

TALKING AVOCADOS

New Kangaroo Labels

Sunnyspot Event

Avocado Export Strategy 2019-21

Avocado debut at FoodEx Japan

AUTUMN 2019

Print Post Approved - 100015907

Volume 30 No 1

Avocados Australia Limited

Avocados Australia Limited ABN 87 105 853 807

Level 1, 8/63 Annerley Road, Woolloongabba, Qld 4102 Australia
PO Box 8005 Woolloongabba Qld 4102 Australia

Phone: +61 7 3846 6566 Fax: +61 7 3846 6577

Email: admin@avocado.org.au

Web: www.avocado.org.au

John Tyas Chief Executive Officer +61 7 3846 6566 j.tyas@avocado.org.au

Avocados Australia Directors

Jim Kochi Chairman, North Queensland	0422 133 890	j.kochi@avocado.org.au
Tom Silver Tamborine & Northern Rivers	0402 017 239	t.silver@avocado.org.au
Daryl Boardman South Queensland	0427 151 033	d.boardman@avocado.org.au
Kym Thiel Tristate	0437 939 119	k.thiel@avocado.org.au
Eric Carney Central Queensland	0403 917 769	e.carney@avocado.org.au
John Walsh Central Queensland	0428 268 200	j.walsh@avocado.org.au
Robert Price Sunshine Coast	0419 329 411	r.price@avocado.org.au
Ian Tolson Central New South Wales	0418 262 595	i.tolson@avocado.org.au
Dudley Mitchell Western Australia	0439 802 293	d.mitchell@avocado.org.au
Brad Rodgers Western Australia	0412 912 764	b.rodgers@avocado.org.au

Talking Avocados is published by Avocados Australia Limited.

Published: Quarterly – Autumn, Winter, Spring and Summer

Editor in Chief: John Tyas

Managing Editor: Lisa Yorkson

PO Box 8005 Woolloongabba Qld 4102

Email: TalkingAvocados@avocado.org.au

Ph: +61 7 3846 6566 Fax: +61 7 3846 6577

Circulation: 1000 Copies

Designed and Printed by: Snap Brisbane Felix Street
Level 7, 10 Felix Street Brisbane 4000 Ph: **07 3221 5850** Email: brisfelix@snap.com.au
www.brisfelix.snap.com.au

Subscriptions: Four issues per year: Australia: AUS \$65.00
New Zealand: AUS \$85.00
Rest of the World: AUS \$100.00

Advertising: Avocados Australia Limited PO Box 8005 Woolloongabba Qld 4102
Ph: +61 7 3846 6566 Fax: +61 7 3846 6577 Email: TalkingAvocados@avocado.org.au

Disclaimer: This publication is produced upon the understanding that no responsibility is accepted by Avocados Australia Limited (ABN 87 105 853 807), its Directors and Officers or the Editor for any opinions, claims, statements made and views expressed in any edition of Talking Avocados. Horticulture Innovation Australia (Hort Innovation) and Avocados Australia Limited make no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of information in Talking Avocados. Reliance on any information provided by Hort Innovation and Avocados Australia Limited is entirely at your own risk. Hort Innovation and Avocados Australia Limited are not responsible for, and will not be liable for, any loss, damage, claim, expense, cost (including legal costs) or other liability arising in any way, including from any Hort Innovation, Avocados Australia Limited, or other person's negligence or otherwise from your use or non-use of Talking Avocados or from reliance on information contained in the material or that Hort Innovation or Avocados Australia Limited provide to you by any other means. Readers should rely on their own inquiries when making decisions concerning their interests. All material in the magazine is copyright. Reproduction in whole or part is not permitted without the written permission of the editor. Talking Avocados is published through the National avocado industry communications program (AV18003), funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Wherever you see this logo, the initiative is part of the Hort Innovation Avocado Fund. Like this publication itself, it has been funded by Hort Innovation using the Avocado levy and, in the case of R&D, with contributions from the Australian Government. Some projects also involve funding from additional sources.



In this issue

Chairman's Perspective	3
CEO's Report	4
Around Australia	6
New avocado extension project	12
Improving avocado fruit quality	14
New Kangaroo labels	15
How reliable is our avocado data?	16
Sunnyspot sprayer field day success	19
New Best Practice resources	23
Australian Avocado Export Strategy	24
Avocado debut at FoodEx Japan	25
Strong six months for Aust exports	26
Indonesian free trade & avocado	27
Global production nears 6MT	28
Woolworths new requirements for labour hire	29
Hort Award changes	30
Victoria's new labour licensing	31
Migrant Workers' Taskforce	31
New national produce body	33
Nuffield scholarship applications	34
Hort Connections 2019	35
Australian Avocados marketing	36
Reaching avocados' key influencers	40
Grower Profile	42
Trial results for fly pollination project	46
Xylella fastidiosa, biosecurity threat	49
Xylella coordinator appointed	51
Verticillium wilt in WA	52
Small Tree-High Productivity	54
Snapshots Intl Avocado Research	57
Improving supply chains	60
New WA capacity building	61
Seed extract shows promise	62
News from Around the World	63

Front cover Sunnyspot Field Days at Ravensbourne Qld. Joseph Canning, Hawkeye Access.

Chairman's Perspective

In August this year, Australian avocado growers will have been paying the avocado levy for 28 years. That's 28 years of hard work by our industry via the levy to improve the quality of avocados reaching the retail shelves both here and abroad.

The national levy began on 1 August 1991 (before that, work was carried out individually by various state government agriculture departments) and by 1992, the industry was promoting a list of 20 agreed upon research priorities. The top five? Pests and disease control, quality assurance, rootstock, fertiliser and plant nutrition, and retail and wholesale handling.

One of the first projects announced was quality improvement work. As they said at the time (remember, this was 1992): *Recent consumer research indicates dissatisfaction with the internal quality of avocados and market expansion will be limited if consumer confidence is low.*

Well, times have both changed, and stayed the same. We've certainly come a long way in terms of improving the quality of avocados in the past 30 years, but our concern about ensuring our consumers are always getting the best piece of fruit remains.

It doesn't matter where we're growing our fruit, whether it's my farm in North Queensland or one in New South Wales, Victoria, South Australia, Tasmania, Western Australia (and possibly even the Northern Territory in future), we all want to produce the best.

Between those first levy-funded projects and now, we've improved the consistency of quality of our fruit.

A quick perusal of current and just completed avocado levy funded R&D efforts shows us projects to implement best practice for avocado fruit management and handling (see page 60 for more on this new project), in market sampling, reducing seasonal variations, improving disease and pest management (many projects), and supply chain quality improvement.

All of this leads to just one place: better fruit for our consumer. We're doing the research, we're making the changes on our farms, in transport, in packing, in wholesale and at retail level.

As an industry, we are fully aware of how well our avocados

must be treated to give our customers the best eating experience. We do not want our consumers to get their avocado home, cut it open and find a rot or extensive bruising.

I encourage everyone, across our whole industry, to avail themselves of the information available not just in every edition of *Talking Avocados* but at the future extension events (yes, the new project is now up and running, check page 12), in our extensive Best Practice Resource (www.avocado.org.au/bpr), from your peers, your agronomists, and importantly, your customers. Our work on improving quality didn't start in 1992, and it's not finished in 2019. It's a constant, ongoing series of improvements, for which we are all responsible.

Jim Kochi

Jim Kochi, Chairman, Avocados Australia Limited



Red Copper Fungicide
Superior disease control

Contact Steve Phillips 0477 626 677 for more information

+ Safe

+ Effective

+ Economical

Authorised Australian Distributor Tanuki Pty Ltd | www.tanuki.com.au | office@tanuki.com.au

CEO's Report

World Congress pre-tour dates announced

The dates for the Australian industry's 2019 World Avocado Congress pre-tour to North America have now been set.

This tour, visiting the Californian growing regions in Ventura County and San Diego County, will be held from 17-19 September. Attendees will need to arrive in Los Angeles on 16 September to start early the next day.

Accommodation, meals and ground travel during the California tour will be organised as part of the Australian industry's tour package.

Participants will be required to arrange their own flights to California, and then to Medellin, Colombia, for the start of the World Congress.

The tour plans to include visits to orchards, trial sites (including regular and high-density planting), variety and rootstock trials, integrated pest management, and nursery set-ups.

More details about the booking cut-off date and costs will be

released soon via *Guacamole*.

Please note, you will also need to make your own arrangements (including registrations) for the 2019 World Avocado Congress and associated activities:

<https://worldavocadocongress.co/>.

The Australian industry tour is being organised as part of the new extension and industry development project (AV17005) by the Queensland Department of Agriculture and Fisheries and Avocados Australia.

If you are interested in participating, please contact Amanda on admin2@avocado.org.au.



FoodEx Japan

It was great to showcase Australian avocados at the FoodEx trade show in Japan for the first time this year. With market access granted for Australian Hass late last year, the timing was good, and some Australian product was available to display. Mexico dominates the market in Japan, but early indications



Avocados Australia CEO John Tyas (third from right) at FoodEx Japan 2019. This is the first year avocados have featured on the stand, following the country's decision to allow imports from specific Australian regions in last 2018. Image: Hort Innovation.

show that there are markets for a higher quality, higher priced Australian avocado.

Read more on page 25.

Avocados Australia appoints new Industry Development Manager

Avocados Australia has appointed a new Industry Development Manager, Liz Singh. Liz's role is to build capacity and facilitate



adoption of orchard best management practice. Liz has extensive experience in industry development roles, and will play a major role in the recently approved industry development and extension project, funded from the Hort Innovation Avocado Fund.

Planning is already underway for the three-year project which is a collaborative partnership between Avocados Australia and the Queensland Department of Agriculture and Fisheries with Simon Newett as Project Leader. This new project will deliver regional forums, foundation workshops, advanced management workshops and more with more information about the project to be provided over the coming weeks. More about this exciting new national project on 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.

John Tyas

John Tyas, CEO, Avocados Australia Limited

Are you looking for a service or supplier for your avocado business?



Our solution is...

Visit the Avocado Directory!

Find who you need in the avocado industry in this easy to search online directory!

www.avocado.org.au

**To find out how to list, contact:
07 3846 6566 admin2@avocado.org.au**

Around Australia

Central New South Wales Report

By Ian Tolson, Avocados Australia Director



After very little rain being recorded throughout the summer period, the start of Autumn, although hot, has at least provided some afternoon storms. Thankfully no reports of hail or damage to orchards in our region thus far.

This region needs some significant rainfall events to fill dams and water tables within the next few months. If only we had received all the rain the weather presenters had promised! Those without irrigation systems are finding these conditions quite challenging.

Some growers across the region are reporting a smaller harvest than last year. Though yield is down, fruit is sizing up nicely. The way the year is flying past, after all it is nearly Easter, the region will be looking to start harvest by mid-June.

It wouldn't be a *Talking Avocados* report without the reminder to stay vigilant with orchard management and focus on producing a premium product, consumer satisfaction equals repeat purchasing therefore ensuring our industry's future.

In exciting news for the industry, the new avocado extension project is starting (see page 12 for more) and the first regional forum will be held in our area on 15 May. Keep an eye out in the *Guacamole* email newsletter for more information.

Western Australia Report

By Dudley Mitchell, Avocados Australia Director



The Western Australia season is all but finished with only a handful of growers still supplying the market. In all, the 2018/2019 season was the biggest year on record for Western Australia with the final figure settling at around 4.4-4.6 million trays. It will be remembered by our growers as the beginning of a new paradigm in which returns are lower and efficiencies drive profitability.

Times are certainly changing and our focus as a marketing block needs to take aim in a much more concentrated way on import replacement. Anecdotal quality concerns over New Zealand fruit were backed up by a pilot study over the Christmas break of retail quality in Queensland and New South Wales, which found a higher incidence of rots in New Zealand fruit compared to Australian fruit – hopefully the chains will start to take notice and consider the consumer experience as a far more important driver of profitability than they have in the past. You can read more about this report on page 14.

The additional threat of access to the Australian market being given to Chile adds impetus to the West's efforts to educate the markets on why local product is best and a long term retail monitoring project would go a long way towards not only highlighting this factor but also giving us, the growers, a

measure of our own standard which definitely can do with some improvements.

The coming year will bring with it many challenges the biggest being the volume of fruit forecast to be harvested. Fruit set was generally very good with established plantings looking like having a 10-15% increase in marketable fruit at this stage. The big jump will be in younger orchards carrying their first crop and this could inflate volumes between the five and six million tray mark. While we still have an autumn drop to contend with and a windy winter, it is quite feasible that the 2019-2020 crop could be the largest on record. This means that marketing coordination and commitments need to be locked in early so that effective programs can be put in place. Accurate crop estimates are necessary for this and I would encourage all growers to share their data with their marketing vendor so that programs can be put in place early.

For those in Western Australia, I wish you all the best for the off season – enjoy your break, you're going to need to be rested for next year!

Tristate Report

By Kym Thiel, Avocados Australia Director



Most growers in the Tristate have come through the 2018 harvest relatively disappointed with average to below average crops but the signs for 2019 are the complete opposite. Trees in most cases are dripping with fruit that has in most cases hung on well considering the extreme heat and dry conditions experienced throughout the basin over summer.

Fruit has also continued to size well and by the time harvest begins, which is still some months away, it will be around the mark. The only negative at the moment is the amount of blemished fruit on the trees. For those that have looked closely blemish levels are well up on anything I have ever seen before which can be attributed to the very windy spring and early summer conditions.

With a heavy crop hanging, the threats to growers before harvest come in the way of frosts, due to the extremely dry conditions and the lack of water going forward in the major Murray-Darling Basin storages.

Recent meetings held in the Riverland by Primary Industries and Resources SA (PIRSA) highlighted just how dry things have been and where we are likely to be at the end of the Financial Year given the dry outlooks by the Bureau of Meteorology. Growers should closely look at their individual situations in regard to water requirements, lease water and how to manage carryover.

As production increases locally and nationally, I have mentioned before the importance of export development and access for the industry. Enquiries and discussions continue to be had at all levels to make this a reality. Growers can play their part by ensuring they are growing as high a quality fruit as possible so when the time eventuates we can capitalise on these

opportunities. And this will of course also help fuel domestic consumption by ensuring when a customer purchases an avocado, they have a wonderful eating experience. This is something that was lacking for part of the summer period as I have had many comments made to me by city-based consumers about the old and poor state of fruit they purchased.

Sunshine Coast Report

By Robert Price, Avocados Australia Director

Good news for Sunfresh Marketing and Natures Fruit Company members is the forming of a Memorandum of Understanding.



During recent months, Sunfresh Cooperative and Natures Fruit Company have been actively examining how they can engage with each other to deliver better value for their respective shareholders. During this time, they have identified many sustainable shareholder benefits that would flow from a collaborative and not a competitive approach to doing business. The companies say their underlying focus will be on generating improved returns for their grower members. This will happen in a number of ways, not the least of which will be the co-ordination of their marketing efforts.

The Glasshouse Mountains packing facility will become available to all Sunfresh growers seeking an alternative for packing their fruit. This additional throughput will have the effect of reducing unit packing costs for both parties. Similarly, Natures Fruit growers will have access to the Sunfresh avocado processing facility enabling them to improve their returns on 'factory grade' fruit.

The season to date on the Sunshine Coast

Again, the South East of Queensland is experiencing seasonal conditions that are abnormal. In all, the rain, floods and storms the country has been experiencing has not hit as hard in SEQ. We have, in this area, had some pockets of severe hail and storm damage but the heavy rains have gone around us. Those areas around the Sunshine Coast have had sufficient wet weather but 50km inland has not been as fortunate. Interestingly, in the Mary Valley there has only been approximately 300mm of rain and while this has maintained an adequate moisture level for the orchards with supplemental irrigation it has not been enough to replenish the deeper groundwater. I am sure the effects of this will have consequences later this year.

Anecdotally, our property is in the Yabba Creek and in the last 15 years the bridge, 159m from our entrance, has been flooded each year to the extent of closing the road, a couple of times by 15m. This year the water level has not risen more than 300mm.

Albeit, the crops are looking good with sizeable fruit and little fungus or insect damage.

Central Queensland Report

By John Walsh, Avocados Australia Director

The Shepard season in Central Queensland has come to an end and despite the region's crop size being down, values remained consistent with last year.



Some growers have already started picking Hass, and volumes

ANVAS ACCREDITED NURSERIES

ANVAS accredited trees can be purchased from the following nurseries:

Anderson Horticulture

Graham Anderson
Duranbah Road
Duranbah NSW
Ph: 0438 390 441

Fleming's Nurseries Qld

Liz Darmody
71-83 Blackall Range Rd
Nambour Qld
Ph: 07 5442 1611

Turkinje Nursery

Peter & Pam Lavers
100 Henry Hannam Drive
Walkamin Qld
Ph: 0419 781 723



The Avocado Nursery Voluntary Accreditation Scheme provides a contemporary approach to high health avocado nursery production, providing greater confidence for growers about the health status of plants sourced from accredited nurseries.

www.avocado.org.au/our-programs/anvas/

Around Australia continued

A LEGEND IN THE FIELD



Manufactured in South Australia, you can be certain Toro irrigation products are made specifically for Australian conditions.

**WATERBIRD®
MINI SPRINKLERS**



Anti-insect spinner



Low in-field maintenance



Pressure Compensating for even flow



UV resistant



Australian made



1300 130 898
toro.com.au



are looking okay. However, the with the lack of wet weather, the quality will be good.

The really dry summer has made us appreciate the irrigation available in this area, but nothing replaces getting some good rain.

The DAF Queensland research station in Bundaberg hosted a Small Tree-High Productivity Initiative field day in April, and by all reports it was a good event. Topics of interest included results of a baseline study into light interception and yield for avocado, and a comparison of planting densities (high, medium and conventional).

Of great interest is the news the latest avocado industry extension project is underway, with Simon Newett once again the project leader. As part of this project, Avocados Australia has employed an Industry Development Manager (see more in the CEO's report on page 4). The new national extension project will include events across the country as well as a range of other activities, including updates to the Best Practice Resource. You can read more about it on page 12.



After enduring the intense drought and narrowly missing a bushfire, three orchards in the Tabulam area were hit by hail from a large and intense but isolated cell. Ai Tee Hartley, from Crescent Plateau, said the hail on 21 March was 4.5cm in diameter (pictured), and damaged not only the fruit but also young shoots. "We're estimating a 50% loss from fruit fall and quality downgrade; if it's less by the time we're picking in June, we will take it as a bonus," she said. "The dry has not helped because the fruit has not sized up properly." Ai Tee said she understood two other avocado orchards in the Pretty Gully area were hit hard by the same storm. Photo: Jason Bernhagen.

