While the avocado rose to international popularity only in the 20th century, it has a storied history as a source of sustenance in Central America and South America, where it has long been a feature of local cuisines. Hundreds of years ago, for example, Aztecs mashed up avocados to make a sauce called huacamolli.

Before that, in prehistoric times, avocados, with their megapits, may have been eaten by megafauna like giant sloths. (It's thought that these animals could have helped to disperse avocados by pooping out the seeds in distant locations, Albert says.)

The new study peers even further back into time. It uses genomics to investigate the family history of the avocado.

"We study the genomic past of avocado to design the future of this strategic crop for Mexico," Herrera-Estrella said. "The long life cycle of avocado makes breeding programs difficult, so genomic tools will make it possible to create faster and more effective breeding programs for the improvement of this increasingly popular fruit."

The avocado belongs to a relatively small group of plants called magnoliids, which diverged from other flowering plant species about 150 million years ago. The new research supports - but does not prove - the hypothesis that magnoliids, as a group, predate the two dominant lineages of flowering plants alive today, the eudicots and monocots. (If this is right, it would not mean that avocados themselves are older than eudicots and monocots, but that avocados belong to a hereditary line that split off from other flowering plants before the eudicots and monocots did.)

"One of the things that we did in the paper was try to solve the issue of what is the relationship of avocados to other major flowering plants? And this turned out to be a tough question," Albert says. "Because magnoliids diverged from other major flowering plant groups so rapidly and so early on, at a time when other major groups were also diverging, the whole thing is totally damn mysterious. We made contributions toward finding an answer by comparing the avocado genome to the genomes of other plant species, but we did not arrive at a firm conclusion."

Magnoliids were estimated by a 2016 research paper to encompass about 11,000 known living species on Earth, including avocados, magnolias and cinnamon. In comparison, some 285,000 known species were counted as eudicots and monocots.

Researchers now know the DNA of guacamole continued

Heritage of the hybrid Hass

Scientists don't know how old the avocado is, and the new study doesn't address this question. But the research does explore how the avocado has changed - genetically - since it became its own species, branching off from other magnoliids.

The paper shows that the avocado experienced two ancient "polyploidy" events, in which the organism's entire genome got copied. Many of the duplicated genes were eventually deleted. But some went on to develop new and useful functions, and these genes are still found in the avocado today. Among them, genes involved in regulating DNA transcription, a process critical to regulating other genes, are overrepresented.

The research also finds that avocados have leveraged a second class of copied genes - tandem duplicates - for purposes that may include manufacturing chemicals to ward off fungal attacks. (Tandem duplicates are the product of isolated events in which an individual gene gets replicated by mistake during reproduction.)

"In the avocado, we see a common story: Two methods of gene duplication resulting in very different functional results over deep time," Albert says.

"In plants, genes retained from polyploidy events often have to do with big regulatory things. And genes kept from the more limited one-off duplication events often have to do with biosynthetic pathways where you're making these chemicals — flavours, chemicals that attract insects, chemicals that fight off fungi. Plants are excellent chemists," Herrera-Estrella said.

Having addressed some ancient mysteries of the avocado, the new study also moves forward in time to explore a modern chapter in the story of this beloved fruit: how humans have altered the species' DNA.

Because commercial growers typically cultivate avocados by grafting branches of existing trees onto new rootstocks, today's Hass avocados are genetically the same as the first Hass avocado planted in the 1920s. These modern-day Hass avocados are grown on Hass branches grafted onto various rootstock that are well adapted for particular geographic regions.

While the Hass avocado was long thought to be a hybrid, the details of its provenance – 61% Mexican, 39% Guatemalan - were not previously known. The scientists' new map of the Hass avocado genome reveals huge chunks of contiguous DNA from each parental type, reflecting the cultivar's recent origin.

"Immediately after hybridisation, you get these giant blocks of DNA from the parent plants," Herrera-Estrella said. "These blocks break up over many generations as you have more reproductive events that scramble the chromosomes. But we don't see this scrambling in the Hass avocado. On chromosome 4, one whole arm appears to be Guatemalan, while the other is Mexican. We see big chunks of DNA in the Hass avocado that reflect its heritage."

More information

You can read the full scientific article from PNAS: *pnas.org/content/116/34/17081*.

Acknowledgement

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Flies and pollination

Scientists are on the lookout for energetic flies with plenty of body hair to pollinate crops and help expand Australia's fruit, vegetables and nut production, including avocados.

Pollination is vital to the success of many fruit, nut and vegetable crops, with pollination-dependant crops in Australia worth almost $6 billion per year.

As part of a $5.7 million research effort involving some of the nation's leading researchers, fly pollination test sites have been set up on farms in Western Australia (Busselton and Gingin); Queensland (Mareeba, Dimbulah, Walkamin, Bundaberg); Tasmania; South Australia (Mt Gambier); and the Northern Territory (Darwin).

The project is being managed by Hort Innovation and is led by the Western Australian Department of Primary Industries and Regional Development (DPIRD), in collaboration with the University of Western Australia, Western Sydney University (WSU), University of New England, Seed Purity Pty Ltd and Biological Services. The WA Government is contributing $836,000 towards examining the use of new insect pollinators to complement the use of bees and improve horticulture production.

This research will specifically target fly species to determine if they are effective pollinators for commercial avocado, berries (blueberry, raspberry and strawberry), hybrid carrot seed and brassica seed crops, mango and lychee.

This project will provide the knowledge base to identify different insect pollinators that can be used in conjunction with honeybees in specific horticultural industries.

Stage 1

Stage 1 started in 2018, and covers the first three years of the project, involving:

- surveys of field populations of flies in major growing regions across Australia, including avocados, during flowering will identify the most likely fly species capable of being effective pollinators
- using both large whole tree enclosures and small cages around individual flowers to assess the pollination effectiveness of selected fly species

Lead researcher Dr David Cook from the Western Australia Department of Primary Industries and Regional Development, Jasper Farms Agronomist Jacinta Foley and Hort Innovation General Manager for Research & Development Dr Alison Anderson.

- examining individual fly species preferences for target crop nectar types, specifically avocado and blueberry nectar, which has never been done before.

Stage 2

During years four and five, project activities will include:

- developing rearing techniques for the most promising fly species that have been identified, that will enable mass production. This will support their ultimate commercial use in horticultural settings. This work includes glasshouse trials on strawberry pollination at Western Sydney University using the Hort Innovation/WSU research glasshouse
- mark and recapture studies to examine fly dispersal rates, best methods for release and optimal release rates (during flowering) into crops
- a cost:benefit analysis to determine the likely uptake for commercialisation and the business viability around their use
- trials to determine the optimal radiation dose so that released flies are sterile and unable to reproduce.

Background

Hort Innovation General Manager for Research and Development Dr Alison Anderson said exploring different pollination methods was essential to ensure sustainable crop production.

"Bees perform a wonderful service. What this project is aiming to do is support that service by determining which species of native flies can also effectively transfer pollen from plant to plant," she said.

Flies and pollination continued

"We are looking at 'hairy' fly species that have no trouble attaching pollen to their bodies. We also want flies that are energetic and will travel reasonable distances up and down rows of crops, such as hoverflies, rather than staying in one area with limited movement."

Dr Anderson said if certain fly species proved good pollinators, researchers would also determine the most efficient ways for growers to get access to the insects.

"Flies make ideal pollinator candidates because they are present year-round. They regularly visit flowers seeking sugar from the nectar, and their bodies easily pick up pollen," she said.

"Flies are one of the most diverse animal groups in the world, being significant in agrobiodiversity and present in almost all habitats, where their pollination ability enhances seed and fruit production. This project has the potential to extend to many horticultural crops, in particular, protected cropping such as tunnel houses and glasshouses which do not have the benefits of natural pollination."

Jacinta Foley, agronomist on Jasper Farm trial site in Western Australia, said the business was excited by the possibility of using flies as pollinators.

"The prospect of purposefully introducing alternative pollinators to service our avocado trees is an exciting one," she said. "We are very keen to find out which types of native flies are most effective at pollinating avocado crops, and how to encourage their activity at our almost 400-hectare property."

Teams in each of the fly trial locations are mass rearing certain species of flies and testing their performance on various crops, at different times of the day in various weather conditions.

Once complete in 2023, the project will show which types of flies pollinate best in which regions.

Read more

Results of some of the first trials for this project were included in the Autumn 2019 *Talking Avocados.*

Acknowledgement

The *Managing Flies for Crop Pollination* project is led by DPIRD, in collaboration with the University of Western Australia, Western Sydney University, University of New England, Seed Purity Pty Ltd and Biological Services, with funding through Hort Frontiers co-investment - an initiative of Hort Innovation with support from the national avocado industry levy.

Snapshots – International Avocado Research Update

Liz Singh, Avocados Australia

This series of research snapshots have been complied to examine some topics that have come to light during the Regional Forums. Scientific papers were sourced through Google Scholar – easy to use, plenty of great information to discover.

Nocturnal flowering – Really?

Have you ever looked at the overnight temperatures during flowering in your orchard? A study from NZ has demonstrated that the minimum overnight temperature can delay the female phase of the Hass flower from closing resulting in flowers remaining open overnight. Hass which is a type "A" cultivar opens its flowers as female in the morning, then closes before opening as male in the afternoon of the following day. This reduces self-pollination and is a good reason why type "B" cultivars which have the opposite female/male opening cycle are interplanted in orchards for pollination and fruit set. However, this study has shown that the proportion of female phase flowers remaining open overnight increased with decreasing overnight minimum temperatures. What proportions? Well when the minimum overnight temperatures were between 4-6ºC, 50% of the female phase flowers remained open overnight (13-15ºC = 10% remaining open). In contrast 80% of the male phase flowers were open in temperatures 7-15ºC resulting in nocturnal male/female phase overlaps within a single cultivar following cold nights. 4-6ºC seems fairly cool; what is the monthly mean minimum temperature for your region during flowering and how would this affect flowering in your orchard? This new information may provide the opportunity to investigate new nocturnal ways to improve fruit set in your orchard. Read the article for full information and discover the new nocturnal pollinators the study identified via this link *bit.ly/TA302flower*.

Regions	Flowering timing (BPR – Crop Calendar)	Monthly mean minimum Temperature (ºC) – BOM Climate Online
Mildura	October	9.8
Renmark	October	9.0
Pemberton / Manjimup	November	10.3 /10.1
Gingin	October	9.3
Bundaberg	September	13.7
Mareeba	September	15.4
Alstonville	September	11.5
Tamborine	September	10.4
Blackbutt	September	6.5
Stuarts Point	October	15.2
Sunshine Coast QLD	September	13.4

So many questions about Calcium!