Tamborine and Northern Rivers Report

By Tom Silver, Avocados Australia Director



Unfortunately growers in the west of our region have suffered severe hail storms in recent weeks, during what was hoped to be drought breaking rains. The affected farms had been expecting excellent crops but are now left with greatly reduced yields and expected reject downgrades between 50 and 90%.

The hailstorms have come on top of what has been a protracted and continuing dry season which has meant no big rain events to even begin filling up water storages. In the 32 years our family has farmed here it has never been this dry at this time of the year; the extreme dry is only now being tempered by lower daytime maximums as autumn kicks in.

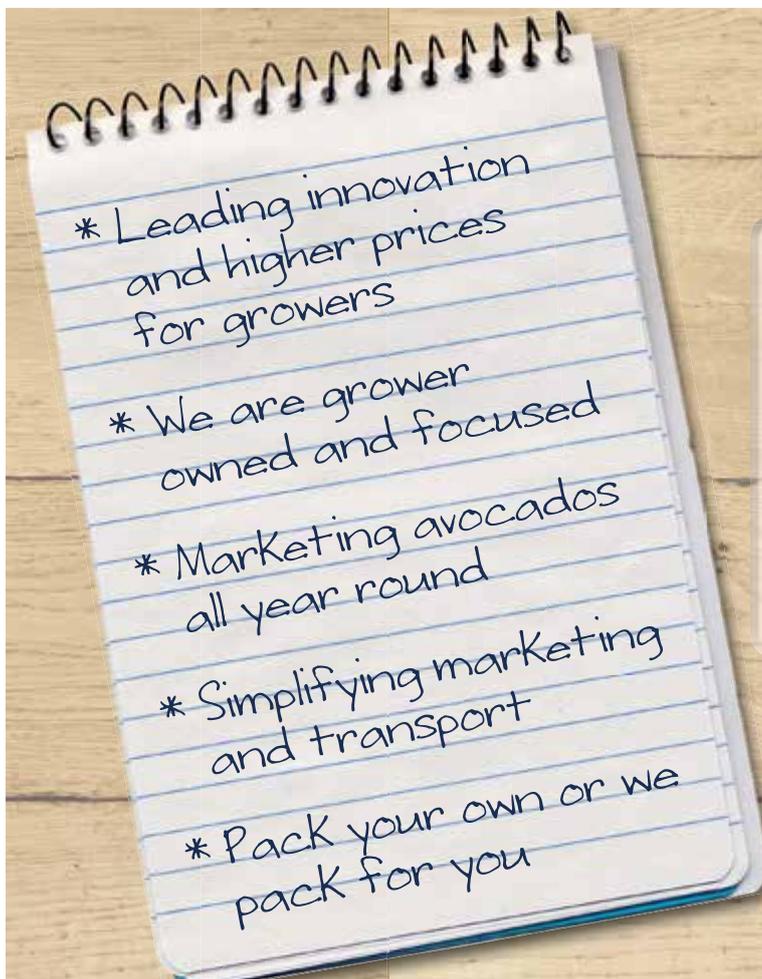
As previously reported the dry conditions have led to cleaner, but generally smaller fruit size. Though extreme sunburn damage and pepper spot don't seem to be an issue for growers, yellowing and skin colour change is an issue in orchards with insufficient leaf cover.

As you would probably be aware, the Chilean avocado industry

has enacted its Australian Import Application, prompting a review conducted by the Australian Government Department of Agriculture and Water Resources (DAWR) into biosecurity import risks and requirements, which has been released for public comment. The review is science based and rigorous, only looking at the facts, it does not bring into question overseas cost of production including wage differences, as this is the free



The Foyster family of Aussie Orchards in Pretty Gully in the Tamborine Northern Rivers region lost an estimated 80% of their crop to the severe March hailstorm. You can read more in the ABC: bit.ly/TA301hail. Image: Julia Foyster.



**CHANGING THE WAY
AVOCADOS ARE
MARKETED**

JOIN

**The
Avolution**

CALL US NOW!

Antony Allen +61 0409 330 030

Sam Manujith +61 0448 808 280

Dan Cork +61 0448 808 437

marketing@theavolution.com.au

Around Australia continued

trade world we now live in. Avocados Australia, in partnership with Hort Innovation, has been on the front foot with this issue, assisting the department in identifying what potential biosecurity issues there are and how they can be managed.

Whether or not Chile and possible other avocado producing countries will actually send fruit to Australia in the future will be interesting. Significant domestic production increases and subsequent effects these might have on the domestic Australian price may well also sway the South American exporters plans.

I wish all growers the best possible season for 2019.

South Queensland Report

By Daryl Boardman,
Avocados Australia Director



The crop in South Queensland is mixed for both yield and fruit size due to dry growing conditions, hail and other weather implications during the growing period.

For the region, it was exciting for me to be able to organise and run a special sprayer event at my family's Sunnyspot operation in March (pages 19-22 for more). The reaction from growers

and the wider industry made the effort put in by our team worthwhile.

For this event, we liaised with sprayer manufacturers from across the country to be on site not just for the field day but also for an evaluation day beforehand. This meant we could present growers with results of test sprays held in the same orchard, under the same conditions on the day of the event itself. We were also able to have the sprayers run up and down orchard rows on the day; this was invaluable for those considering what is, after all, a significant purchase.

I know from feedback on the day that this style of event would be very well received in future, for a range of different orchard machinery and inputs. There is a need for more of these types of events to be levy funded, to extend to growers the best way to use new technology or research that has been done. Even jogging their memory on previous good research is also important. (In some good news, the latest industry-funded extension project has just been announced, more on page 12.)

There's also another excellent opportunity coming up for growers: the World Avocado Congress in Colombia in September. This event is an opportunity to hear from, talk to and learn from experts in our industry (from growers to researchers and

GROW YOUR BRAND



With Quality End-To-End Label Solutions

- Custom & stockline labels & tags
- High quality applicators - automatic, manual, in-line & in-tray
- Track & trace bin tag systems
- Labels for packaging, cartons, punnets, boxes & pallets
- Thermal printers, labels & tags
- Professional label design



 **label press**
(QLD) PTY LTD
The Presentation Professionals

98 Cobalt Street, Carole Park Qld 4300 Email: sales@labelpressaaustralia.com.au

www.labelpressaaustralia.com.au

FREE CALL 1800 773 207

everyone in between) from across the world. In addition to the conference tours, the Australian industry is also arranging a pre-conference tour of North American growing regions. You can read more about that in our CEO's report on page 4.

In all, 2019 has some exciting opportunities for all of us, we just perhaps need the weather to be a little kinder.

North Queensland Report

By Jim Kochi, Avocados Australia Director



Well, the Wet season is certainly at play in the North at the moment. After various cyclones and rain depressions, we now have a lovely, steady rain that's delaying picking and transport of the last of the region's Shepard and the start of the Hass.

However, given the issues in other areas of the country where it's been exceptionally dry, I definitely won't be complaining.

The rain will, however, impact on supplies from the region over Easter, but is unlikely to impact on quality. The quality of fruit out of North Queensland has been good this season but we have seen some consumer feedback about "watery" or "very hard" fruit that doesn't ripen in a timely manner. I can only encourage everyone to once again, keep an eye on their dry matter. The more consistently we provide good quality produce,

the more consistently our customers will put our fruit in their shopping baskets.



Avocados Australia director Tom Silver was busy in February, applying mulch on his Tamborine Northern Rivers farm.

SPREADCO AUSTRALIA

ROTATIVE SPREADERS FOR MANURE MULCH, COMPOST & STRAW
PRECISE ROW SPREADING 0.5-5M
MODELS FROM 2M² TO 10M²

INTERNAL HYDRAULIC DOOR NOW AVAILABLE!
PRICED FROM \$19,900

HAVE YOU TICKED ALL THE BOXES?

- Bi-directional floor
- 6 Months parts warranty
- Hydraulic brakes
- Australia wide delivery
- Best price guaranteed
- INOX 304 SS option

litana
'ITALIAN QUALITY'

VINEYARDS & ORCHARDS

Malcolm Smith 0419 216 458
Comboyne NSW Australia
www.spreadcoaustralia.com.au

New avocado extension project starts

Simon Newett and Bridie Carr, Maroochy Research Facility, Nambour, Queensland

Fifteen months after the completion of the avocado industry's last extension project, a new three-year project is scheduled to commence in April.

The project will be led by the Department of Agriculture and Fisheries (DAF) Queensland and co-delivered with Avocados Australia Ltd (AAL) with collaboration from the Western Australian Department of Primary Industries and Regional Development (DPIRD).

The avocado industry in Australia continues to expand, however, to remain profitable in the long term quality and yields need to improve to raise consumption and successfully compete with anticipated imports from countries with lower production costs.

The project will deliver a range of events and resources, and is aimed at improving fruit quality and yields.

The DAF project team includes Simon Newett and Bridie Carr in Nambour, Helen Hofman in Bundaberg, Noel Ainsworth in Brisbane, Ingrid Jenkins in South Johnstone, Geoff Dickinson and Ebony Faichney in Mareeba, and from Avocados Australia in Brisbane John Tyas, Liz Singh, Amanda Madden and Lisa

Yorkston, and from DPIRD in Western Australia, Declan McCauley.

A range of events will be available, including:

Regional forums – These events will include shed and field sessions similar to the Regional Study Group and Qualicado workshops delivered in previous projects. There will be one per year in each of the eight major production regions in Australia.

Foundation workshops – these two-day events incorporating instructional and practical aspects will be held in each of five production regions. Growers and resellers are encouraged to attend.

Advanced management workshops – three invitation-only events will explore key topics such as canopy management, irrigation and nutrition. Detailed reports and updated recommendations will be delivered via the industry best practice resource. It is expected that these workshops will also identify potential areas for further R&D. Associated with these events will be in-depth literature reviews, consultation with local and international experts and surveys of current practices.

Capital city wholesaler meetings – two meetings over the life of the project will be conducted in each of the five capital



Working to your Advantage

- Located in the clean, green and picturesque South-West of Western Australia, AP&MS sets the standard with years of knowledge and experience
- Our state of the art packing facility was purpose built to maximise efficiency and reduce costs to our Growers
- We use creative, new and innovative marketing programs and work with our customers to ensure that we always deliver the best products
- Always working to achieve the best ROI to our Growers
- We have both Woolworths & Coles Vendor numbers
- Established food service market
- Fresh exporter
- Avocado Export Company (AEC) has established export markets in Singapore, United Arab Emirates and Malaysia



Contact Us



40 Ralston Road, Ringbark
Western Australia 6258



+61 8 9771 1632



Joshua Franceschi +61 409 680 670
Sophie Cremasco +61 431 273 876



PO Box 901 Manjimup
Western Australia 6258



www.advancepackingandmarketing.com.au



josh@westnfresh.net.au
sophie@westnfresh.net.au

city markets to keep agents and wholesalers up-to-date with recommended fruit handling procedures and relevant industry developments.

Tour of avocado industry in California and the World Avocado Congress in Colombia – in conjunction with the World Avocado Congress (WAC) in Colombia in September this year a short tour will be organised to visit key avocado sites in California. Participants will need to fund their own attendance. Some members of the project team will attend the WAC and will report findings to the Australian industry at Regional forums.

Additional resources and services in the new project will include:

Avo Alerts – timely lists of key orchard practices that fall due each month for six different regions during the 36 months of the project.

Avocado Problem Solver Field Guide – an updated edition produced later in the project will include information on new pests and diseases and fresh information on others.

Best Practice Resource (BPR) – new information as well as updates to existing information. The BPR will be the 'go to' site for almost all information produced by the project.

New scientific literature – the project team will monitor and review new scientific papers and make relevant information available to growers.

Online forum – a new module for growers' questions and answers that will be accessed via the BPR.

Posters – two new educational/instructional posters for growers.

Phenological cycles – new growth cycles will be developed for important new varieties and production regions.

Videos – three new educational/instructional videos will be produced that will be accessible via the BPR.

The project team is looking forward to working with growers, consultants, resellers and those in the supply chain to deliver these events and resources. The aim of the project is to improve the productivity and fruit quality from Australian avocado orchards. As the project progresses, we will be seeking feedback to maximise its effectiveness.

More information

For more information on the project, please contact Simon Newett (Simon.Newett@daf.qld.gov.au).

Acknowledgement

This project, *Avocado industry development and extension* (AV17005), is a strategic levy investment under the Hort Innovation Avocado Fund. The project is delivered by the Department of Agriculture and Fisheries Queensland, Avocados Australia Ltd and the Western Australia Department of Primary Industries and Regional Development and funded by Hort Innovation using the avocado industry research and development levy, with co-investment from the Queensland Department of Agriculture and Fisheries, and contributions from the Australian Government.

**Hort
Innovation**
Strategic levy investment

**AVOCADO
FUND**



Department of
Primary Industries and
Regional Development



Improving avocado fruit quality

Improving avocado fruit quality is essential in order to continue to grow demand for Australian avocados.

During summer, avocados are mostly supplied by Western Australia, with the gap between demand and what the domestic market can supply filled by imported fruit from New Zealand.

During October and November 2018, anecdotal evidence suggested that rots were a major issue in avocados on the Australian market, with many fruit failing to meet consumer expectations. Poor retail quality reduces current and future sales, and erodes consumer confidence in avocados generally.

Before Christmas, Avocados Australia initiated a small-scale Hort Innovation-funded project to sample and assess the quality of avocados on retail shelves.

In total, 31 samples (310 fruit in total) of New Zealand fruit and 32 samples (320 fruit) of Australian avocados were collected from retail stores in Brisbane and Sydney in late December 2018 and early January 2019.

Overall, 22% of the New Zealand fruit had significant damage (mainly rots), compared to 10% of Australian fruit (mainly bruising).

The report determined that above average rainfall and flooding events earlier in the New Zealand growing season were likely to be the underlying cause of the high incidence of rots in New Zealand fruit.

“Delays during transport and ripening, due to quarantine intervals may have also contributed. However, severity of rots can also be induced by many other pre- and postharvest practices. It is essential that growers and packers follow postharvest best practice to try and minimise this issue,” the report said.

The quality issues were also acknowledged by the New Zealand industry. In the March 2019 edition of the New Zealand Avocado Growers’ Journal *Avoscene*, marketer Regan Booth from Primor said better fruit quality would have allowed for a far smoother season.

“Fruit quality and poor export pack-outs have affected us both locally and offshore,” Mr Booth said in *Avoscene*. “If we don’t sort this out quick smart, we stand to lose all the ground we have gained in our overseas markets.”

Avocados Australia CEO John Tyas has shared the report with New Zealand Avocado Growers who clearly recognised the importance of improving fruit quality throughout the supply chain.

“Whether the fruit is from Australia or elsewhere, a bad quality experience can stay in the mind of our consumers for long periods, affecting their future purchase decisions.

“Working to continuously improve the quality of fruit available at retail shelf is important for the future growth of our domestic market as well as other markets,” Mr Tyas said.

More information

The final report for this project is in the BPR Library, in the R&D Report section (the project code is AV18006): www.avocado.org.au/bpr.

Acknowledgements

The *Avocado retail sampling* project (AV18006) has been funded by Hort Innovation, using the avocado industry research and development levy and contributions from the Australian Government.



INTERMERCATO GRAPPLES

High performance grabs, grapples and rotators for Forestry, Transport, Construction and Recycling



Selective limb removal pruning shears

Cameron Moir
(Sales and Support)
0417 669 707

1300 88 21 61
sales@grapples.com.au
www.grapples.com.au

New Kangaroo Labels

Avocados Australia has managed the Kangaroo Label for use on Australian grown avocados since 2011, and there's recently been a significant update.

Avocados Australia CEO John Tyas said the major change was the introduction of databar by GS1 and the need for packhouses and growers to manage their own databar requirements.

"Avocados Australia is proud to continue with and support the use of the uniquely identifiable Kangaroo Label for use on Australian grown Avocados," Mr Tyas said.

"With the introduction of the new databar requirement (GS1) to replace the previous barcodes managed by Avocados Australia, we have worked with our registered printers to update and refresh the label to accommodate the databar.

"All packhouses using barcode labels will be required to apply to GS1 for their own databar, which can then be easily inserted into the Kangaroo Label of your choice (options pictured)."

Packhouses will still need to apply to Avocados Australia for a Packhouse Registration Number (PRN), which will authorise them to use the Kangaroo Label. Once a PRN application is approved by Avocados Australia, the packhouse will receive a unique PRN and the Registered Label Suppliers will be informed of the new PRN. Packhouses may then contact any of the Registered Label Suppliers directly to order Kangaroo Labels.

Please contact one of our registered printers to discuss your labelling requirements.

More information

Contact Jayne Weedon on 07 3846 6566 for more on the Kangaroo Labels, or visit www.avocado.org.au/our-programs/kangaroo-label/.

For more on the databar, visit GS1 Australia at www.gs1au.org/.



New generation Kangaroo Labels

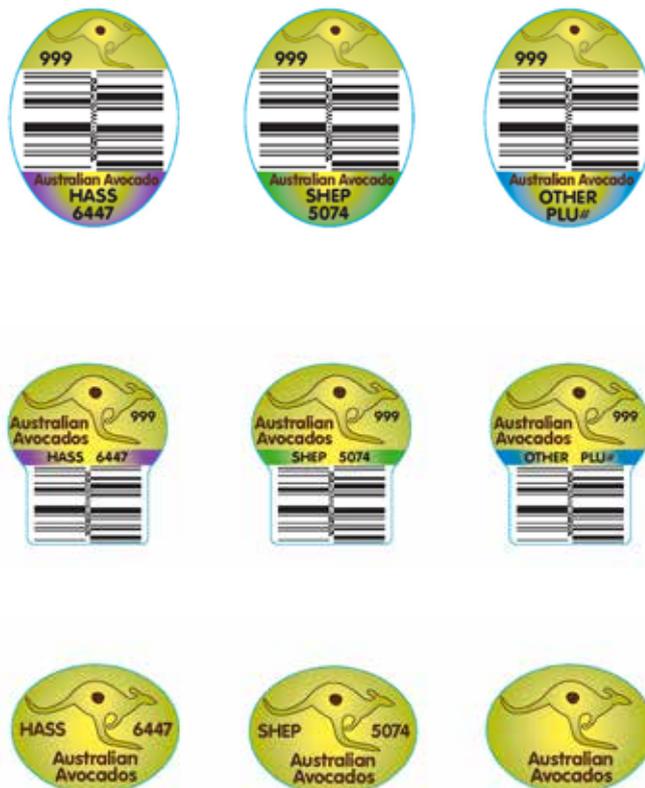
Avocados Australia manages the Kangaroo Label for use on Australian avocados.

Kangaroo Labels can be ordered through our registered Kangaroo Label suppliers listed below. Packhouses need to apply for a Packhouse Registration (PRN) with Avocados Australia before an order can be placed. Please arrange your databar directly with GS1 Australia.