With calcium having significant implications for fruit quality, there are still so many questions surrounding the best management of calcium in the orchard. In a study conducted in South Africa in the 90's, we can gain insight into why getting calcium into the fruit is a hard task. The study examined the mineral distribution of calcium in avocado trees and demonstrated (*Figure 1*) that calcium plays a major role in the tree's structural components. Calcium is primarily transported in the tree through the xylem, which transports water from the roots to the leaves at a rate determined by transpriational flow. Therefore, tissues that transpire more will by default acquire more calcium. The fruit is a low transpiring organ and receives its water requirements through the phloem. The phloem contains little calcium content. This study discusses the role of the plant hormone auxin (IAA) in increasing Ca transport to organs of higher metabolic activity. For this reason, increased vegetative vigour during fruit development was shown to suppress fruit calcium concentrations. Manipulating calcium in the orchard, tree and fruit are difficult because calcium is a relatively immobile element and is considered a structural building block; yet we still have so many questions surrounding how we could manage it better. Read the full article for a look at calcium cycling in the orchard and a calcium comparison of Hass vs Fuerte and disease vs health trees, at *bit.ly/TA302calc*.

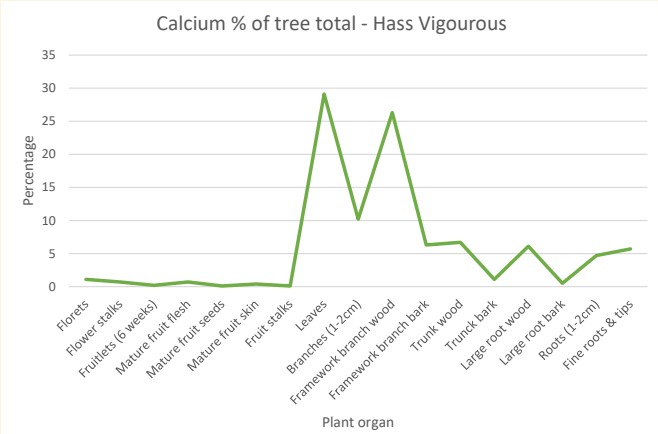

Figure 1.

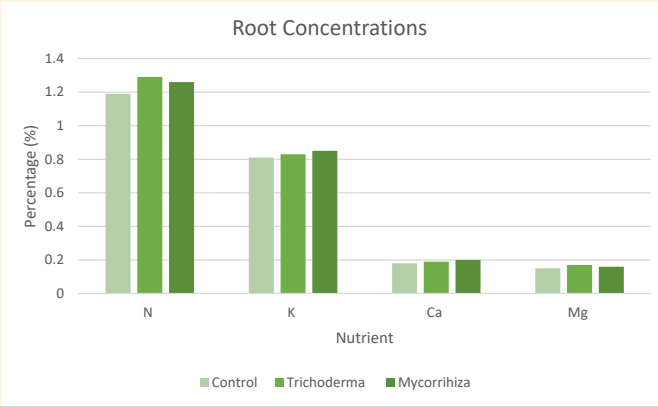

Figure 2.

Microorganisms make good workers

Interest is mounting about the role of microorganisms and how they could be encouraged to improve orchard management efficiencies. A study conducted in Ecuador has been examining the use of Mycorrhiza (*Glomus iranicum* var. *tenuihypharum*) and Trichoderma (*Trichoderma harzianum*) to improve nutrient absorption in avocado seedlings. Results indicated that, in general, inoculation of seedlings with Mychorrhiza and Trichoderma had positive effects on the absorption of nutrients through the roots (*Figure 2*). The study also indicates that microorganism inoculation improved foliar absorption of nutrients (*Figure 3*). Read the full article about the impact of these microorganisms on micronutrients, via *bit.ly/TA302micro*.

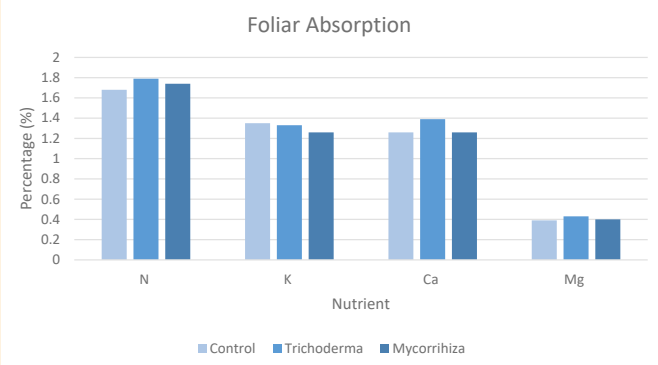

Figure 3.

Figure 4. Cauliflower Stage of Inflorescence (source - http://www.avocadosource.com papers/Research_Articles/01026-7.pdf)

Changes to nutrient sampling?

Have you ever looked at your avocado trees at nutrient sampling time and thought "Which leaves are the right ones to select?" Nutrient analysis is currently conducted on 6-month-old leaves from the non-bearing terminal shoots of the current years' spring vegetative shoot flush, but the correct selection is especially difficult to make. A study from California is pointing to a new nutrient sampling time that is easy to identify and may be more useful in correcting nutrient imbalances in the orchard. The cauliflower stage of inflorescence (CSI) is easy to identify and occurs approximately 4-6 weeks before full bloom which provides time to correct nutrient imbalances before they impact fruit set and yield. The study examined the results of the current sampling standard (leaf) versus the proposed CSI and has published a summary of the CSI optimal nutrient concentration ranges (ONCR) (*Table 2*) for Hass avocado predictive of yields greater than 40 kg/tree. Read the article for full results and a look at CSI nutrient interactions. Maybe conduct a nutrient sample at CSI in your orchard and compare the results. Read the full paper at *bit.ly/TA302caul*.