Registered Kangaroo Label Suppliers:

Aldine Printers:	ph: 07 4051 4330
J-Tech Systems:	ph: 02 6049 5001
Label Press:	ph: 07 3271 2111
Mildura Printing Services:	ph: 03 5022 1441
Warehouse Design and Packaging:	ph: 02 9905 0963

www.avocado.org.au or call 07 3846 6566



The industry now has a variety of new designs for its Kangaroo Labels.

Images courtesy of Warehouse Design & Packaging.

How reliable is our avocado data?

Daniel Martins, Avocados Australia

The *Infocado* and *OrchardInfo* systems, and the reports they produce, have proven over the years to be a very valuable tool to assist in planning decisions at both an individual enterprise and industry level.

Because of the value of these reports to serve as a basis for decision making, it is very important that the system runs on highly reliable data. Despite the occasional unavoidable minor gap or inaccuracy, we strive to ensure the data is as reliable as possible, so that with every issue of *Infocado* and *OrchardInfo*, we deliver a representative picture.

In order to ensure the *Avocado industry and market data capture and analysis* project (AV16006) delivers that picture with accuracy, there are checking systems in place that enable us to verify the data reported, with other sources of reliable information. The data verification aspect of this project is thus an important process and part of our continuous improvement.

AV16006: Data verification schedule

The data verification aspect of AV16006 cross checks and verifies collected data with suitable sources and/or techniques in a timely manner to ensure accurate, valid, consistent and reliable reporting. This is a key to maintaining the trust and participation of our stakeholders, and the confidence of the broader industry.

Three types of data are subject to verification:

1. Avocado supply volumes into the Australian market (*Infocado*): For Australian production, the Australian avocado levy receipts from the Department of Agriculture and Water Resources are used to cross-reference figures reported in *Infocado* Quarterly Reports. For New Zealand imports, we rely on figures from various sources including Australian Bureau of Statistics, StatsNZ, and The Global Trade Atlas by IHS Markit.

The verification benchmark is that at least 85% of industry supply should be captured in *Infocado* quarterly reporting. The verification is carried out periodically, usually around March for Q3 and Q4, and in July after the closure of the financial year for Q1 and Q2. It is important to note that there are timing variations between data sets, so variation is expected from quarter to quarter. However, comparisons over longer periods (ie annually) provide a good assessment of the data reliability.



The latest verification data is presented below:

Q3 2018 July, August, September (kg)	Q4 2018 October, November, December (kg)
Infocado volume July: 8,113,309	Infocado volume October: 5,619,059
Infocado volume August: 9,331,900	Infocado volume November: 8,353,252
Infocado volume September: 6,344,569	Infocado volume December: 5,268,604
Infocado volume Total Q3 kg: 23,789,777	Infocado volume Total Q4 kg: 19,240,914

Q3 DAWR Levy Receipt Volume: 24,606,238	Q3 DAWR Levy Receipt Volume: 18,076,601
--	--

Benchmark of 85% satisfied at 97%	Benchmark of 85% satisfied at 106%
--	---

2. Seasonal crop forecasts (*Infocado*): Verification consists of a comparison between forecast recorded pre-season, to dispatched supply recorded post season in *Infocado*. The target is for pre-season forecasts to vary less than 20% from reported supply volumes unless weather or other reasonable factors have been reported as influencing the variation. On a quarterly basis the seasonal forecasts for the previous 12 months are compared with the actual reported dispatch for that period.

Verification of seasonal forecasts and final season dispatch volumes for January to December 2018 as per verification schedule:

Region	Pre-season forecast volume	Final season dispatch volume	Difference %
NQ	3,831,312	4,382,808	13%
CQ	3,227,036	3,483,743	7%
SC	267,542	252,273	-6%
SQ	849,657	867,547	2%
TNR	318,206	289,823	-10%
CNSW	945,374	1,516,944	38%
Average	1,573,188	1,798,856	7%

For these regions, during the period from January to December 2018, the volume dispatched was 7% higher than the volume forecast, well within the variation benchmark of 20%. The variation benchmark was satisfied

on a per region basis for all regions except central New South Wales, where favourable conditions resulted in a dispatch volume 38% higher than the initial forecast.

3. **Annual avocado orchard tree count:** The comparison is carried out between the tree planting data in *OrchardInfo* and the latest data published by ABS agricultural census. The benchmark is that orchard planting data should represent a minimum of 80% of all plantings. This verification is done annually once the *OrchardInfo* report has been released to those who provided data.

For 2018 the benchmark of Avocados Australia's avocado orchard planting data representing at least 80% of all plantings has been exceeded:

- 2016-17 ABS agriculture census tree planting data*: 1,778,321
- 2018 OrchardInfo reported tree plantings: 2,132,811 (120% of ABS data)

*71210D0001_201617 Agricultural Commodities, Australia-2016-17 Released at 11:30 am (Canberra time) 21 May 2018 (latest version)

New Zealand, Western Australian and Central NSW season

Now that the summer months have passed, the Australian avocado season will start shifting from a market dominated by Western Australia and New Zealand's supply, to one predominantly supplied by Queensland avocados. It is now a good opportunity to review the past season and reveal how these regions have performed against the forecast.

New Zealand

For the summer season of 2018-19, Australia imported 2,326,467 trays (12,976 tonnes) of avocados from New Zealand. For New Zealand, the country reached the peak of its share of the Australian market during the month of December 2018 when it supplied as much as 36% of the total avocados in the Australian market for that month.

Western Australia

During its season, Western Australia supplied total of 4,282,253 trays (23,552 tonnes) between July 2018 and March 2019. Much like New Zealand, Western Australia's season spans throughout the summer months. However, Western Australia reached its peak market share a month later in January 2019, when 61% of avocados in the Australian market had their origin in Western Australia.

Central NSW

Central New South Wales supplied a total of 1,486,232 trays (8,174 tonnes) of avocados between May 2018 and March 2019, reaching its peak market share in August 2018, when it supplied 27% of the Australian market.

Long term forecasting

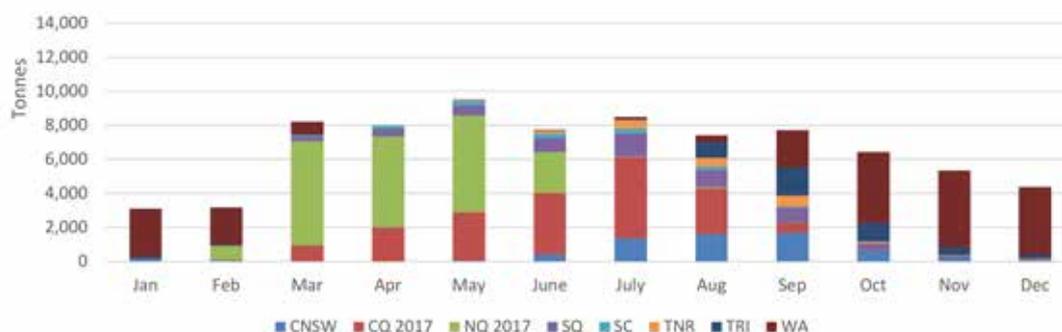
Using a variety of data sets including planting and regional productivity data from *OrchardInfo*, and historical production data from *Infocado* reports; Avocados Australia has prepared longer term forecasts to assist with industry planning. These forecasts are developed using a combination of methods. A best estimate of long-term forecasts is developed by comparing the results from the various methods.

The primary methods are:

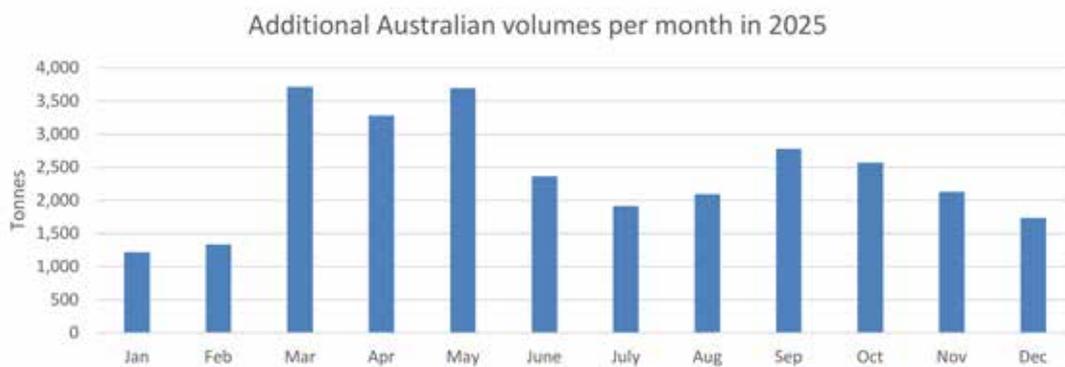
Method 1 – Trend projections. Based on historical production data from *Infocado* reports, trend lines are developed to extrapolate the data for subsequent periods. This method gives an indication of the likely future production. In some regions, it is a better indicator than others. For example, the trend line for Central Queensland shows a decline, but with new plantings, there's likely to be an increase.

Method 2 – Planting data. Based on the data we collect through the *OrchardInfo* tree census and productivity monitoring we have very good data now on the areas planted in each region, the age and variety. Using this base data, yields are estimated for different aged plantings for different regions. The result is based on planting data at a point in time and does not include

2017 estimated Australian supply distribution



How reliable is our avocado data? continued



estimates of future plantings. The yield estimates are based on our annual productivity surveys and could be considered to be quite conservative.

A national forecast is developed by considering these two data sets. The current data suggests national production will reach about 110,000 tonnes by 2025, however, this assumes no new plantings and fairly conservative yield estimates. Presuming some plantings will continue, these trees will gradually come into production between now and 2025. Based on 100 hectares of new plantings each year from now until 2025, it is estimated that these plantings will produce an additional 5,000t by 2025 (annual total by 2025 = 115,000t).

On a regional level, the region and period likely to experience the greatest increase will be Queensland from March until May, with around 3,500 tonnes of additional supply for each of those months compared with 2017 volumes.

Based on this modelling, by 2025, during the period from March to September, about 500,000 trays (5.5kg equivalent) will need to be marketed every week. The month of May could see almost 600,000 trays of avocados each week requiring a market. Of course, the time that this fruit is marketed could be spread over a longer period, but that will put pressure on other times of the year.

October 2018 edition of OrchardInfo correction

An error with the 2018 *OrchardInfo* report was identified since

our last edition of *Talking Avocados*. The error was concerning the reporting of tree age, with no material difference in total plantings reported, and thus no implications with regard to the long term forecast reported above.

In our spring 2018 edition of *Talking Avocados*, it was stated that “about 1.25 million trees were planted in the last five years, and that 41% (approx. 880,000) were at least 6 years old.” The total number of trees planted remained at 2.13 million, it was however the number of trees in each category which was incorrectly reported. The report has been updated and provided to all contributors, and now shows that 904 thousand trees were planted in the last five years and 1.22 million trees at least six-years-old.

More information

For more information, contact Avocados Australia Data Analyst Daniel Martins on 07 3868 6566.

Acknowledgements

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.



Sunnyspot sprayer field day success

More than 120 growers, agronomists and industry members attended the first Sunnyspot Packhouse Field Day and sprayer event on 20 March.

The event, held on the Sunset Orchard at Ravensbourne in South Queensland, was run by Daryl and Sally Boardman and the team from Sunnyspot, to provide growers with a chance to see a wide variety of sprayers in action.

Sunnyspot Packhouse's Daryl Boardman said there were 14 sprayers in action on the day, along with mulchers and a range of other machinery and products on display.

"It was really impressive to see sprayers from all over Australia at our orchard, available for growers to assess against their own needs and conditions," Mr Boardman said.

The sprayers were also tested the day before the event, by the team from Ripe Horticulture, in similar conditions, with set operating parameters, with the results presented at the field day by Ripe Horticulture's Lisa Martin.

She said as part of the Sunnyspot Packhouse event 10 air blast sprayers, three axial fan sprayers and one electrostatic were tested.

"Sprayers are of keen interest to growers because if you are getting better spray cover, you have less fruit body rot and insect damage, which results in increased fruit quality and increased returns," she said.

However, Ms Martin said there were different insect pressures in each Australian growing region, so it was important growers assessed the needs of their orchards, and potentially even different blocks within their orchards.

"Regardless of your growing region, the benefit of effective spraying is going to give you better fruit quality whether you are treating for fruit spotting bug, mites or Anthracnose.

"Everyone prunes differently, has different tree architecture, and a different canopy height they are trying to target.



Avocados Australia CEO John Tyas (right) with agronomist Lisa Martin from Ripe Horticulture and event organiser Daryl Boardman, Sunnyspot Packhouse on 20 March.

FIELDQUIP®

...a cut above the rest!



Maintain your Orchard with a Cyclone



**Slashing, Mowing,
Mulching -
the Cyclone does it all.**

**Available in 7 different
cutting widths from
2.0m wide to 5.6m wide!**

**For more information on the
Cyclone please email
mbaartz@alamoag.com.au**

FREE CALL 1800 454 150

www.fieldquip.com.au

“There’s never going to be a sprayer where one suits all the scenarios; you will have to buy a sprayer and calibrate it to your situation.

“It’s about what’s giving the most even coverage on both sides of the leaf very well, that gets to the top of the tree very well without run-off on the fruit down below, and with minimal drift.”

Exhibitors at the field day included: Hawkeye Access, Conservis,

Black Truck & Ag, Inform Ag, Yamaha Sky, Lindsay Rural, Kubota, Silvan, Tornado, Vanderfield, Wideland Group, Biopest, BA Pumps and Sprayers, Hardi, Agrichem, The Olive Centre, ANZ, Interlink, Bayer, Ryset Australia, Martignani, Toowoomba Spray Shop, Croplands Optima, Tisca, MEA, Adama, Nordox, Tifone Advanced Spraying Equipment, Total Rural Supplies, DTE Equipment, Platinum Compost, Tradecorp, GreenTech Australia, Ripe Horticulture and Tuff Ass Machinery.



Event organisers Daryl, Sally and Jackson Boardman from the Sunnyspot Packhouse, during their very successful field day and spraying event, on their Ravensbourne Queensland orchard on 20 March.



Sandra Stevens, Agri Farming Brisbane with David Peace, who will soon be a northern Victorian avocado farmer.



Russell Page, Jackaranda Orchards, Bill Mair, Balmoral Orchards and Simon Newett, Department of Agriculture and Fisheries Queensland.



Some of the Touchwood Orchard team from near Blackbutt: (left to right) Judy Veal, Ash and Sam Campbell, Andy Veal and agronomist Denis Roe.



Martin Dobbs, Sparkies Solutions with one of the event organisers, Sally Boardman from Sunnyspot Packhouse.



The Mt Binga Orchards team, James, Barry and Michelle Trousdell at the Sunnyspot event with Michael Cook, Engage Ag, and Ben Radke, Deutz Tractors.



Some of the Sunnyspot Packhouse organising team during their field day and spraying event, Jo Taylor, Jackie Elward and Sharon Newman.



Jo and Chip Saint from Halo Farm at nearby Hampton with Tara Romer, Ryset Australia, at the Sunnyspot Packhouse Field Day at Ravensbourne, Queensland.



Tyson Cross, one of the event organisers from Sunnyspot, with Sam Foster, Ian Davison and David Carr from Silvan, during the March event.



Laura Carman, Dalby and Clinton McGrath, Toowoomba from the Department of Agriculture and Fisheries Queensland, with Corrine Jasper (centre) from Hort Innovation.

HYDRALADA

LIFT YOUR GAME

Elevating Work Platforms

- ✓ SAFE & EFFICIENT - INCREASES OUTPUT
- ✓ FOOT CONTROL - HANDS FREE OPERATION
- ✓ INDEPENDENT WHEEL DRIVE
- ✓ OPTIMUM MANOUVERABILITY
- ✓ ALL TERRAIN
- ✓ TANDEM FOUR WHEEL DRIVE
- ✓ ELECTRONIC FUEL INJECTED ENGINE
- ✓ TELESCOPIC BOOM OPTION

Industry Standard
ASNZS1418-10 2011.

**FREEPHONE
1800 124 352**

sales@hydralada.co.nz
www.hydralada.com



Jacky Rosolen and Rowena Whitney from Mountain Top Magic Orchards at Lismore, at Ravensbourne Queensland for the Sunnyspot Packhouse Field Day.



Rae Stewart from TP Industries in Bundaberg and Max Hopper from Burder in Toowoomba.



Neil Bredhauer, Bredhauer Orchards, Toowoomba and Dennis Booth, Bundaberg, watching the various sprayers and mulchers in action at the Sunnyspot Packhouse Field Day.



Jim Gibson and Kate Erbacher, from Kates Avocados, and Steve Morrison, Tisca, at the Sunnyspot Packhouse Field Day in March.



Colin and Lindsay Savill from Goondiwindi, at the Ravensbourne Queensland event catching up with family in the avocado industry.

New Best Practice resources

The industry Best Practice Resource (BPR) is a key component of the Avocados Australia industry website.

What's new in the BPR

Avocado export strategy

Avocados Australia, as part of the *Avocado export readiness and market access project (AV17000)*, has recently published the *Australian avocado export strategy 2019-2021*. Avocado production has grown an average of 7%, year-on-year, for the past decade. Exports currently make up a very small percentage of the Australian industry, but this will change as the industry grows toward producing 115,000t a year by 2025. You can find the new export strategy in the BPR Library, in the Export documents.

Variety updates

A number of the varieties and polliniser articles in the Growing section have had a refresh. The Queensland Department of Agriculture and Fisheries' Simon Newett has updated all the existing entries, and added items on Maluma®, Carmen® and Gem®.

Avocado Brainstorming Conference report

In 2018, a group of Australian industry members travelled to South Africa for the Avocado Brainstorming 2018 Conference. This report (stored in the Event Proceedings section of the BPR Library) provides details of the discussions and tours.

The BPR Library

The BPR Library is home to a comprehensive collection of reports, event proceedings, videos and other Australian avocado industry resources. These valuable resources are drawn upon throughout the BPR and have been provided in the Library for users to view as a complete collection.