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.

CSI Nutrient	N (%)	P (%)	K (%)	Mg (%)	S (%)	Zn (mg. kg $^{-1}$)	Cu (mg.kg^{-1})
ONCR	2.7 – 3.0	0.40 – 0.45	1.4 – 1.7	0.15 – 2.0	0.25 – 0.28	40 - 44	6 - 10

Table 2.

Avo a day may lower bad cholesterol

By Katie Bohn, Penn State

Move over, apples — new research from Penn State suggests that eating one avocado a day may help keep "bad cholesterol" at bay.

According to the researchers, bad cholesterol can refer to both oxidised low-density lipoprotein (LDL) and small, dense LDL particles.

In a randomised, controlled feeding study, the researchers found that eating one avocado a day was associated with lower levels of LDL (specifically small, dense LDL particles) and oxidised LDL in adults with overweight or obesity.

"We were able to show that when people incorporated one avocado a day into their diet, they had fewer small, dense LDL particles than before the diet," said Penny Kris-Etherton, distinguished professor of nutrition.

She said small, dense LDL particles were particularly harmful for promoting plaque buildup in the arteries.

"Consequently, people should consider adding avocados to their diet in a healthy way, like on whole-wheat toast or as a veggie dip."

Specifically, the study found that avocados helped reduce LDL particles that had been oxidised. Similar to the way oxygen can damage food — like a cut apple turning brown — the researchers said oxidation is also bad for the human body.

"A lot of research points to oxidation being the basis for conditions like cancer and heart disease," Professor Kris-Etherton said. "We know that when LDL particles become oxidised, that starts a chain reaction that can promote atherosclerosis, which is the build-up of plaque in the artery wall. Oxidation is not good, so if you can help protect the body through the foods that you eat, that could be very beneficial."

While previous research demonstrated that avocados could help lower LDL cholesterol, Professor Kris-Etherton and her colleagues were curious about whether avocados could also help lower oxidised LDL particles.

Randomised trial

The researchers recruited 45 adult participants who were overweight or obese for the study. All participants followed a two-week "run-in" diet at the beginning of the study. This diet mimicked an average American diet and allowed all participants to begin the study on similar nutritional "footing".

Next, each participant completed five weeks of three different treatment diets in a randomised order. Diets included a low-fat diet, a moderate-fat diet, and a moderate-fat diet that included one avocado a day. The moderate-fat diet without avocados were supplemented with extra healthy fats to match the amount of monounsaturated fatty acids that would be obtained from the avocados.

The outcome

After five weeks on the avocado diet, participants had significantly lower levels of oxidised LDL cholesterol than before the study began or after completing the low- and moderate-fat diets. Participants also had higher levels of lutein, an antioxidant, after the avocado diet.

Professor Kris-Etherton said there was specifically a reduction in small, dense LDL cholesterol particles that had become oxidised.

"When you think about bad cholesterol, it comes packaged in LDL particles, which vary in size," she said.

"All LDL is bad, but small, dense LDL is particularly bad. A key finding was that people on the avocado diet had fewer oxidised LDL particles. They also had more lutein, which may be the bioactive that's protecting the LDL from being oxidised."

The researchers added that because the moderate-fat diet without avocados included the same monounsaturated fatty acids found in avocados, it is likely that the fruit has additional bioactives that contributed to the benefits of the avocado diet.

Professor Kris-Etherton said that while the results of the study — published in the *Journal of Nutrition* — were promising, there was still more research to be done.

"Nutrition research on avocados is a relatively new area of study, so I think we're at the tip of the iceberg for learning about their health benefits," she said. "Avocados are really high in healthy fats, carotenoids — which are important for eye health — and other nutrients. They are such a nutrient-dense package, and I think we're just beginning to learn about how they can improve health."

Li Wang, associate professor of public health sciences; Ling Tao, postdoctoral associate at Baylor College of Medicine; Lei Hao, research assistant professor at Texas Tech University; Todd H. Stanley, food product development specialist at Nestlé; Kuan-Hsun Huang, postdoctoral fellow at Tufts University; and Joshua D. Lambert, associate professor of food science, also participated in this work.

Acknowledgements

The Hass Avocado Board, the US National Center for Research Resources and the US National Center for Advancing Translational Sciences helped support this work.

More information

Read the scientific paper at: *bit.ly/TA303LDL*.

International Summary

Snapshots – International Avocado Research Update

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

Production

Irrigation of Hass avocado: effects of constant vs. temporary water stress

Israel (2019): The main objectives of the study were to assess the water demand for heavy fruit load of Hass avocado throughout the growth periods and to investigate the effects of deficit irrigation during sensitive phenological phases on yield. The experimental set-up allowed the comparison between tree responses to three irrigation strategies during the entire growth period (no water stress; excessive irrigation; constant water stress) as well as the comparison between regulated deficit irrigation (RDI) managements applied during the early or the late growth period. The yield of no water stress treatments during three experimental years was very high (25-31 t ha^{-1}) while the yields of water-stressed trees were significantly lower (16-21 t ha^{-1}). More importantly, the yield of no water stress trees was not susceptible to alternate bearing while the yield of water-stressed trees was considerably reduced during off-crop years. Irrigation rates and the actual evapotranspiration coefficient KL=ET/ET0 for the no water stress treatment may serve as a reasonable guide for irrigation management. Fruit load should be taken into account while planning irrigation and fertilisation management and plant-based methods should be used for controlling the irrigation management (scheduling and quantities). The full paper can be purchased here: *bit.ly/TA303irri.*