Australian Agronomy – this category is home to the latest *Avo Alerts* (more on those below), as well as pollination observations, nutrition, irrigation and pest resources

Education Materials – it's here that you will find the most recent best practice guides and checklists (including the fruit quality problem solver, stages of ripeness chart and more), biosecurity manuals, transport booklet, ripening manual and more

Event proceedings – a major category within the Library, this is where you will find reports and copies of presentations from previous conferences, regional meetings, avocado study groups and Qualicado workshops. These reports and presentations include events from as far back as 1997

Export – a relatively new addition the Library, this category is home to the latest export strategy (more about that on page 24 of this edition), as well as global market import and export

reports and the latest Maximum Residue Limits for export markets (currently as at June 2018)

Market Data – is where you will find horticulture trade intelligence reports, domestic market reports and more

R&D Reports – another major Library category! This is where you will find all of the available final reports for projects completed using your grower levies. All of the reports are listed by project code and name, and we've added keyword tags so please use the search (on the right, near the top of every page of our website) if you can't spot the report you need. There are 141 reports from 1993 to 2019 in this section, with more added all the time

Videos – embedded throughout the BPR are handy videos providing project reports, how to guides and more. These are all collated here in the Library for easy access to help you find out more about boron, how to spot a spotting bug, mulching and more

WHS Resources – in the last edition of *Talking Avocados* we covered the workplace health and safety section of the BPR. Under this heading in the Library is where you will find all of the safety guides, handy info cards, checklists, plans, registers, induction information and a WHS Policy and Plan template.

Avo Alerts – monthly resource for growers

Avo Alert notices have been developed for each major production region to act as a prompt to all Australian avocado growers about what orchard activities should be considered throughout the year.

These notes are developed with technical input coordinated by DAF Queensland's Simon Newett and Bridie Carr and the most recent editions can always be found in the Australian Agronomy section of the BPR Library.

Avo Alerts are sent to all growers every month and cover orchard activities for the current month and the month ahead. If you are a grower or service provider who would like to receive the *Avo Alerts*, please email admin2@avocado.org.au and be sure to register for the BPR as well.

Acknowledgement

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

More information

You can log in (or request access!) via www.avocado.org.au/bpr.

Australian Avocado Export Strategy 2019-2021

By Joy Tang, *Avocados Australia*

The need to continue to grow the Australian industry is being supported by the recent development and release of the *Australian Avocado Export Strategy 2019-2021*.

Avocados Australia developed the 2019-2021 export strategy in consultation with the Project Reference Group of the *Avocado Export Readiness and Market Access* project (AV17000). It also includes a review of performance against the previous Avocado Industry Export Development Plan 2014-2019 and the recommendations from the Avocado Industry Export Strategy Review undertaken by McKinna et al (AV16011).

Avocados Australia recognises export market development is a high priority for our growing industry. Australian avocado production has increased significantly from 39,394 tonnes in 2007/08 to 77,032 tonnes in 2017/18, matched by a growth in domestic demand.

However, based on production forecasts developed by Avocados Australia, Australian avocado production is likely to exceed 115,000 tonnes by 2025, outstripping even our strong domestic demand.

This rate of growth is well above previous consumption growth and the expectation is that significantly more fruit will be marketed to off shore markets as domestic market saturation increases. This may also be impacted by imports from other countries, such as Chile, Mexico and Peru if/when market access to Australia is granted. It is imperative for the industry to access and develop new markets to ensure the long-term sustainability of the industry.

The *Avocado Strategic Investment Plan 2017-2021* has identified export development as a key priority. In alignment with this plan, the export strategy 2019-2021 addresses the objective in the strategic investment plan to "by 2021, over 10 per cent of production will be exported to markets where customers have a willingness and capacity to pay a premium for Australian avocados".

The Australian Avocado Export Strategy 2019-2021 includes four pillars. They are:

- market access and maintenance strategy
- trade development strategy
- branding and positioning strategy
- industry capability strategy

The export strategy also provides an overview of the current Australian avocado production and trade. An analysis of export strengths/weaknesses/opportunities/threats, updates of market access status for existing protocol market priorities and the selection of priority export markets for Australian avocados are also included in the strategy.

Market access and maintenance

This strategy focusses on opening new markets and to

maintain/improve access among existing key markets that have premium value segments that will bring substantial increase in trade for the Australian avocado industry.

This work includes supporting R&D for a workable Shepard protocol, developing compelling business cases to progress market access negotiations for priority markets, supporting new market access protocols and implementing a range of market specific strategies for Japan, Thailand, China, India, New Zealand, South Korea, Vietnam and Taiwan.

Trade development

This strategy recognises the need to defend and grow existing selected key markets by effective education, marketing and promotion focussing on Singapore, Malaysia and Hong Kong. It includes promotional activities in priority markets, supporting food service development, providing technical support for supply chains, updating guidelines and best practice resources for exporters and others in the supply chain, participating in major trade exhibitions, and coordinating integrated industry responses to newly accessed markets.

Branding and positioning

Building the image of Australia as an excellent source of high quality, nutritious and versatile avocados is a key part of the strategy. Existing materials will be reviewed and updated, and consistent branding developed for use under the Taste Australia banner.

Industry capability

Developing the Australian avocado industry to take a leadership role in exports and cultivate a more export-oriented culture among its members is also vital. This strategy includes the provision of more in-depth analysis, improving trade intelligence reporting, and supporting industry export development planning.

The plan is available for Australian avocado industry members via the Best Practice Resource Library www.avocado.org.au/bpr.

More information

Contact Avocados Australia Export Coordinator Joy Tang on export@avocado.org.au or call 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.

Avocado debut at FoodEx Japan



Chef Koji whipped up a variety of avocado inspired dishes for visitors to the Taste Australia pavilion at FoodEx, including this sesame avocado and soba noodle salad. You can find the recipe at bit.ly/TA301rec.

More than 72,000 visitors to the 44th International Food and Beverage Exhibition in Japan had their first chance to see Australian avocados at the show this year.

Avocados Australia CEO John Tyas said the annual FoodEx event was an excellent opportunity to showcase Australian fruit, after the industry's first exports occurred in late 2018.

"The access protocol was only finalised and implemented at the end of last year, and the demand was immediately apparent for those regions approved for exports," Mr Tyas said.

At the moment, the protocol covers hard mature Hass avocados sourced from areas officially recognised as free of Queensland fruit fly – Western Australia, the Pest Free Area in South Australia's Riverland and Tasmania.

"We had several shipments to Japan during the Western Australian season, and we look forward to more in future," Mr Tyas said.

"The interest at FoodEx was very positive and avocados were certainly popular with Chef Koji who cooked up a new recipe from the marketing team at Australian Avocados, the sesame avocado and soba noodle salad – it was delicious."

Longer term, Avocados Australia is hopeful of widening the import protocol for Japan to all Australian growing regions.

"Access to the Japanese market is an important step for the Australian industry as we work to expand the available markets for our Australian avocados."

More information

Avocados Australia Export Coordinator Joy Tang, 07 3846 6566 or export@avocado.org.au.



A range of avocado dishes featuring West Australian fruit were part of the offerings from the Taste Australia pavilion at FoodEx in Japan.



Avocados Australia had a range of Japanese-language materials on hand for the FoodEx event, including a recipe cards, information about Australian avocados and the Australian industry.

Acknowledgement

Avocados Australia's presence at FoodEx was part of the Hort Innovation Taste Australia pavilion, funded using the avocado research and development levy and contributions from the Australian Government.



**ASIAN MARKETS
FUND**

Strong six months for Australian exports

Australian avocado export volumes were 1,600 tonnes or 80.8% higher for the six months to December 2018 compared to last year, valued at AU\$9.83 million.

However, Avocados Australia CEO John Tyas said unit prices were 11% lower, at AU\$6.14 per kilogram.

The latest import and export summary was prepared by Fresh Intelligence Consulting’s Wayne Prowse as part of the *Avocado industry market data capture and analysis* project.

“While the results are encouraging, we do need to keep in mind this is only part of the full picture for the financial year,” Mr Tyas said.

Malaysia accounted for 43% of all export volumes followed by Singapore with a 41% share. Hong Kong accounted for 10% of Australia’s exports.

“Australian avocado exports reached 2,500 tonnes in 2018 for the first time in a calendar year,” Mr Tyas said.

“Malaysia and Singapore have been the key markets since the effective loss of Thailand access in 2013 with Hong Kong now lifting steadily off a smaller base.

“Although lower than in 2017, average returns per kilogram were 70% higher in 2018 compared to 2009 aided by the exchange rate depreciation.”

The strong increase in the July to December 2018 period has been driven by increased exports from New South Wales and Western Australia.

Avocado exports from Queensland increased 34% to 592 tonnes

and accounted for 37% of Australian exports in the July to December period, while Western Australia accounted for 29% of exports after lifting 132% to 461 tonnes. New South Wales recorded a 476% increase to 387 tonnes and Victoria was 27% lower. South Australia exported 33 tonnes.

“On the flip side, there were 11,147 tonnes of avocados imported to Australia from New Zealand from July to December 2018,” Mr Tyas said.

More information

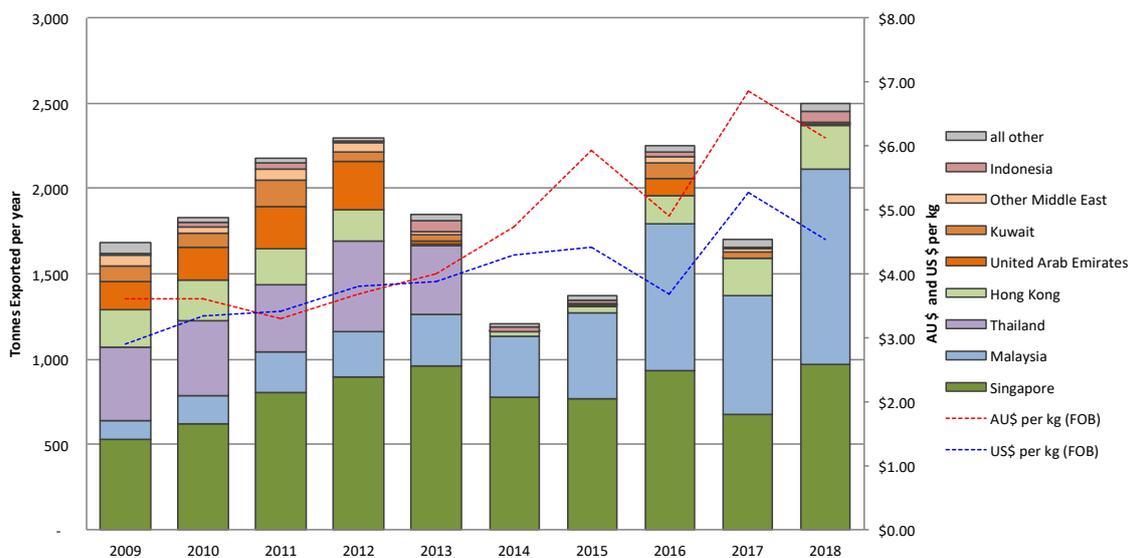
For more information, contact Avocados Australia’s Data Analyst Daniel Martins or Export Coordinator Joy Tang on 07 3868 6566. You can find the full six-month report in the Export category of the Best Practice Resource Library – www.avocado.org.au/bpr.

Acknowledgements

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.



**Australian Avocado Exports - Annual Volume by key market
January 2009 to December 2018**



Source : ABS Data via IHS Global Trade Atlas, Fresh Intelligence Analysis

Australian avocado exports reached 2,500 tonnes for the first time in a calendar year in 2018. Malaysia and Singapore have been the key markets since 2013 with Hong Kong now lifting steadily off a smaller base

Indonesian free trade & avocado

Australia's new trade agreement with Indonesia includes a reduction in the tariff on fresh avocados from the current 5% down to zero by 2026.

Australia and Indonesia signed the Indonesia-Australia Comprehensive Economic Partnership Agreement (IA-CEPA) on 4 March. The agreement has yet to be ratified.

"With a population of 270 million and high levels of economic growth, Indonesia is on track to become one of the world's largest economies," Federal Trade Minister Simon Birmingham said.

Federal Agriculture Minister David Littleproud said the agreement would also alter work visa quotas.

"Also we're increasing work and holiday visas for Indonesians from 1,000 to 5,000 which makes a big difference for producers who need seasonal workers," Mr Littleproud said.

In the first six months of the financial year, 3% of Australia's avocado exports were destined for Indonesia, according to the latest *Australian avocado exports and imports report* (more on page 26).

Between July and December 2018, Australia dispatched 54 tonnes to Indonesia, a 1246% increase on the same period in 2017, albeit off a very small base.

Indonesia is itself an avocado exporter, dispatching product to

Malaysia and China in recent years from a domestic production of between 305,000t and 383,000t in 2014-2017. However, their production is based predominantly on varieties different from Hass.

The Indonesia market is open to avocados from across Australia but treatment is required for some areas. The importation of fruit originating from areas not free from Queensland fruit fly (*Bactrocera tryoni*), Jarvis fly (*Bactrocera jarvisi*) or Mediterranean fruit fly (*Ceratitis capitata*) must be treated prior to arrival in Indonesia.

More information

Full agreement is here: bit.ly/TA301FTA



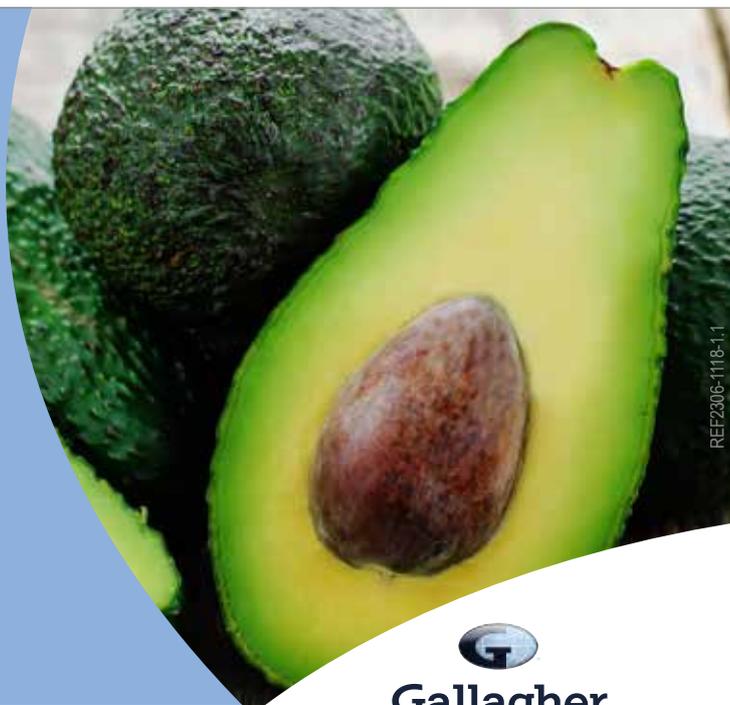
Why growers need product recall and reputational insurance

A major product recall has the potential to derail a grower and seriously damage their reputation.

Growers face threats from unexpected sources and a faith-based food safety approach is no longer enough.

Product recall and reputational insurance can help your business get back on its feet should something go wrong. Our team of specialists can help protect you and your business should the worst happen.

For more information on how product recall and reputational cover can help your business, contact Kevin Burchmore on **07 3367 5027** or kevin.burchmore@ajg.com.au



REF2306-1118-1-1



Gallagher

Insurance | Risk Management | Consulting

ajg.com.au

Cover is subject to the Policy terms and conditions. You should consider if the insurance is suitable for you and read the Product Disclosure Statement (PDS) and Financial Services Guide (FSG) before making a decision to acquire insurance. These are available at www.ajg.com.au.

Global production nears six million tonnes

International avocado production has increased by 7.5% per year during the past seven years, reaching almost six million tonnes.

This was part of the news delivered to attendees at the World of Fresh Ideas conference in Berlin in February by Fresh Intelligence Consulting’s Wayne Prowse.

Mr Prowse told the crowd 34%, or two million tonnes, of the 5.9 million tonne production was traded.

“Mexico is the largest avocado producer and exporter, while United States is the largest importer of avocados,” he said.

Mr Prowse said the main avocado trade movements were the exports from Mexico, Peru, Chile, South Africa and Kenya moving into United States, Europe, Canada and Japan, and increasingly China. On a smaller scale New Zealand supplies to Australia.

While Mexico still has the highest export volume, other exporting countries have more rapidly expanding export industries.

Mexico’s year-on-year exports had grown by 21%, Peru by 36%, South Africa by 105% and Kenya by 40%, while Chile dropped by 22% in 2018, compared to 2017.

According to *Produce Report’s* Dan Siekman, reporting from Fresh Ideas, the eight-year compounded annual growth rate (CAGR) in imports for East Asia of 17% meant that the region was currently on pace to eventually catch up to and surpass the US/Canada (16% 8-year CAGR) and Europe (14%) in avocado import volume.

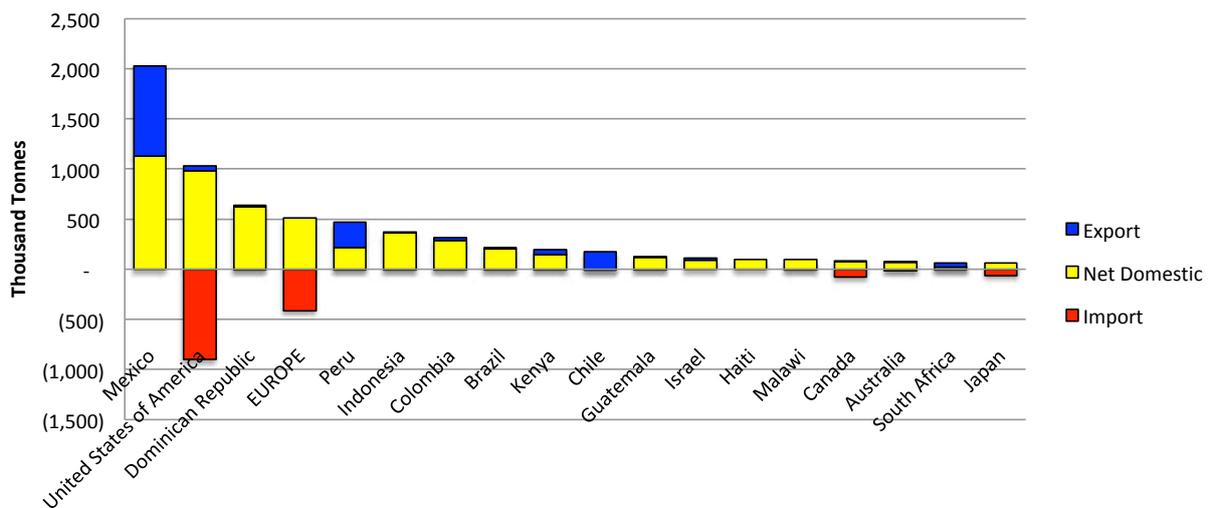
“And East Asia’s market seems to be accelerating, with Year-on-Year (YOY) growth in avocado imports of 41% in 2018,” he said.

The World of Fresh Ideas is a fresh produce industry knowledge-sharing conference that takes place before the start of the Berlin Fruit Logistica exhibition. The Logistica was attended by 3,200 exhibitors and 78,000 trade visitors in 2019.

Read more from *Produce Report*: bit.ly/TA301BER

Mexico is the largest avocado producer and exporter, while United States is the largest importer of avocados

The exports (BLUE bars) from Mexico, Peru, Chile, South Africa and Kenya are mostly traded into the imports of United States, Europe, Canada and Japan (RED bars)



Source; FAOSTAT, ITC Trademap; Fresh Intelligence analysis

Woolworths new requirements in relation to labour hire

By Growcom

Woolworths recently announced an update to its responsible sourcing policy with new requirements for horticulture suppliers using labour hire providers. Amongst other things, the updated policy asks that suppliers:

1. enter into formal (written) contracts with their labour hire providers
2. ensure overseas workers provided by the labour hire providers have the legal right to work in Australia (ie through VEVO)
3. ensure fees paid to labour providers allow the provider to pay minimum wages and entitlements to workers
4. only use labour hire providers who have a license (in states where that is applicable), are StaffSure certified, or are Seasonal Worker Programme approved employers.

Woolworths requires that its new standards are met by all its fresh food suppliers, including all downstream members of the supply chain, by 27 September 2019.

"Growcom welcomes this policy update overall as a step in the right direction and agrees with the substance of most of the

new requirements which match the Fair Farms Standard," Fair Farms Program Manager, Thomas Hertel said.

"At the same time, however, we have raised with Woolworths our concerns regarding the implementation date of 27 September, which we believe will not work in regions where eligible hired labour is in short supply.

"We also view that some of the requirements need further work on the detail, to avoid an overreach in responsibility placed on the grower (host).

"We'd like to see a collaborative and harmonised approach towards improving workplace compliance levels in the sector."

Mr Hertel said Growcom hoped to achieve an outcome where retailers adopted consistent policies to reduce the risk of our industry being governed by different sets of ethical sourcing standards.

"Incoherent standards tend to create confusion and frustration amongst growers and will drive up compliance costs. Aligned and clear rules, on the other hand, are likely to result in more growers achieving compliance, which is beneficial to both the industry and its workforce," he said.

"The Fair Farms Program, with the Fair Farms Standard at its core, aims to provide industry with the one standard for responsible employment practices in horticulture.

"A common standard that is developed by the industry. A standard that gives growers and suppliers the confidence that they comply with existing laws relating to employment and do the right thing by their workers in a complex regulatory environment, whether workers are directly employed or engaged through a labour hire provider."

The Fair Farms Program will begin operations by the middle of this year, following the completion of the proof of concept (pilot) phase currently underway. Fair Farms is going through consultations with growers, industry peak bodies and the retailers with the aim to find the required endorsement of Fair Farms as the industry standard.

Growers and other members of the horticulture fresh produce supply chain can register their interest online to be kept informed about the Fair Farms pilot and will be contacted once the program starts: www.growcom.com.au/fairfarmsinitiative.

PLANTING AVOCADOS?

Order your grafted, seedling
or clonal avocado trees from
Fleming's Nurseries Queensland.

Formally Birdwood Nursery,
Fleming's Nurseries QLD is a Biosecure HACCP
and ANVAS accredited specialist avocado
nursery producing the highest quality avocado
trees possible to commercial growers.

LOOKING FOR SEED SUPPLIERS

If you have Ashdot, Zutano,
Velvick, or Reed rootstocks available,
please contact us today!
(07) 5442 1611
mail@flemingsqld.com.au



flemings.com.au



Hort Award changes to casual overtime

By the time this edition of *Talking Avocados* reaches you, the Fair Work Commission’s (FWC) decision regarding overtime payments for casuals under the Horticulture Award will already be in effect.

The Commission provided just two weeks’ notice that the changes would be effective from the first pay period on or after 15 April 2019.

The decision requires growers pay a 15% ‘night loading’ where casual employees work overnight or overtime rates where the employees works more than 12 hours per day or 304 hours over eight (8) weeks.

In the decision, the FWC said: *With regard to the NFF’s (National Farmers’ Federation) suggestion that the determination provide for a transitional period for implementation of the likelihood of the introduction of over for casual employees, we note that the industry has been on notice of the intention to introduce over payments for employees covered by the Horticulture Award since mid-2017. This was first stated in our principal decision which was issued on 5 July 2017, was reiterated in our August 2018 decision, and was reflected in the draft determination issued on 30 August 2018. For this reason we consider that a transitional period is unnecessary. The determination to give effect to our decision will operate from the first full pay period on or after 15 April 2019.*

The FWC accepted evidence offered by the NFF and others convincingly demonstrated that horticultural businesses were price takers and had limited capacity to pass on labour price increases, that harvest functions required extensive hours carried out in short time periods, that the preference of the casual employees was to work as many hours as possible in a short space of time, and that most horticultural employers would try to avoid any onerous over penalty rate requirement.

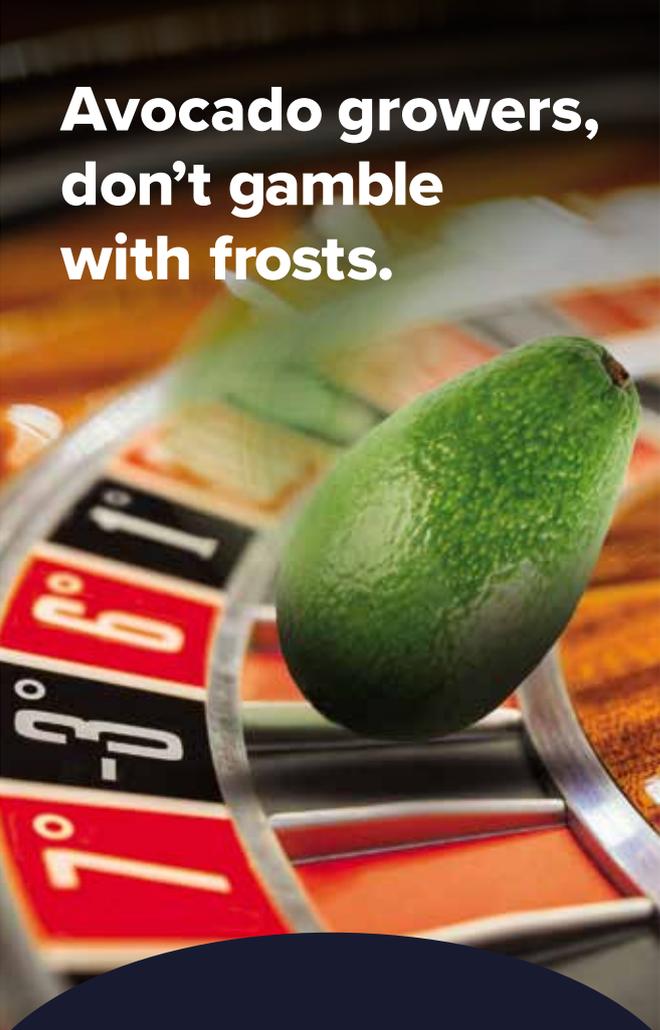
However, it also accepted evidence from the Australian Workers Union (AWU) that award non-compliance in the horticultural industry was widespread.

Additionally, the FWC said nothing in the submissions would “cause us to re-visit the conclusion reached in the principal decision that casual employees covered by the Horticulture Award should be entitled to overtime penalty rate entitlements”.

A copy of the decision can be found here: bit.ly/TA301FWC.



Avocado growers, don't gamble with frosts.



Extreme temperature ranges are here to stay. That means managing frost risk to avoid devastating losses.

Calculate the R.O.I. by installing a quiet, reliable and efficient **FROSTBOSS C49**.

bossthefrost.com.au

Ben Daking
M +61 448 111 384 **P** 1800 797 629
E info@aussiefrostfans.com.au
aussiefrostfans.com.au




**AUSTRALIAN
frost fans**

FRF-1009

New labour hire licensing in Victoria

Victoria's new labour hire licensing scheme will be effective from 29 April, 2019; contractors will have six months to sign up or else face penalties.

To obtain a licence, providers will be required to pass a "fit and proper person test" and show compliance with workplace laws, labour hire laws and minimum accommodation standards, as well as report annually on their activities.

Host employers that use unlicensed providers face fines of up to \$500,000.

Victorian Minister for Industrial Relations Tim Pallas said the scheme would bring a new level of integrity and scrutiny to the labour hire sector and ensure vulnerable workers are kept safe from exploitation and being underpaid.

The scheme is in response to the independent Victorian Inquiry into the Labour Hire Industry and Insecure Work – a key election promise – which uncovered widespread abuse and exploitation of workers across Victoria.

Under the scheme, providers of labour hire services will be required to hold a licence and hosts will only be allowed to use licensed providers.

Legislation establishing the scheme passed last year and also led to the establishment of the Labour Hire Authority, which is now operating from Bendigo. The authority is responsible for the rollout of the scheme and will support its implementation with education, enforcement and compliance activities.

Labour Hire Authority Commissioner Steve Dargavel said the new body would drive improved accountability and transparency.

"This is a strong scheme that will bring about much-needed regulatory reform in an industry where more protection is needed," Mr Dargavel said.

Victoria's labour hire industry turns over about \$4.5 billion annually and covers workers in the horticulture, meat and cleaning sectors.

More information: www.labourhireauthority.vic.gov.au/home



Migrant Workers' Taskforce report released

Work is continuing to reduce worker exploitation and drive behavioural change among labour hire operators in high-risk sectors, including horticulture.

The *Report of the Migrant Workers' Taskforce* was released in March 2019. Taskforce Chair Professor Allan Fels said the attention of the taskforce was mainly on the employment experience of temporary migrants who had work rights under international student and working holiday maker (backpacker) visas, "since in large part these appeared to be the areas where problem was greatest".

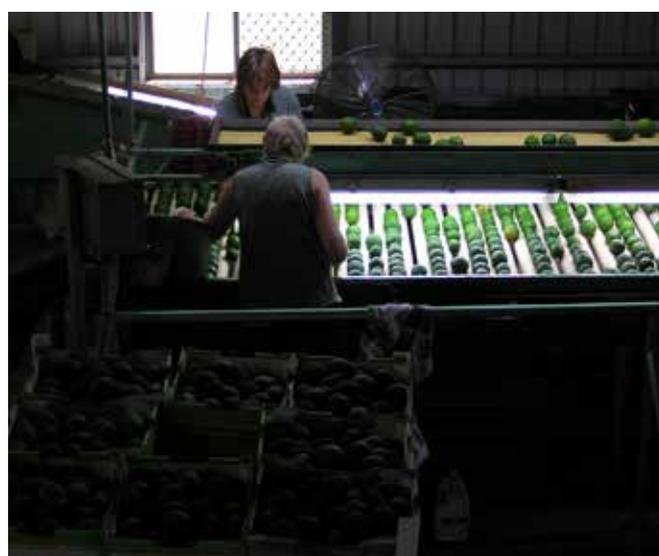
"Despite the gaps in evidence, we have sufficient understanding to conclude that the problem of wage underpayment is widespread and has become more entrenched over time," Professor Fels said in the report.

"The most comprehensive academic survey to date on the issue suggests as many as 50% of temporary migrant workers may be being underpaid in their employment."

The taskforce had 22 recommendations, ranging from the development of a whole-of-government mechanism to further the work of the taskforce, better education systems for migrant workers, amending legislation to clarify that migrant workers in Australia are entitled to workplace protections, and increased penalties for breaches.

The Australian Government announced in March that it would finalise a model for a National Labour Hire Registration Scheme to reduce worker exploitation and drive behavioural change among labour hire operators in high-risk sectors.

More information: www.jobs.gov.au/migrant-workers-taskforce.





AirSerg II & AirSerg II Plus

Australia's Premier Tree Spraying Systems

- Australian Made
- Trailing & Linkage Options
- Custom Builds
- High Quality Components
- Tank Options
- Full Product Support

Contact Robert: 0412 960 557
Tony: 0414 805 065
Paul: 0419 273 668
to discuss your individual requirements



Tornado Pumps & Sprayers Pty Ltd
18 Airs Rd, Minto NSW 2566
Phone 02 9824 8444



Tornado Pumps & Sprayers Pty Ltd
6/5 Krauss Ave, South Lismore NSW 2480
Phone 02 6622 8606

www.tornadosprayers.com.au
tornado@tornadosprayers.com.au

New national produce body

Some of Australia’s largest fresh produce growers and suppliers have formed the Australian Fresh Produce Alliance (AFPA), with plans to make the new organisation the first choice fruit and vegetable industry group for government and retailers to engage with.

Members include Costa Group, Perfection Fresh, Montague, One Harvest, Pinata Farms, Fresh Select, Mitolo Group, Mackay’s Banana Marketing, Driscoll’s, 2PH Farms, LaManna Premier Group, Rugby Farming, Freshmax and Fresh Produce Group. These businesses represent half the industry turnover of the Australian fresh produce (fruit and vegetables) sector - \$4.5 billion of the \$9.1 billion total; 1,000 plus growers through commercial arrangements and more than 15,000 direct employees through peak harvest, and up to 25,000 in the grower network.

Inaugural AFPA Chairman and CEO of Costa Group, Harry Debney, said the coming together of such significant industry players was recognition by the participants of the need to give fresh produce a prominent and respected voice on the important issues facing the industry.

“The Australian Fresh Produce Alliance will be first and foremost focused on achieving pragmatic solutions to some of the key issues facing the Australian fresh produce industry, including labour and people, packaging, waste, trade access, land use,

water security and pollination,” Mr Debney said.

“Our aim is to not only represent the key industry players, but to also achieve outcomes on issues relevant to the broader industry.”

AFPA CEO Michael Rogers comes to the role with an extensive background in the horticulture and food industries, having held senior executive roles at Horticulture Innovation Australia Limited and the Australian Food and Grocery Council.

“The Australian fresh produce industry is a major contributor to Australia’s economic growth and it deserves a prominent seat at the table when it comes to addressing the many economic, environmental and social issues the industry is facing,” Mr Rogers said.

The key priorities for the AFPA are packaging, people, product integrity, market access, product integrity, pollination and water.



CELEBRATING 10 YEARS FISCHER AUSTRALIS
WHERE CUTTING EDGE MEETS SUSTAINABILITY • SAVE PRODUCTION COSTS BY MULTI-TASKING



INNOVATIVE, GREEN, QUALITY SOLUTIONS

- Avoid soil erosion
- Reduce chemical run-off
- Reduce tractor passes
- Improve carbon footprint

NEW FISCHER DELTACUT 460 / 600 / 700 / 800



FISCHER SLS-90-250 / 300 & 360 ORCHARD MOWER



AVAILABLE FOR FRONT, REAR AND FRONT & REAR MOUNTING



FISCHER BARRACUDA 350 / 440 / 600 / 720



FISCHER 6L6K/90 470-550

FOR A PERSONALISED RECOMMENDATION, PLEASE CONTACT **JURG MUGGLI** ON 0409 572 581 OR THE OFFICE ON 08 9433 3555. FIND US ON FACEBOOK

WWW.FISCHERAUSTRALIS.COM.AU

YouTube
Facebook

Nuffield scholarship applications open

The 2020 Nuffield Scholarship Program has opened to the next generation of farmers looking to unearth innovative practices and cultivate the global networks they need to drive change in their businesses.

Applications close on 14 June 2019 for the program, and Nuffield Australia is urging young farmers with a desire to drive their knowledge and businesses forward to apply.

This year, there are more than 25 Nuffield Scholarships on offer, each valued at \$30,000, and focus on the 2019 theme of Collaborate, Innovate and Cultivate.

The Nuffield program opens doors to exciting and rewarding experiences. Whether it's walking the halls of Westminster, accessing one of the world's largest dairy farms in China or touring a leading wheat and maize research facility in Mexico, a Nuffield Scholarship presents a career defining opportunity for young farmers.

Interim Nuffield Australia CEO and 2013 Scholar Jodie Redcliffe said that the program sowed the seeds of change for farmers, and acts as a springboard for growth that sees individuals, businesses and agricultural industries flourish.

"Over an 18-month period, Nuffield Scholars embark on a global study program undertaking a total of 16 weeks of individual and group travel to delve into their chosen study topic," Ms Redcliffe said.

In Australia alone, Nuffield has an Alumni of more than 400 Scholars who have gone on to produce industry and community change, unlock new farming techniques and drive economic development across the country.

Among the current Nuffield Scholars is Western Australian avocado grower Dudley Mitchell, who received a scholarship supported by Woolworths to study current trends in canopy management of avocado orchards and how cultural practices

need to adapt to higher density orchards.

Successful recipients of the 2020 Nuffield Scholarships will be announced during the Nuffield Australia National Conference taking place at the EKKA precinct in Brisbane, from Tuesday 17 to Thursday 19 September 2019.

More information: nuffield.com.au/scholarships/.



While on a Nuffield Australia tour of Europe, West Australia's Dudley Mitchell had the chance to check out some imports from Peru.



Economical, efficient and refillable to control plant diseases by injecting trees.

PHOSPHONATES, PESTICIDES, FUNGICIDES, FERTILIZERS & TRACE ELEMENTS

CONTACT US FOR MORE INFORMATION

Head Office: 8 Ivedon Street, Banyo Queensland, 4014 Australia
 Phone: +61 7 3267 0611 Fax: +61 7 3267 0686
 Email: info@chemjet.com.au
www.chemjet.com.au

20MM TAPERED TIP REDUCES ENTRY WOUND

EASY TO SEE RED HANDLE

BUILT TOUGH 1 YEAR WARRANTY

LOW INJECTION PRESSURE WILL NOT DAMAGE TREE

VOLUME MEASUREMENTS 5, 10, 15 & 20ML

INJECTION UPTAKE VARIES BETWEEN 5-25 MINUTES ALLOWING MULTIPLE INJECTIONS PER DAY

Environmentally Friendly Product

Hort Connections 2019: tours

The popular Horticulture Field Day is returning for Hort Connections 2019, giving you the opportunity to visit some of Victoria's leading growing operations, hear about innovative horticultural practices and network with peers from around the country.

This year Hort Connections is being held in Melbourne, which is surrounded by some of Australia's leading vegetable growing operations: the Port Phillip and Westernport region contains over 40% of Victoria's vegetable production by value. To make the most of this central location, this year's Hort Connections will include two tour itineraries to give delegates the chance to visit industry sites to either the east or west of Melbourne.

After kicking off early on Monday 24 June with breakfast and a tour of the Melbourne wholesale markets in Epping, these tours will separate for the day before returning to the Melbourne Convention and Exhibition Centre (MCEC) with plenty of time for delegates to prepare for the official Hort Connections 2019 Welcome Reception.

To deliver value for all our participants, the separate tours will focus on specific areas of interest. The western tour includes machinery part logistics, developing new food products with CSIRO, and vegetable production, processing and transport. The eastern tour includes pathogen reduction, hydroponics, supply

chain logistics and plant breeding. Both tours primarily cover the vegetable industry, with herbs, flowers and nursery included on the eastern tour.