Phytochemicals, nutrients and environmental factors associated with the roughness of avocado Hass skin in three regions of Mexico

Mexico (2017): The environment in which the Hass fruit develops determines the characteristics of its skin, which could be useful for growing in less favourable conditions. The fruit is exposed to many types of stress and to protect itself produces a wide variety of phytochemicals, called secondary metabolites. It is unknown if aspects such as nutritional composition and skin morphology could also be affected. The study was carried out in commercial Hass orchards with the standard management of each producer in order to determine phytochemical concentrations (total phenolics, total chlorophylls, total carotenoids and lignin) and nutrients (N, P, K, Ca, Mg, S, Fe, Cu, Mn, Zn and B), and to establish their relationship with the roughness of the fruit skin during its development in three regions with different types of climate. The type of climate (warm, semi-warm or temperate) influenced the production of phytochemicals and the roughness of Hass skin. The global analysis showed that the fruits of the warm climate presented the highest concentration of total carotenoids and greater roughness, while in the temperate climate, the roughness was lower. The thickness of the protuberances of the skin and the cork was significantly correlated with the concentration of lignin and macronutrients. Read the paper here: *bit.ly/TA303skin.*

Effect of locality and maturity on the fatty acid profile of avocado Hass fruit

Mexico (2017): Green avocados were harvested in Nayarit, Michoacán and Jalisco. The three batches of fruit were divided into two groups; the former was freeze dried immediately, while the latter was allowed to ripen to the point of consumption. The dry matter, the oil content and the fatty acid profile were determined. The green fruit presented the lowest range in the oil content (12.3-15.5%) compared to the ripe fruit (12.7-17.8%). The ripe Jalisco avocado showed higher oil content (17.8%) compared to Nayarit (12.7%) and Michoacán (17.3%). The content of saturated fatty acids was reduced to 28% by ripening, while oleic acid and linoleic acid increased by 20%. The planting location significantly affects the content of oleic acid; at lower altitudes the content of this acid is reduced up to 14%. The data suggest a possible origin designation for Mexican avocado. PDF available upon request.

Composition and removal of nutrients by the harvested fruit of avocado cv. Hass in Antioquia

Colombia (2018): In three Antioquia producing areas (El Retiro, El Peñol and Amagá) researchers worked to quantify the amount of nutrients removed by the fruit during production. A completely randomised design with 12 replications (trees) was used, for which 25 fruits/tree were collected, from which the fresh and dry weight of the epidermis (skin), pulp, testa (seed coat) and seed were obtained. In each fruit structure, the concentration of N, P, K, Ca, Mg, Fe, Cu, Mn, Zn and B was determined and the removal of each was calculated. The tissue with the highest concentration of nutrients was the testa. The nutrient with the highest concentration in the four tissues was K followed by N. The total removal by the fresh fruit, in kg t-1, for K was 4; N, 3.3; S 0.56; Mg 0.51; Ca 0.31; 0.48 P and in g t-1 for Fe was 0.45; B 0.2; Zn 0.11; Mn 0.01 and Cu 0.03. The full article can be found here: *bit.ly/TA303comp.*

Yield and fruit quality of avocado trees under different regimes of water supply in the subtropical coast of Spain

Spain (2019): In the sub-tropical Mediterranean climate of south-eastern Andalusian coast of Spain, precipitations are scarce and erratic and limit water availability for irrigation. In this study, water productivity (WP) was assessed in a mature Hass orchard along six consecutive seasons. The physiological and agronomical responses of avocado trees to five water treatments (T1-T5) were also evaluated during two consecutive

seasons. Water amounts supplied by irrigation were compared with FAO's estimations. The paper details how the use of lower water supplies impact on stress, yields, fruit quality, fruit drop and productivity. Paper available for purchase at *bit.ly/TA303spain.*

Pollination

Reproductive biology of avocado

Spain (2019): In avocado, more that 99% of the flowers produced at anthesis are not able to set fruits. In order to study why most flowers prematurely abscise while some of them remain in the tree, researchers analysed the progamic phase (from pollination to fertilisation) under the environmental conditions of southern Spain. Results showed that pollination is a critical step in avocado fruit set since most of the flowers had received no pollen at the time of closing in the female stage. Although the probability of a flower developing into a fruit was significantly affected by the number of pollen grains adhered to the stigma, fertilisation and subsequent fruit set can take place with a low number of pollen grains on the stigma. Moreover, a high pollen adhesion also occurs during the male stage, and, although the stigma maintains the capacity to support pollen germination, no fertilisation was observed in flowers pollinated during the male stage. Even after hand-pollination and, in spite of the higher fruit retention observed, fruit set rate was still very low. This suggests that additional factors might be involved in fruit set. The results are discussed in terms of the implications of the environmental conditions on reproductive success and fruit set in avocado. Full text is available for purchase here: *bit.ly/TA303biol.*

Pests & Diseases

Bacterial extracts and bioformulates as a promising control of fruit body rot and root rot in avocado cv. Hass

Brazil (2019): At least 20-40% of annual losses of avocado crops are caused by pathogenic fungi. The chemical treatments of these diseases are inefficient, cause environmental pollution and are increasingly restricted by international laws. This work aimed to assess the biocontrol capacity of a bacterial extract to protect avocado fruits and plants from pathogen infections. Extracts from the bacterial isolate *Serratia* sp. ARP5.1 were obtained from liquid fermentations in a bioreactor. A body rot post-harvest infection model with *Colletotrichum gloeosporioides*

International Summary continued

on fruits was developed and packaging conditions were simulated using the bacterial extract and the commercial fungicide prochloraz as a positive control. Additionally, seedlings infected with *Phytophthora cinnamomi* were performed on two types of avocado (West Indian race and cv. Hass). The Area Under Disease Progress Curve (AUDPC) was recorded using the bacterial extract and a commercial product with fosetyl-aluminium as treatments. The bacterial extract significantly reduced infections by *C. gloeosporioides* on injured avocado fruits at 31.1 µg mL^{-1}. Intact fruits were also protected against body rot infections at the same concentration and showed no significant differences with the commercial fungicide. On the other hand, AUDPC in the seedlings was significantly reduced with the extract treatment at 3 µg mL^{-1} compared to the control. However, a possible phytotoxicity effect of the extract was evidenced in the seedlings. Finally, formulations of the extracts (emulsion and emulsifiable concentrate) were prepared, and bioactive stability was assessed for eight weeks. The emulsion formulates demonstrated very stable bioactivity against *P. cinnamomi*. The extract and the emulsion formulate showed promising results for the control of avocado pathogens. This PDF is available for download: *bit.ly/TA303rot*.

Post-harvest

Estimating avocado sales using machine learning algorithms and weather data

Colombia (2018): There are dozens of avocado varieties, but more than 85% of the avocados harvested and sold in the world are Hass. Information on the market of agricultural products is valuable for decision-making; and this has made researchers try to determine the behaviour of the avocado market, based on data that might affect it one way or another. In this paper, a machine learning approach for estimating the number of units sold monthly and the total sales of Hass avocados in several cities in the United States, using weather data and historical sales records, is presented. For that purpose, four algorithms were evaluated: Linear Regression, Multilayer Perceptron, Support Vector Machine for Regression and Multivariate Regression Prediction Model. The last two showed the best accuracy, with a correlation coefficient of 0.995 and 0.996, and a Relative Absolute Error of 7.971 and 7.812, respectively. Using the Multivariate Regression Prediction Model, an application that allows avocado producers and sellers to plan sales through the estimation of the profits in dollars and the number of avocados that could be sold in the United States was created. Download the paper here: *bit.ly/TA303ai*.

Value adding

Changes in quality and phytochemical contents of avocado oil under different temperatures

Brazil (2019): Avocado oil, which has a high content of monounsaturated fatty acid and health-beneficial phytochemicals, is consumed in salads and also can be used for cooking. Therefore, is essential to study its oxidative and photochemical stability under different temperatures. This work aimed to evaluate the oil oxidation and the phytochemical degradation of avocado oil under three different temperatures: room, 100°C and 180°C. The phytochemical degradation was evaluated for phytosterol, chlorophylls, and carotenoids contents. The temperature was found to significantly influence the oil oxidation and phytochemical stability, with the oxidation/degradation rate constants increasing with temperature. The researchers found avocado oil has its stability and quality affected by temperature, and, therefore, is not indicated for use in long and/or successive heating processes. Full article available for purchase at *bit.ly/TA303oil*.

Nutrition

Lutein across the lifespan: from childhood cognitive performance to the aging eye and brain

USA (2019): Lutein is a non-provitamin A dietary carotenoid found in dark green leafy vegetables, corn, eggs, and avocados. Among the carotenoids, lutein and its isomer, zeaxanthin, are the only two that cross the blood-retina barrier to form macular pigment in the retina. Lutein also preferentially accumulates in the human brain across multiple life stages. A variety of scientific evidence supports a role for lutein in visual as well as cognitive function across the lifespan. The purpose of this review is to summarise the latest science on lutein's role in the eye and the brain across different ages. Find the full paper here: *bit.ly/TA303eye*.

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.

Queensland Government

Hort Innovation Strategic levy investment

AVOCADO FUND

Xylella detection capacity increased

What has been dubbed the number one plant biosecurity threat to Australia is now under the spotlight through a new Hort Innovation funded project aimed at building Australia's capability to quickly and effectively detect and keep the threat at bay.

Xylella fastidiosa, a bacterium transmitted by common sap-sucking insects such as spittlebugs and sharpshooters, is one of the most harmful plant pathogens worldwide.

The impact of Xylella overseas has been catastrophic, infecting more than 200 million citrus trees in Brazil, destroying one million olive trees in Italy and devastating the Californian grape sector – causing annual losses in excess of US$100 million.

The pathogen, not yet present in Australia or New Zealand, can cause significant disease to several agriculturally important crops including grapevines, olives, nuts, citrus, stone fruit, blueberries and cherries, as well as numerous ornamental hosts. It has also been found to impact avocado in other parts of the world.

A new collaborative research project managed by Hort Innovation under the Hort Frontiers strategic co-investment program will be led by Dr Rachel Mann from the Victorian Department of Jobs, Precincts and Regions (JPR) and is additionally supported by Western Australian, NSW and Queensland state based primary industries and the Ministry for Primary Industries in New Zealand.

This collaborative effort ensures that major diagnostic labs in Australia and New Zealand that currently provide diagnostic capability to state and national biosecurity agencies and industry are prepared.