Avocados Australia has signed on as an industry partner for the 2019 event. CEO John Tyas said the annual conference was an important opportunity for avocado industry members to access information about the latest horticultural news, developments and research.

Hort Connections is a joint initiative between AUSVEG and the Produce Marketing Association Australia-New Zealand (PMA A-NZ). More than 3,250 delegates are expected to walk through the doors of the 2019 conference.

More information

Delegates can register online at <https://hortconnections.com.au/delegates/registration/>



NOW YOU HAVE A CHOICE...



- High speed inline & tray labelling
- Up to 780 fruit per minute
- Hand labelling - Electric & Battery
- Micro thin - Poly Labels
- No Contracts or Minimum orders required
- Lowest "per box" label costs



Warehouse Design & Packaging

Ph: 02 9905 0963

Fax: 02 9905 4350

Peter: 0412 643 517

Greg: 0411 178 817

Seasonal promotions in full swing

Welcome to the Avocado Autumn 2019 marketing update. This activity is managed by Hort Innovation on behalf of the industry and is funded by the avocado marketing levy.

Above the line activity

TV plays a key role in driving mass awareness of campaign communications, ensuring key messages for Australian Avocados are established at scale. The latest burst of television launched on 24 March, and is in the market for eight weeks in two bursts: 24 March-20 April, and 5 May-1 June. The aim of the campaign is for at least 53% of our target audience to see the ad at least two times. This is a forecasted reach of 4.3 million viewers. This will be supported by Out Of Home advertising (retail and gyms advertising panels), cinema and digital advertising and a partnership with *taste.com.au*.

Social media

The 'always on' approach to social media for the industry has continued, ensuring avocados remain top of mind for consumers. For the month of January alone, the Australian Avocados Facebook activity served 1.7 million impressions.

Throughout the heat of summer, this fresh and easy Avocado and Cabbage Salad recipe was the top performing post on Facebook. Reaching 220,000 people, the recipe was led by a 'how to' video that accrued 114,000 views. More than 800 people clicked the link through to the full recipe (a strong indication of intent to purchase). The post also generated positive conversations in the comments section, with more than 200 people adding their thoughts and suggested twists to the recipe. Organic reach was high (40,000 people or 18% of total reach), thanks to the strong share rate (622 shares). This post

performed particularly well amongst women aged 35-44.

Demonstrating that engaging recipes can be super simple, January's post with the highest engagement rate on Instagram was a snacking suggestion of avocado, olive oil and balsamic vinegar. With an engagement rate of 6.4%, the post encouraged a conversation with online influencer, The Healthy Label (19,000 followers), who commented: "Oooh yum! What a combo!" The image was artfully created, aligning to the Instagram aesthetic.

PR

The objective of the current PR campaign is to educate Australians on the similarities and differences between Hass and Shepard avocados. We want to drive awareness of how to select and inspiration on how to use the two varieties to ultimately turn Hass lovers into Shepard lovers and Shepard lovers into Hass lovers. The reasoning behind this is to reduce the traditional dip in sales during transition period between Shepard and Hass avocados. This message was delivered using a breakfast TV weather cross, extensive media pitching and avocado tray deliveries, and leveraging high profile influencer content in media.

Ambassador Kylie Collins did an amazing job featuring across the weather segments on *Sunrise* on the 27 February.

Myfoodbook

Nine triple tested recipes were developed and shot in January for use across Out Of Home, digital, website and social media. Related videos for the recipes were also created. Recipe trends were leveraged to inform the recipe selection, from sources including *taste.com.au* search trends, and Myfoodbook insights.





The Avocado Fund has a new website

Hort Innovation's new website allows the avocado industry to find more information and more resources quickly and easily.

Six pages of industry-specific content provide you with:

- Up-to-date details on levy fund management
- All ongoing investments with updates, advice and actions you can take now
- Completed investments with user-friendly summaries, final research reports and more
- More resources, information and tools than ever before
- Ways to connect with industry and people you can contact now.

NEW – completed investments:

- **View a user-friendly summary of what the investment achieved**
- **Download the final research report with in-depth information**
- **Access fact sheets, publications and other tools and resources that were developed as part of the investment.**

**Hort
Innovation**
Strategic levy investment

**AVOCADO
FUND**

horticulture.com.au/avocado

Seasonal promotions in full swing continued

The objective was to drive recipe inspiration, excitement, interest and communicate versatility.

Taste Australia pavilion

One of the newly-developed MyFoodbook recipes was already featured at the Taste Australia pavilion by Avocados Australia at the 44th International Food and Beverage Exhibition FoodEx Japan 2019. The 5-8 March 2019 event attracted exhibitors from 80 nations and more than 72,000 visitors. It was the first time Australian avocados have been featured at the event, with market access secured in November 2018. The *Sesame avocado and soba noodle salad* recipe was provided to the Taste Australia chef, along with a Japanese-language recipe card, and the associated marketing video was also provided for use on the pavilion.

New look website!

The new Australian Avocados website – www.australianavocados.com.au – was launched in February 2019. The website was designed to achieve the following criteria:

- refreshed new look and feel based on brand guidelines
- recipe inspiration driven user experience
- designed to leverage search engine optimisation
- better design to capture/engage visitors as they land and improve engagement across the site
- optimised for mobile because
 - more than 70% of website users access websites from mobile devices in Australia
 - 83% of social media users in Australia access via their smart phone

- 92% of the Australian Avocados site traffic is via social media
- greater prominence for recipe inspiration, selection/storage tips, varieties
- addition of four new videos providing selection and preparation for both Hass and Shepard
- updated nutrition section and new health professionals section based on outputs from recent *Nutrition Literature Review* (AV18004) to ensure messaging meets Food Standards.

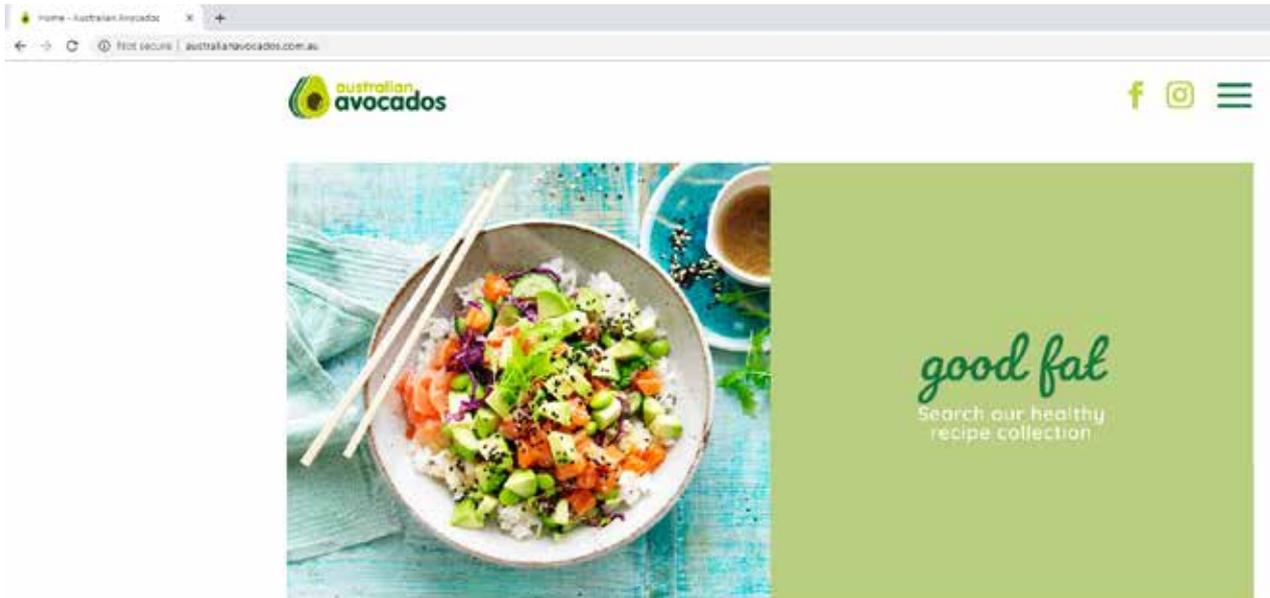
Research: Attitudinal and Behavioural Report

The second Attitudinal, Behavioural and Ad-Awareness Identify Tracking research was conducted over the December and January period. This was intentionally timed to coincide whilst there was no major campaign in market. Results indicate (as suspected) that advertising recall started to diminish with no major campaign activity in market. Other key indicators show positive signs and improvements, report on report. Metrics include: Purchase frequency/intent/planned/impulse, quality satisfaction, selection/storage confidence, usage, prompted/unprompted ad recall and key message take outs. The 3rd report will be conducted in April and May 2019, with results from the April wave to help inform overarching program KPIs.

Key findings

Despite the absence of campaign activity across this period, we can clearly see the positive long lasting effect of the latest ads. The campaign seems to still resonate amongst the audience. That said, the spontaneous recall is starting to fade away which highlights the need to keep a regular media activity throughout





the year to maintain top of mind awareness.

The campaign is successfully delivering a message about the benefits and versatility of avocados.

This wave confirmed that the creatives trigger the audience to try new ways to use avocados.

Avocados benefit from an existing emotional connection with the target audience. People praise its health benefits and versatility.

Knowing how to select, store, and ripen an avocado are things that truly matter to consumer

Two key insights stood out from this wave of tracking:

1. The audience is very responsive to recipe ideas and how to use avocados. Communicating messages about recipes and ideas about how to prepare avocados should directly convert into more purchase and eating occasions
2. When buying avocados, consumers would increase their Average Weight Of Purchase (AWOP) if they had more confidence in selection and storage. Education around storage and ripening should successfully strengthen the purchase funnel.

Acknowledgements

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



Meet the avocado industry Relationship Manager and see how she can support you.

Corrine is keen to chat with you. She is your link to the latest R&D and marketing developments and how these can help your business grow. It's easy to request a phone call – just go to the 'Contact Me' form at horticulture.com.au/contact-me. Alternatively, call 02 8295 2300 or email membership@horticulture.com.au and let us know you would like Corrine to call you.

horticulture.com.au



Reaching avocados' key influencers

Australian health and fitness professionals have been armed with accurate messaging around avocados when discussing health and nutrition with their clients, patients and the general community.

A 2018 Hort Innovation project developed five avocado factsheets, all of which feature on the updated Australian Avocados website:

- weight management
- Type 2 diabetes
- nutrient booster
- cardiovascular health, and
- maternal health.

Each of the factsheets is designed to:

- summarise the nutrients in avocado that pertain to the condition/life stage
- summarise how the nutrients address the risk factors/specific need of the condition/life stage (nutrient functions)
- summarise the latest published research/public health nutrition recommendations on the condition/life stage
- provide the relevant Nutrition Information Panel to substantiate the nutrient claims
- provide appropriate and practical suggestions to incorporate avocado in the diet and combining them with other healthy foods; including healthy recipe ideas.

Each of the factsheets has an exhaustive list of references as well.

A healthy heart with avocados

This factsheet builds on previous messages provided to health professionals by Australian Avocados in 2015. Heart health is core territory for avocado and there is a large and expanding body of evidence relating to cardiovascular disease (CVD) risk factors.

Emerging research is finding additional metabolic benefits from avocado, including anti-inflammatory effects and reductions in oxidative stress. Also of interest is the positive effects of avocado in meals and post-prandial glycemic and insulin responses.

Healthy mums and bubs with avocados

This fact sheet is unique in this series because it covers both maternal and infant health.

With regard to maternal health, the fact sheet builds on previous information for health professionals on maternal health that had a strong focus on folate. Unfortunately, the messages

regarding to folate needed to be softened because the new Nutrition Information Panel (NIP) is based on a different data source with a smaller folate figure and therefore a downgrade in the type of claim to "a source" rather than a "good source". Nonetheless folate is an important public health story to tell and important for health professionals to know. Importantly, the increased needs for folate during pregnancy is for dietary folate, and a supplement is recommended in addition to diet. Because women often do not eat adequate folate, avocado is a useful food to include.

The fact that women are not consuming adequate amounts of fruits and vegetables is also an opportunity to recommend avocado in the maternal diet.

The positive story about avocado for babies is their nutrient density to support growth and development, and their ideal texture and flavour for transitional feeding.

Infants and toddlers were not a key target during the previous health professional communication activities by Australian Avocados. However, since Food Standards Australia and New Zealand (FSANZ) have Recommended Dietary Intakes (RDIs) for infants and toddlers it seemed a good opportunity to develop nutrition and health claims for this age group. Newly developed composite claims were developed for the Nutrient and Health Claims Substantiation Report and these were used in this fact sheet.

A healthy weight with avocados

This fact sheet builds on information presented to health professionals by Australian Avocados in 2015. There were only three studies reported then, and fortunately there have been more studies published since.

Compared to the other fact sheets, this fact sheet does not focus so much on the nutrients in avocados as much as the effects of the whole food in the diet.

The main message is around the idea that fat is not necessarily fattening, and the weight gain potential very much depends on the food source. In the case of avocado – a whole food with mostly monounsaturated fats – the evidence suggests a low weight gain potential, especially in the context of a healthier dietary pattern such as the Mediterranean eating pattern.

Newer research also identifies beneficial effects of avocado on insulin response: as higher insulin levels can cause weight gain, avocados may assist with weight management via this mechanism. In-vitro studies demonstrate avocado extracts affect carbohydrate metabolism.

As following fad diets is a common approach in the community to manage weight, the almost universal acceptance of avocado in popular diet regimes (Low-carb, paleo, plant-based etc) is a good aspect to communicate to health professionals who see people likely to be on such diets and can reassure them that avocado can be included.

Avocado nutrient booster

This fact sheet takes a broad approach similar to the information developed previously for the avocado website, resources and social media. Avocados are a nutrient dense

fruit. This fact sheet outlines the nutrient composition of avocado and highlights those nutrients that are present in sufficient quantities per 50g serve to make claims that comply with the FSANZ Food Standard Code (at least 10% RDI): healthy fats, dietary fibre, folate, vitamins C, E, K, niacin and pantothenic acid. Potassium and sodium are included because of their importance for heart health, while phytochemicals were included as they have benefits for many aspects of health and wellness, and because of the link between carotenoids and eye health.

This factsheet highlights research that avocado eaters

have better quality diets than non-eaters, and how avocados can boost the absorption of other fat-soluble nutrients, such as carotenoids, when consumed at the same time as other colourful vegetables.

Eye health was highlighted as a benefit because of emerging research about the importance of nutrition for prevention of eye conditions. Healthy aging is a key trend shown in consumer research in the food industry, so this eye health benefit will be of interest to the patients and clients of health professionals. Avocado appears to provide nutrients particularly beneficial for eye health, and this represents a good news story for health professionals.

Avocado for diabetes

Australians are developing Type 2 diabetes (T2D) in epidemic proportions and there are many more that are not yet aware they have the condition (and many more at risk). Type 2 diabetes, heart disease and weight management are an interconnected triangle of chronic diseases that affect many Australians and represent 'core business' for many health professionals.

This common condition represents an opportunity to promote avocado in a prudent diet.

Avocado has positive impacts for all three conditions. The nutrients present in avocado can specifically assist people with T2D because they have increased needs for some nutrients such as vitamins C and E, fibre and healthy fats.

More research is needed in this space especially mechanistic studies to help explain how avocado impacts T2D but for now animal studies provide some insight into avocado effects on carbohydrate metabolism.

More information

You can view the new factsheets at: australianavocados.com.au/health-professionals/

Acknowledgement

The *Communicating the health and nutritional benefits of avocados* project (AV18004) has been funded by Hort Innovation, using the avocado industry research and development levy and contributions from the Australian Government.



Grower Profile

Kylie & Sam Collins

Kylie and Sam Collins

Blushing Acres, Dimbulah, North Queensland

Orchard: The Collins' 181 hectare orchard includes 20ha of avocados, 57ha of mangoes & 72ha under mulch production

Varieties: Shepard, Turner Hass and Maluma avocados, Calypso and Honeygold mangoes

How long have you both been in the avocado industry?

We bought the farm in 2002. It was already established with Shepard avocados and mangoes. Prior to this we were living in Papua New Guinea and we had a mechanical workshop as Sam is a heavy equipment fitter by trade – consequently everything on the farm is in pristine condition and he always has spares and the tools to fix anything that may need it.

I have a Bachelor of Business, so I was working in admin. I worked in our business in PNG and prior to that I worked for a company in Cairns who collected tropical aquarium fish and prior to that I worked for my parents in their freeze-dried flower business and prior to that I helped my parents on their sheep and cattle property – I'm a jack of all trades I guess! I grew up on a property and therefore I love the space of our farm – I can't ever see myself living in a city with masses of people – nice for a visit to catch up with family and friends but then I'm always happy to come home.

What prompted you to become avocado farmers?

Sam always loved to grow things – he had text books on the subject so it seemed a natural thing to do when we were looking for a business. We approached the markets initially and we were told that avocados and mangoes were the future. The next day we had found a farm which had both types of fruit on it and was in this area which allowed us to be close to Sam's family on the Tablelands.

We enjoy the challenge of farming – every year brings something new. Farming can be very rewarding when you see your labour of love travelling over the pack line and going into the right direction of Premium grade in the preferred size... it can also be heartbreaking and demoralising but that's when you need to start asking more questions and learn from the challenges.

We also enjoy working together as a team – we get to spend a lot of time with each other and it's nice to be able to have breakfast, lunch and dinner together as a family. I really love seeing the kids work with us in the harvest – it is a real team effort and I think our children, nieces, nephews and friends who come and work as well get a real appreciation for the value of money and the importance of good work ethics. We also love the ability to have some down time and go on holidays!



What varieties of avocado do you grow? What is your main variety? What variety do you prefer to grow and why? What other crops (if any) do you grow?

We grow predominately Shepard avocados. We also have some Turner Hass and Maluma. We like the Shepard because they are a good eating fruit with a good following of consumers and they fill in a market gap between Western Australian Hass and Tableland (North Queensland) Hass.

We also grow Calypso and Honeygold mangoes and use all the fallow land on the farm for mulch production for the avocados or for sale. The two different fruits complement each other very nicely. We can use the one pack line for them both and basically, we start harvesting mangoes in December and continue on with avocados in February. Having the two different fruits also spreads our risk as a business. We don't have all of our eggs in the one basket so to speak.

You were recently involved in promoting the Shepard season with the team from Australian Avocados. How important is it for consumers to be able to see their avocado grower?

I think it probably makes it more personal for the consumer. They see a farm and the farmers on it and can then relate to the product.

What was the key message you delivered to the views of Channel 7's Sunrise program?

Shepard avocados are in season now (the segment was shot in February). They stay green when ripe, and how to choose a ripe avocado in the shops without bruising it. We were also hoping to get a message across that it's not easy to farm and that is why they pay what they pay for an avocado.

How important is it for the industry to help educate consumers about the different varieties of avocados, and how they might differ from the predominant Hass variety?

Very important! As a grower I have wanted to somehow



Aldine Printers

Your Label Specialists

SPECIALISING IN:

***All types of fruit labels for all industries
To suit Dix, Towa and Halo Guns***

**Parts &
Servicing
for Dix guns
are available**
*CONDITIONS APPLY



**REGISTERED PRINTER
FOR AUSTRALIAN AVOCADOS**

- **Avocados**
- **Mangoes**
- **Citrus**
- **Pawpaws**
- **Bananas**
- **Box Labels**

Locally Owned & Operated



4051 4330

UNIT 1/50 STURT STREET, CAIRNS
FAX:- 4051 4334 Email:- sales@aldineprinters.com.au

www.aldineprinters.com.au

Grower Profile - Kylie & Sam Collins continued

Avo Ject[®]

SYRINGE

The proven method for controlling Phytophthora

- ✓ The Cost Effective Solution
- ✓ Built-in resistance for ease of measurement
- ✓ Low Pressure System
- ✓ Strong Design for use in multiple seasons
- ✓ UV Light Stabilised
- ✓ Suitable for all tree types
- ✓ Small syringe tip ensures minimal entry wound
- ✓ Easy grip handle



IT'S TIME
TO PROTECT YOUR TREES
 Only **\$3.95** each with free postage*
(*free postage on orders over 100 units)

CALL NOW TO ORDER | **+64 7 552 0916**
sales@avoject.co.nz
www.avoject.co.nz

Producing better fruit by innovation

educate the public regarding green skin avocados for a very long time. We saw the need for it when we first bought our farm and we were part of Shepard Australia and did retail tours. We saw firsthand the confusion that the green skin avocados gave the consumers when choosing an avocado and waiting for it to ripen – they thought the Shepard should turn black before it was ready to eat. The Australian avocado industry needs the green skin avocados to allow a continuation of supply so it's all year round – without the Shepards we would have to import more avocados to fill that gap. It is important that our consumers get a good eating experience, so not only is the demand for the Shepard avocado increased, but that demand continues as the Hass avocados come into season after the Shepards.

Shepard avocados have a beautiful green skin, but unlike the Hass avocado, the skin doesn't change colour as it ripens. To tell if a Shepard avocado is ripe you need to feel the fruit, but sometimes people get a little too handsy and squeeze the avocado all over. Many of our consumers don't realise the 'firm-fingered' approach can actually bruise the fruit and turn the flesh under the skin black.

Shepard avocados are grown in Far North and Central Queensland and are in season from late February until early May, when Hass avocados start returning to stores. Shepard avocados have a nuttier flavour and a firmer, more yellow flesh than the Hass variety, making them an attractive addition to salads, or sliced on toast. Their flesh also maintains its bright yellow-green and doesn't brown after being cut.

What is unique about growing avocados in your region/on your farm? What are the biggest issues affecting avocado growers in your region?

Our farm is situated on the north-western part of the Atherton Tablelands in North Queensland. The beauty of this area is that the avocados are first in season. The challenge is the climate which most farms all over Australia need to contend with in some way.

What's the best advice you would give to someone who has just started/entered growing avocados as a business?

Watch your costs and make sure you put quality fruit into the tray.

I can see a positive future for the avocado industry. We all need to pack to specifications and make sure that the consumer gets a good eating experience so they keep coming back for more. The Avocados Australia organisation has been incredibly proactive which has driven our industry to be so successful. It is imperative that we continue to be proactive as a lot of trees have now gone into the ground due to the success of the industry.

AFRON

PICKING. PRUNING. BUILDING. CONSTRUCTION.

PA SERIES Elevating Work Platforms

LPA350 | LPA400 | PA500 | PA600 | PA650



Featuring:

- Steel, Lockable Engine Cover
 - Free Wheeling Hubs with Failsafe Wet Brakes
 - Choice of Engine options and Foot/Hand Controls
- And Much More.....

Built Locally in Far North Queensland

Afron - Making Hard Work Easier

QAS
QUINTO AG SUPPLIES
"Your Exclusive Afron Cherry Picker Supplier"

Manufactured to Australian Standards by:

Quinto Ag Supplies

75 - 77 Kennedy Highway, Tolga, Queensland, 4880

Phone: (07) 40 932 195 Mobile: 0455 600 190

Email: sales@afron.com.au Web: www.afron.com.au

Trial results for fly pollination project

By David Cook, Department of Primary Industries and Regional Development (WA)

A national collaborative project has been created to identify alternate pollinators to bees, given the global decline in bee populations, constant threat of a pest and/or disease into Australia that could threaten the viability of bees, and the fact that bees sting workers.

The new project, titled *Managing Flies for Crop Pollination Project* (PH16002), started in September 2018, funded via Hort Innovation.

With great support from the national avocado levy, this five year project was promptly started in Western Australia (WA) with a trial looking at a native fly as a potential alternate pollinator to bees in avocado orchards. The trial was run on Ruabon Farms at Busselton, 220km south of Perth with the generous advice and assistance of Neil Delroy, Jacinta Foley, Ben Norrish and many other on-farm personnel. Flowering time was quickly approaching and the five weeks that this window of time offered allowed us to quickly co-ordinate a large field experiment.



Figure 1. An adult *C. albifrontalis* fly (L) and seen on the underside of an avocado leaf (R)

Pairs of avocado trees were covered with fine mesh netting (2.5mm²) and the western golden-haired blowfly (*Calliphora albifrontalis*) (Figure 1) released within the enclosures to see if they could pollinate avocado flowers (assessed at the fruitlet stage and again at final harvest). This species of fly is endemic to south-western Australia and is big and hairy (Figure 1) and was found to be the most abundant fly in the avocado orchard.

The treatments that we used were:

- Control (9 enclosures) where the insecticide Success® was applied after the netting was put on to kill off any insects inside the enclosure.
- Flies (9 enclosures) where 300 *C. albifrontalis* adults were contained within the enclosures.
- Open (9 pairs of trees) where two trees (Hass and either Ettinger or Edranol) were identified but left open to normal pollination by bees (introduced into the orchard) and all other insects present.



Figure 2. The polypipe framework over a Type A Hass tree and Type B Edranol (L) prior to covering and securing insect-proof mesh netting over the enclosure (R).



Figure 3. The 300 *C. albifrontalis* pupae (L) prior to being placed in the enclosures (R). A water bath underneath the pupal release station prevented ants from accessing the pupae.

Both a Hass (Type A) and a neighbouring Ettinger or Edranol (Type B) tree were totally covered with mesh netting (10% shade rating) to exclude bees and other insects (eg flies, beetles, wasps) from pollinating the avocados (Figure 2).

Paired trees were enclosed at the start of flowering in the orchard (3 October) and left till flowering had finished (13 November). Pupae (n=300) of *C. albifrontalis* were placed into each enclosure on 5 October, 2018 (Figure 3). The adult flies emerged naturally in the enclosures where the only source of sugar for the adult flies was the avocado flower nectar.

The trees remained covered for the duration of flowering. After flowering ended and the netting was removed (13 November, 2018), a count was made of the number of fruitlets ≥ 5 mm in equatorial diameter (Figure 4), which according to Sedgley (1980) means that the fruit are normal and 100% fertilised. These sized fruitlets typically form ≈ 21 days after flowering has ceased. A count of the total fruit number and size will be done

at final harvest.

Open trees (a Hass and an Ettinger or Edranol tree next to each other) also had pollination success measured by counting fruitlets ≥ 5 mm in diameter (Figure 4). Bee hives were introduced into the orchard near the enclosures on 27 Sept and 5 October as per normal practice at 3.5 full hives/ha.

Pollination success

Avocado trees that had insects excluded produced very few fruit (mean of 6/tree) so their ability to self-pollinate is extremely poor. When left open to bees and all other insects present, a mean of 254 fruit were found on each Hass tree. There may be a further fruit drop before final harvest, so this assessment will be done in the coming months. The tree enclosures with *C. albifrontalis* flies produced an average of 46 fruit, with as many as 107 fruit on one tree.

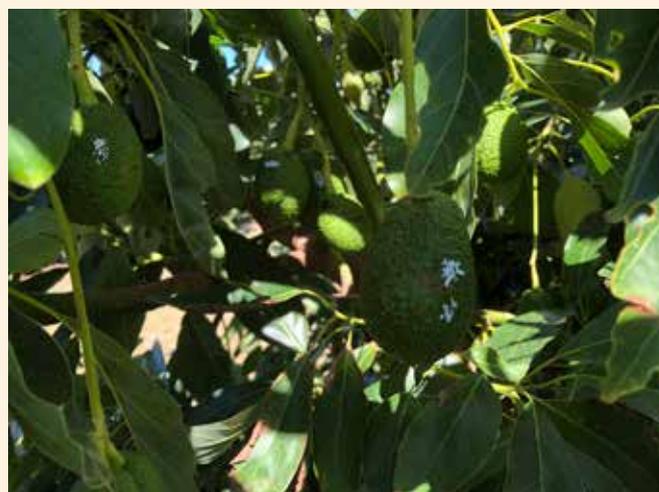


Figure 4. Avocado fruitlets (L) marked with a white soluble marker (R) to assess pollination success on trees either left open and pollinated by bees and other insects or enclosed with *C. albifrontalis* flies.

Trial results for fly pollination project continued

At first glance this may seem like a poor result, but there were two major factors that when taken into account paint a more promising picture. Firstly, the number of *C. albifrontalis* flies placed into each enclosure was well short of what we wanted to place in there, which was 1,000 flies/enclosure. This is based on the equivalent density of bees/tree. Placing 3.5 hives/ha in the orchard means that 3.5 x 45,000 or 157,500 bees/ha are present. With a tree density of 320/ha, that equates to 492 bees/tree or 984 bees/pair of trees.

We simply didn't have enough time to rear up the 9,000 flies in time for the experiment to start. Fly development rates through all their life history stages, ie, eggs, larvae or maggot and the dormant pupal stage, are all determined by the temperature they are exposed to. For example, larval development may take as little as seven days at 30°C, but take as long as 42 days if reared at 15°C.

Secondly, around 30% of the fly pupae placed into the enclosures did not emerge due to being parasitised by local micro-hymenopteran insects (*Figure 6*). This can be eliminated in future releases by placing the pupae in the enclosures when only 2-3 days away from adult emergence, where these small parasitic wasps are unable to kill the adult fly within the pupal case.

So on balance the results were really promising. We proved that this fly is capable of pollinating avocado flowers and if released in numbers equivalent to bees (ie, 1000 flies/two trees) then we would expect a much higher pollination rate. Our next trials this upcoming October/November, 2019 will test *C. albifrontalis* in enclosures against a different fly species, *Calliphora vicina*,

that is distributed worldwide and was found in high numbers feeding on the avocado flowers at the experimental trial site (Ruabon Farms). If *C. vicina* is identified and shown to be an effective pollinator then it could be used around Australia and elsewhere.

References

Sedgley, M (1980) Anatomical investigation of abscised avocado flowers and fruitlets. *Annals of Botany* 46: 771-777.



frontiers
Strategic partnership initiative

POLLINATION
FUND



Figure 6. The micro-hymenopteran parasitic wasp *Tachinaephagus zealandicus* (L) and the exit hole left on a fly pupae after the adult wasp has emerged (R).

Xylella fastidiosa, a high priority biosecurity threat for the Australian avocado industry

By Andrew Geering and Louisa Parkinson, QAAFI, University of Queensland

The bacterium *Xylella fastidiosa* is one of the most serious biosecurity threats to all of Australian agriculture, as it has one of the widest host ranges of any plant pathogen and causes economically-important diseases in many crop and ornamental plant species including grape, citrus, olive, coffee, oleander, peach, plum, almond, lucerne and avocado (for a regularly updated database of host species, see www.efsa.europa.eu/en/microstrategy/xylella). This bacterium inhabits the xylem of the plant and causes blockages that prevent water and mineral transport. It is speculated that almost any xylem-feeding insect could transmit the bacterium, hence there is a strong likelihood that an endemic insect species could act as a vector, in the event that only the bacterium was introduced into Australia. Known vectors elsewhere in the world include sharpshooter leafhoppers (Hemiptera: Cicadellidae: Cicadellinae) and spittlebugs (Hemiptera: Cercopoidea).

Xylella fastidiosa is a genetically diverse bacterium, with five recognised subspecies (subsp. *fastidiosa*, *multiplex*, *pauca*, *sandyi* and *morus*) and additional strains within each subspecies. The strong consensus is that *X. fastidiosa* evolved in the Americas but with different geographical origins for each subspecies; subsp. *multiplex* is believed to have originated in North America, subsp. *fastidiosa* in Central America and subsp. *pauca* in South America. Understanding genetic diversity is important, as the different subspecies and strains have different host ranges, and are transmitted at varying efficiencies by the different insect species. How different bacterial genotypes, insect vectors and host plant species interact to cause disease epidemics is poorly understood. In the USA, *X. fastidiosa* is transmitted by native sharpshooters but the introduction of the glassy-winged sharpshooter (*Homalodisca vitripennis*) to California in the late 1990s led to a dramatic increase in the incidence of disease in grapevines.

For much of time, *X. fastidiosa* remained confined to the New World. However, *X. fastidiosa* was detected for the first time in Europe in 2013 as part of studies to determine the cause of a disease that was devastating ancient olive groves in southern Italy. Following this incursion, delimitation surveys

were undertaken and the pathogen was also found in France and Spain in more than 30 host species, including Oleander, cherry, almond and many endemic species in the Mediterranean flora. Genetic studies suggested a single, recent introduction of the pathogen into southern Italy from Costa Rica. This pathogen incursion would have been facilitated by humans, as the insect vectors would not have had the capacity to cross the Atlantic Ocean by their own means. Trade in ornamental plants is thought to be the pathway by which the bacterium entered Europe.

Given its very broad host range, it is not surprising that *X. fastidiosa* also infects avocado. The first published report of disease in avocado trees caused by this pathogen was from Costa Rica in 2007 (Montero-Astúa et al., 2007). In this study, infected trees were found at two distinct geographical locations, in mountains to the north and south of the Central Valley (Alajuela and San José provinces). Disease symptoms included:

- chlorotic mottling, marginal scorch and deformation of the leaves (wavy edge; sometimes shorter on one edge, giving a crescent shape)
- defoliation
- shortening of internodes
- branch dieback
- an uneven distribution of symptoms across the tree, with some branches appearing healthy.



Figure 1. Chlorotic mottling caused by *Xylella fastidiosa* (photograph courtesy of Mauricio Montero Astúa)

Xylella fastidiosa, a high priority biosecurity threat continued

Some of these symptoms are illustrated in the accompanying photographs (Figures 1-3).

Little is known about the nature of epidemics of *X. fastidiosa* in avocado in Costa Rica. It is likely that the pathogen is more widespread within avocado orchards in Costa Rica and in neighbouring countries of Central America. Knowledge of pathogen strain diversity and insect vectors in avocado orchards is also non-existent, which is critical information for understanding disease epidemiology. Finally, problems were encountered with obtaining pure cultures of *X. fastidiosa* from avocado, possibly due to the mucilaginous sap that was released when the leaves were sampled. Clearly more research is needed considering the seriousness of this disease.

The only other report of *X. fastidiosa* infecting avocado is from California (California Minor Crops Council, <https://ipmdata.ipmcenters.org/documents/pmsps/CAavocado.pdf>). While avocado is not a preferred host of the glassy-winged sharpshooter, this insect pest will infest avocado trees when other suitable hosts are not available for feeding or when populations of the sharpshooter are very high, particularly when avocado and orange are grown in proximity to each other. *X. fastidiosa* has been detected in avocado but these infections were not associated with any symptoms. These observations contrast with those from Costa Rica, most likely due to genetic differences between the bacterial populations in the two regions. In California, the glassy-winged sharpshooter alone causes economic losses to the avocado farmers as it feeds on the fruit stalk and deposits excrement over the fruit, reducing its marketability.

It is no wonder that *X. fastidiosa* is rated the most important biosecurity threat to Australian horticulture by the Department of Agriculture and Water Resources. If symptoms similar to those in Figures 1, 2 and 3 are noticed by anyone in Australia, it is very important to notify biosecurity agencies as soon as possible (please call the *Exotic Plant Pest Hotline* on 1800 084 881) or contact us by email (L.Parkinson@uq.edu.au). If *X. fastidiosa* was to establish in Australia, the viability of many horticultural industries would be at risk.

Further reading

Montero-Astúa M, Saborío-R G, Chacón-Díaz C, Garita L, Villalobos W, Moreira L, Hartung JS, Rivera C (2007) First report of *Xylella fastidiosa* in avocado in Costa Rica. *Plant Disease* 92 (1):175-175. <https://apsjournals.apsnet.org/doi/10.1094/PDIS-92-1-0175C>

Xylella (*Xylella fastidiosa*) – www.agriculture.gov.au/pests-diseases-weeds/plant/xylella

Xylella fastidiosa – www.planthealthaustralia.com.au/pests/xylella-fastidiosa/

Xylella fastidiosa – <https://gd.eppo.int/taxon/XYLEFA/photos>



Figure 2. Leaf deformation caused by *Xylella fastidiosa* (photograph courtesy of Mauricio Montero Astúa)



Figure 3. Shortening of internodes caused by *Xylella fastidiosa* (photograph courtesy of Mauricio Montero Astúa)

Acknowledgements

We thank Dr Mauricio Montero Astúa for useful discussions and kindly providing photographs of disease symptoms. This 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**

Xylella coordinator appointed

Australia will be better prepared for plant disease outbreaks with the appointment of a national coordinator to lead a three-year program to improve readiness for the potential incursion of the devastating *Xylella fastidiosa*.

Experienced biosecurity and emergency response coordinator, Craig Elliott, has been appointed to work with a national steering committee and coordinate the program to safeguard the nation against Xylella, an exotic bacteria that threatens more than 350 commercial, ornamental and native plant species in Australia. It has been found to impact avocado in other parts of the world.

The role is a joint initiative between Wine Australia and Hort Innovation through the Plant Biosecurity Research Initiative (PBRI) to coordinate research and emergency response activities to improve Australia's preparedness.

While Australia is currently free of Xylella, the disease has been catastrophic overseas infecting more than 200 million citrus trees in Brazil, destroying ONE million olive trees in Italy and severely impacted the Californian grape sector – causing annual losses in excess of US\$100 million.