Hort Innovation Research and Development Manager Dr Penny Measham said the project, which supported the delivery of the Department of Agriculture's National Action Plan for Xylella, was looking at new methods for detection and surveillance through the development of innovative diagnostic tools.

"Currently, detection is difficult as the pathogen has a long latent period and not all plant hosts exhibit symptoms," she said.

"Furthermore, the different strains of *X. fastidiosa*, classified into subspecies, can behave like different diseases in different hosts."

Dr Measham said the value of subspecies identification was paramount during incursion mode.

News from Around the World

News from Around the World contains reproduced articles that have been published by various international news sources.

South Korea sets protocol for Peruvian imports

At the end of September, a phytosanitary protocol was established allowing Peruvian Hass avocado producers to ship to the South Korean market, according to the Peruvian Ministry of Agriculture and Irrigation (Minagri).

Hass avocado is added to table grapes, mangoes, which are currently exported to this south-east Asian country of 52 million inhabitants. Industry association ProHass expects to send about 10,000 tons into the South Korean market in the next campaign.

The negotiations began in 2013 with the exchange of technical documents regarding the pest risk analysis. In June 2018, South Korea's Animal and Vegetable Quarantine Agency (APQA) sent pest experts to verify the phytosanitary conditions of orchards, balers and verify the phytosanitary certification system that SENASA (Peru's National Agrarian Health Service) had implemented.

APQA inspectors will be in-country for the first week of each campaign, with SENASA Peru then handling certification.

MINAGRI expects producers and exporters to comply with the requirements of SENASA to be able to export in this next export season.

bit.ly/TA303peru

Mexico's cartels fight to control avocado business

Cat Rainsford, *InSight Crime*

Four competing drug cartels are extorting avocado producers in Michoacán, Mexico, showing how the fruit is becoming an increasingly important source of illicit profits in the context of shifting criminal dynamics in the state.

The Jalisco Cartel New Generation (Cartel Jalisco Nueva Generación – CJNG), the Nueva Familia Michoacana, the Tepalcatepec Cartel and the Zicuirán Cartel are all involved in this growing criminal economy, according to Michoacán's Attorney General.

Michoacán produces more than 80% of Mexico's avocados, with an annual export value of around US$2.4 billion, earning the fruit the nickname "green gold."

The cartels charge a monthly protection payment from avocado producers, calculated per hectare cultivated or kilogram exported. Those who fail to make the payments may be

News from Around the World

kidnapped or killed. One distributor's daughter was assassinated at the door of his business, *El País* reported.

In addition, avocado theft is rampant. At least four truckloads of the fruit are stolen every day in the state, according to the *Guardian*.

Competition for these criminal profits has fed into the wave of violence currently engulfing Michoacán. In August 2019, 19 people were massacred in Uruapan, the centre of Michoacán's avocado industry. Their bodies were displayed in three locations around the town.

Authorities linked the atrocity to a territorial war between the CJNG and the Viagras, the armed wing of the Nueva Familia Michoacana, for control of the town's criminal economies.

InSight Crime analysis

The extortion of Michoacán's avocado growers is not new, but is now resurging as the industry's profitability has boomed as criminal economies in the state have withered.

Michoacán and neighbouring Guerrero have long been prized by criminal groups as the centre of Mexico's heroin production. However, the rise of synthetic opioids has caused the price of opium to plummet to under a third of its 2017 value, leaving drug cartels scrambling for alternative income streams.

Meanwhile, the value of Mexico's avocado industry has quadrupled over the last decade due to the fruit's growing popularity in the United States and Europe. The country's avocado exports to the US market alone rose by 16% between 2018 and 2019.

Several of the state's criminal players are experienced at shaking down the avocado industry. The CJNG has reportedly used the tactic to fund their expansion since the 1990s, while the Familia Michoacana entered the business around 2009. They and their splinter groups were thus well-placed to supplement declining opium profits by tightening the screws on local avocado growers.

The resurgence of this criminal economy also reflects the weakening of Michoacán's self-defence groups. These emerged in 2014 partly in response to such extortion practices and achieved a temporary respite for producers in some regions. In subsequent years, however, many of these groups have themselves been infiltrated by criminals, leaving local businesses vulnerable once again.

Insight Crime is a foundation studying organised crime and its threat to national and citizen security in Latin America and the Caribbean.

bit.ly/TA303mex

Mexico: violence against USDA inspectors

Criminal activity in Mexico is also threatening the future of the country's avocado industry in another way – the US is threatening to suspend the activities of the USDA's Animal and Plant Health Inspection Service (APHIS) over security concerns.

United States Department of Agriculture (USDA) Mexico Preclearance Area Director Marie Martin wrote to the Mexican avocado producers association (APEAM) in early September, after program staff where threatened during an orchard inspection in August, in the Municipality of Ziracuaretiro, Michoacan.

"For future situations that result in a security breach, or demonstrate an imminent and physical threat to the well-being of APHIS personnel, we will immediately suspend the program activities, along with APHIS presence at associated locations, until APHIS and the US Department of State determine appropriate corrective action was taken and required security measures put in place," the official letter, published online by APEAM, said.

"We request your support, and action, to ensure all program growers and packinghouses actively enlist and exercise security and safety measures to protect APHIS personnel conducting program activities."

According to newspaper *Mexico News Daily* there was another incident in early September where inspectors were robbed and their vehicle stolen.

Highlighting sustainability key

At the 9th World Avocado Congress (WAC) 2019, at least two of the world's exporters outlined the need for a greater focus on extending sustainability information to consumers.

The Governor of Michoacán Silvano Aureoles Conejo, called for sustainable production and social responsibility to be part of avocado production in Michoacán.

"Together with the avocado producers we are charting the path of the future, so that only sustainable avocado, with environmental responsibility and social responsibility is consumed in the world," Aureoles Conejo said.

In the presence of the vice president of Colombia, Martha Lucía Ramírez and more than 3,000 attendees from different parts of the world, the state president recognised the potential of Colombia and other countries in the avocado production space to make a worldwide call to move towards productive practices that respect the environment.

Governor Aureoles Conejo stressed the importance of building a sustainability agenda in the industry in Mexico and the world,

Grower Member Application Form continued

Corporate Structure

How would you describe the nature of your operations (please tick)?

☐ Individual ☐ Partnership ☐ Company
☐ Trust ☐ Lessee ☐ Cooperative
☐ Other (please specify) _____

Please indicate the area of property that you crop for avocados (please tick)

☐ 0.5 - 5 ha ☐ 6-19 ha ☐ 20-49 ha
☐ 50-99 ha ☐ 100-149 ha ☐ 150-199 ha
☐ 200-499 ha ☐ 500 ha+

Payment Options

Grower Membership of Avocados Australia is **$250 pa** (+ GST).

You can pay your membership by cheque or credit card. To pay your membership fee, please choose one of the following options:

☐ **Cheque**
Please find enclosed a cheque for $275.00 made payable to Avocados Australia Ltd.

☐ **Credit Card**
Please charge $250 (+GST) to my credit card.
Details are listed below.

Credit card type (please circle): Mastercard Visa

Credit card number: _____

Name on credit card: _____

Expiry date: _____

Signature: _____

Once you have completed this form please place it in an envelope addressed to:

Avocados Australia
Reply Paid 87929
Brisbane Market Q 4106

(no stamp required within Australia)

Or email ***admin@avocado.org.au***

For more information or assistance please go to ***www.avocado.org.au*** or call on **07 3846 6566**

which addressed issues of innovation, sustainability, crop management and the international market.

At the other end of the production scale, the sustainability message was also highlighted by New Zealand Avocado Chief Executive Jen Scoular.

According to *FreshPlaza*, Ms Scoular told Congress attendees not enough was being done to ensure consumers received information about sustainability and best practice production.

Governor of Michoacán Silvano Aureoles Conjelo with vice president of Colombia Martha Lucía Ramírez, and Michoacán's sustainability plan.

"Sustainability must be very much a part of the plans that we make and we must be looking at how we do this; what the impact on the environment, on the people, and on the economies are," she said.

"What we need to do is make sure that we look after our people, environment and economies to ensure this industry is healthy in 100 years."

FreshPlaza reports the New Zealand avocado industry has 1,400 growers and is based on the North Island in a temperate environment, with a production area of 4,000 hectares that is currently active.

"We are happy with the economics and the growth we have had in our industry, particularly in the last five years," Ms Scoular said in *FreshPlaza*.

"What we need to ensure is that growth carries forward, and I don't believe it can without looking after our people, land and economy."

bit.ly/TA303sust1 and *bit.ly/TA303sust2*

Fresh produce into Asia

The Australian avocado industry was part of an October supply chain workshop, helping make fresh produce exports the first choice of importers and retailers in Asian markets.

Avocados Australia CEO John Tyas said the Toward Consistent Export Quality workshop provided a good understanding of the work that is underway.

"While the project currently doesn't include avocado supply chains, the lessons are very transferable," he said.

"It is clear that technology is not a major constraint for delivering high quality product to export markets.

"There are great tools available now to monitor time and temperature. It seems the greatest challenge is to ensure regular and effective communication between supply chain partners. While it sounds simple, this often doesn't happen, resulting in poor quality out turns.

"As an industry, we are well aware of the importance of providing consistently high-quality product, both for our domestic and export markets," Mr Tyas said.

Held in Brisbane, Queensland, the workshop was the result of the "Serviced Supply Chains" export project with collaboration between the Queensland Department of Agriculture and Fisheries, Agriculture Victoria, The University of Queensland, Hort Innovation, the Chinese Academy of Science, the Federal Government, Manbulloo Ltd, Montague Pty Ltd and Glen Grove Orchard Pty Ltd.

Queensland Agricultural Industry Development and Fisheries Minister Mark Furner said product quality and supply chain service were two advantages Australia could build on to maintain a competitive edge in the Asian market.

"The ability to continually deliver quality produce to importers, retailers and consumers is fundamental to growing our export markets in Asia," Mr Furner said.

"Learnings from (the early October) workshop will potentially open opportunities to enhance the reputation of Queensland produce exporters to consistently deliver high quality, fresh products to Asian retailers."

Mr Furner said the Toward Consistent Export Quality workshop was part of a larger three-day Serviced Supply Chains project workshop.

"The workshop has attracted 80 horticulture fresh produce exporters and service providers from Queensland and interstate, key representatives from several research and development supplier and funding organisations, and specialists from Asia," Mr Furner said.

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Orora is pleased to introduce the first paper inserts in Australia for the fresh produce market. The inserts are purely paper and require no separation from the corrugated tray for the recycling process.

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- Available in multiple sizes
- Provides moisture control and ventilation properties
- Protects fresh produce from shock and vibration within the supply chain
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