Mr Elliott has previously worked in senior management roles with state biosecurity agencies in Queensland and Tasmania, as well as with the National Biosecurity Response Team, and he has extensive experience in leading emergency responses and training government and industry personnel in biosecurity and emergency management.

Mr Elliott said his priorities would be working with local and international researchers to find simple and quick ways of detecting the disease in plant and insect samples, and to develop containment and eradication strategies should there be an outbreak.

"The key to Australia being better prepared is having the ability to detect Xylella early and then having the containment and eradication tools ready so we can act quickly," Mr Elliott said.

"We can learn from the experience of other countries and the work being done to improve their detection and response procedures. Unfortunately, we are seeing the spread of Xylella through southern Europe and we can't afford to be complacent with this threat."

Dr Jo Luck, PBRI Program Director, said there was no known cure for Xylella and prevention was the only safeguard against Australia's most threatening exotic plant disease.

This project, MT17006, is a multi-industry and multi-sector/organisation investment, with funding from a range of levy industries.



Research and Development



Creating opportunities for people with a disability.

Your local, independent, professional packing experts



- 30 years grower experience
- HACCP, Freshcare and ICA accredited
- Packing and transport inclusive in pricing
- Packaging made on site
- Despatch to all mainland states
- Packout information supplied within 48hrs
- Packing avocados and custard apples with the option to pack other produce



253 Wardell Road, Alstonville NSW 2477 • Email: packshed.admin@hwns.com.au
 Contact: Chris - 0478 882 728 • Kim - 0423 562 420

Verticillium wilt in Western Australia this summer

By Liz Dann, QAAFI

What is Verticillium wilt?

- Verticillium wilt is a fungal disease of avocado and a broad range of other crops including potato, tomato, grapes, stone fruit, cotton, strawberry and some weeds including nightshade.
- The characteristic symptom is a rapid wilt of young trees, or single branches in older trees, followed by desiccation of leaves (*Figures 1 and 2*). Young trees may die.
- Streaky browning of the vascular system in young wilted stems about 1cm thick is apparent when a 1mm deep shaving is made with a sharp knife (*Figure 3*).
- Trees may recover, usually with warmer temperatures when growth of the fungus is arrested, and new vigorous growth may occur below the affected parts of the branch within several weeks (*Figure 4*).

How to manage it

- There are no effective fungicide treatments.
- Prune out the dead wood once dieback has ceased, or remove the entire dead tree, and remove completely from the orchard. Do not chip and use as mulch.
- Fumigation of infested sites (eg, where tree had died and been removed) prior to re-planting may be effective.

A bit more about the disease, and occurrence this year in WA

Verticillium wilt is usually not a major problem in avocados. It not seen every year, however, the occurrence in young trees in south-west Western Australia this summer has been fairly high. In a couple of the cases I am aware of, trees have been planted into ex-potato or grapevine ground. While the disease is of minor importance in grapes, spuds are an excellent host of Verticillium. The fungus can survive in soil for many years as "microsclerotia" (*Figures 5 and 6*), which are very small (<1mm), compact masses of thick-walled, pigmented cells which have budded off from the fungal mycelium.

These microsclerotia germinate under the right conditions and in the presence of root exudates and infect the roots. The fungus then produces very small spores, which are easily transported to upper parts of the tree in the vascular tissues with high sap flow in spring and summer. This causes damage to the tree's vascular system, and the tree produces tyloses, or gums, which plug the vascular system, blocking the sap flow and causing wilt. I was able to isolate the fungus from the areas of vascular discoloration (*Figure 3*) from samples of wilted branches from four young trees in two separate orchards collected in late

February. Microsclerotia then form in these senescing branch tissues, completing the disease cycle, so it is important to remove the prunings so that the source of inoculum is reduced.

From our experience with cases in the eastern states, Verticillium wilt is mostly seen earlier in the season, eg August and September, and has been associated with damage to roots. See *Talking Avocados* Summer 2009/10 Volume 20 (pages 32-33) and for those who have registered and are signed in, you can also read more in the Growing section of the Best



Figure 1. Rapid wilt and dieback of 2-year-old tree with Verticillium wilt



Figure 2. Rapid wilt of new flush



Figure 3 (a-c). Streaky brown necrosis (discolouration) of the vascular tissues about 1mm deep. *Verticillium* fungus was isolated onto media in Petri dishes from these areas of vascular streaking.



Figure 4. Limbs and young trees with *Verticillium* dieback may recover when growth of the fungus is halted by warmer temperatures. Prune out and remove all dead branches/trees from the orchard.



Figure 5a & 5b: *Verticillium* growing on media in a Petri dish. The microsclerotia form in a ring around the margins of the fluffy white fungal colony.

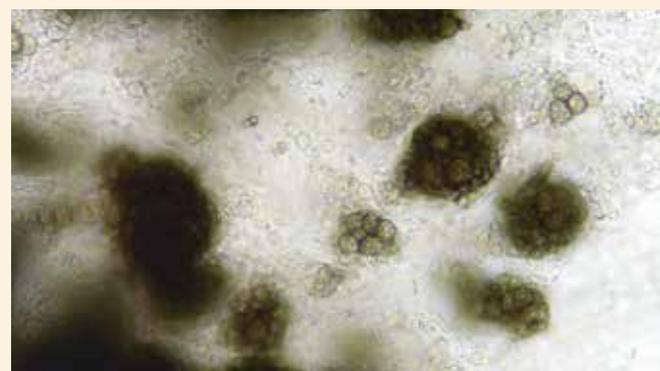


Figure 6: Micrograph of microsclerotia at 40x magnification. The thick, pigmented cells are highly resistant to environmental degradation, allowing the fungus to survive in soil for many years.

Practice Resource (www.avocado.org.au). More can also be found in the *Verticillium wilt of deciduous fruit trees fact sheet* from Agriculture Victoria available at bit.ly/TA301VERT.

Discussions with a potato grower confirmed that *Verticillium* in that crop is commonly seen at this time of the year in south-west Western Australia. A link between compromised root systems (eg, from previous disease or rootbound trees at planting), cannot be ruled out in the recent West Australian cases. The fungus is very slow growing in culture and further testing will be undertaken to confirm species, although it is likely to be *Verticillium dahliae*.

More information

Please contact Associate Professor Elizabeth Dann, Queensland Alliance for Agriculture and Food Innovation (QAAFI) by emailing e.dann@uq.edu.au or call 07 3443 2455. Growers are welcome to contact Liz if they would like more information, or if they want to try to confirm whether they have *Verticillium* wilt or not.



Modelling avocado development in the Small Tree-High Productivity Initiative

Research and Development

Jim Hanan and Ming Wang, QAAFI, The University of Queensland

Tree architecture, vigour, light environment and crop load are the four key areas of focus as researchers work to develop planting systems that support higher productivity avocado orchards. But its difficult to look at all these factors in individual experiments, so functional structural plant models (FSPMs) are being developed to help bring the ideas together.

In a functional-structural plant model, tree parts are treated as individual components that obey their own set of rules in response to the local environment. So leaves start off being produced in a bud, separated by internodes, and with an axillary bud at their base. They elongate and widen as a function of temperature and available photosynthate.

Once reaching sufficient leaf area and maturity, they begin to export photosynthate that drives the expansion of other internodes and young leaves, and fuels development of flowers and then fruits. Mechanisms built in to the models help them integrate the factors of interest, resulting in models that allow us to run virtual experiments that give us insight into their interactions.

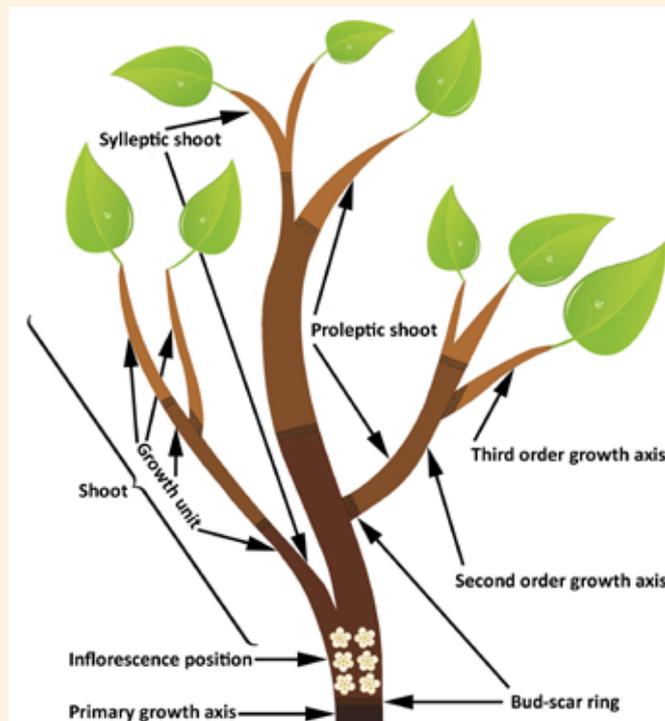


Figure 1. An abstract representation of an annual growth module with three flushes. The darker brown represents the older flushes. Growth unit (GU) refers to the portion of a shoot that develops during an uninterrupted period of extension (Figure 1, Wang et al. 2018)

As part of this work, University of Queensland student Ming Wang has recently completed his PhD thesis titled *Pattern-oriented modelling of biological systems in Australian orchards*, working with avocado as his primary case study (Wang, 2018). This research was funded by a scholarship from the Hort Innovation project supporting the Small Trees High Productivity Initiative between Queensland Department of Agriculture and Fisheries and the Queensland Alliance for Agriculture and Food Innovation at UQ.

Pattern-oriented modelling (POM), is a strategy originally from ecology (Grimm et al. 2005) that uses multiple observed patterns of plant development at different scales to design, develop and test models. Since multiple patterns often emerge from different essential properties of the real system, when we can match all of them with a model built to simulate the physical and physiological processes that underlie development, we can be more confident of our model's predictions.

In Ming's work, the initial target was to simulate the growth of an annual growth module (AGM) of avocado (Figure 1 and 2),

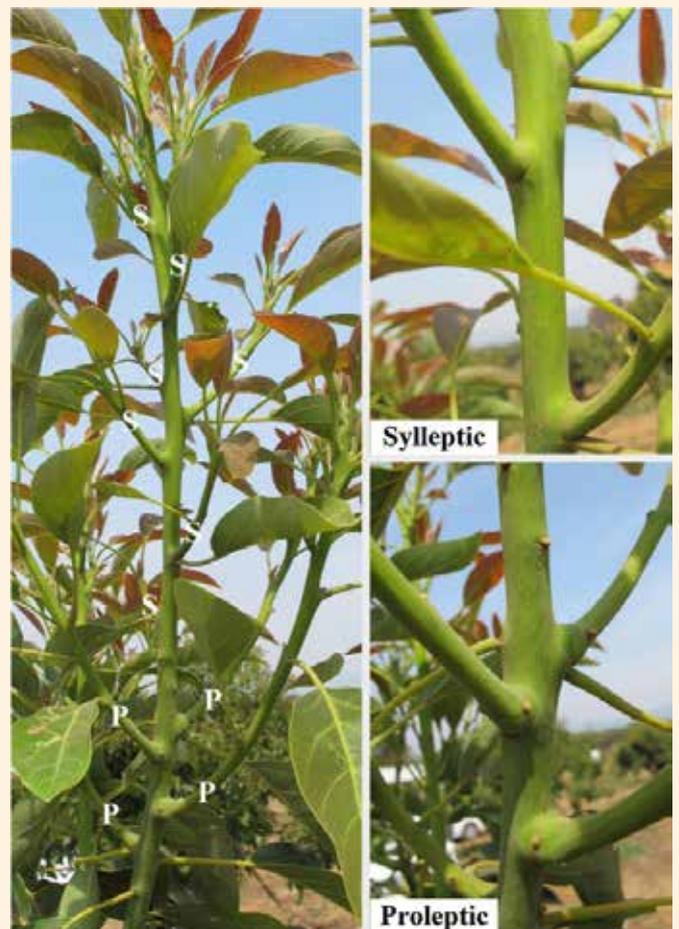


Figure 2. A photo of an AGM in the field. Note no bud scar ring at the base of sylleptic shoots. (Figure 1, Alcaraz et al., 2013)

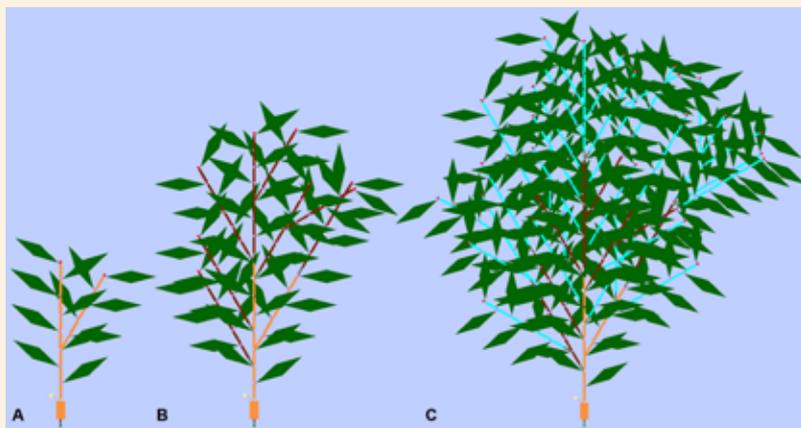


Figure 3. An abstract representation of three flushes of simulated avocado AGM growth. Orange stem identifies the first flush, purple the second and blue the third. (Figure 2, Wang et al. 2018)

types, such as sylleptic (those that grow out at the same time as their parent) and proleptic (those that only start to expand during later flushes). You can recognise proleptic branching in the field by checking for a bud scar ring at the base (Figure 2).

AGM development and growth in the model is driven by photosynthesis and carbon allocation at the organ level on a daily basis. Levels of photosynthesis depend on the size and age of each leaf, and on its position relative to other leaves, through differing levels of shading. Carbon allocation is based on potential relative growth rate and current sink size for each organ type. Initial development of branches

is determined stochastically. Different weather conditions will also affect the growth, since it is dependent on temperature, though current models assume sufficient water and nutrients are available. Graphical output from the prototype model can be seen in Figure 3. But the main output is data that can be compared directly to the same measurements that can be made in the field.

In the applying the POM approach to FSPM this data is used first for model verification by comparing model outputs with the patterns used for model development (Figure 4 shows the results of this comparison):

- P1:** The number of sylleptic shoots
- P2:** The number of proleptic shoots
- P3:** The number of GUs
- P4:** The number of terminal GUs
- P5:** The number of GUs per axillary shoot

Then for validation, the model then predicted emergent properties at the system level for non-fruit-bearing shoots, such as growth patterns (the length of growth flush, and leaf area), which are consistent with published articles (Figure 5).

- P8** Mean length of spring growth flush on
- P9** Mean length of summer growth flush on non-fruit-bearing shoots
- P10** Mean length of autumn growth flush on non-fruiting shoots

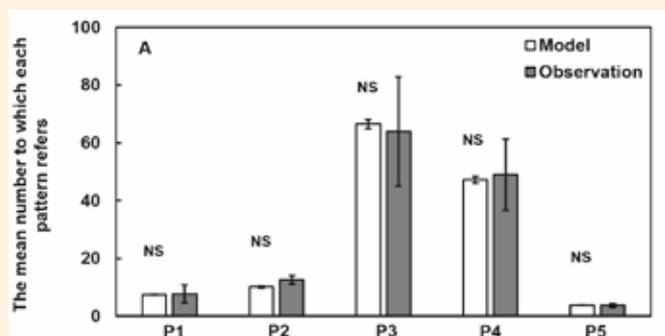


Figure 4. Model verification against the 5 patterns used to calibrate the model. Dark bars are for observations, white for model. Differences are not significant at the 0.05 level. (Modified from Figure 7, Wang et al. 2018)

based on data from the literature (Thorp and Sedgely, 1993, Thorp et al. 1994). This will later be extended to model a complete avocado canopy. An AGM is a branching architecture that forms from an indeterminate inflorescence over a one year growing period. In general, it has three flushes per year (spring, summer and autumn). Different stages have different shoot

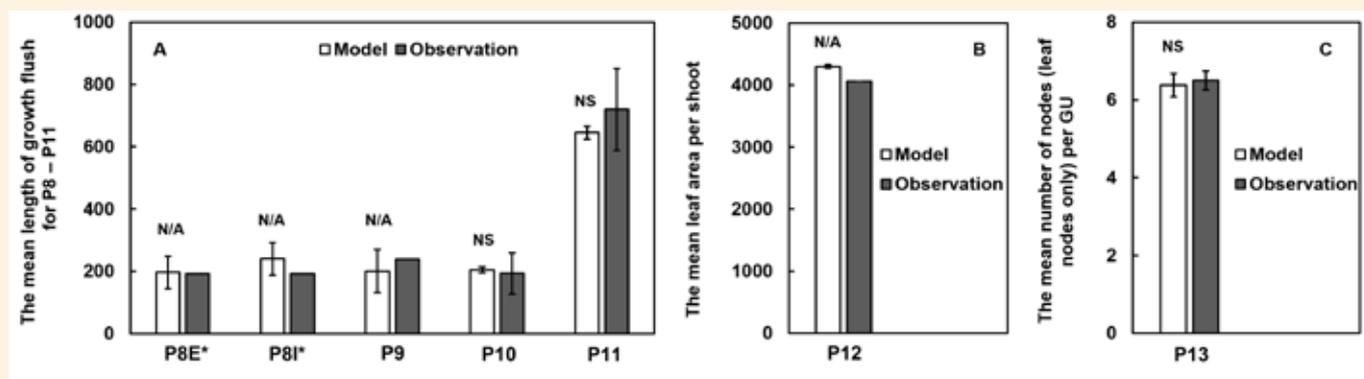


Figure 5. Model validation against emergent patterns (modified from Figure 8 Wang et al. 2018)

Modelling avocado development continued

P11 Mean length of principal axis over a 1 year growing period

P12 Mean leaf area per shoot

P13 Mean number of nodes (leaf nodes only) per GU

These patterns emerged from the physical and biological processes that occur in the model. These investigations led to the conclusion that POM can help identify the appropriate level of detail for a model structure that successfully mimics nature.

Ming's research also included modelling of Queensland fruit fly and its interaction with trees in orchards, using two spatially explicit agent-based models with presence of vegetation represented as cubes, and one agent-based model that uses detailed plant architecture. All are 3-dimensional models that simulate Qfly behaviour and movement patterns on host plants (Wang *et al.* 2016, Wang, 2018).

What does this mean for growers?

Further development of this model is underway to produce a whole tree model, extended to include flowering and fruiting, for validation at orchard level over multiple years. These models have potential for education, extension and further research application.

For many people, seeing a visual representation of how trees grow, say after different management treatments, is a valuable complement to statistics and graphs. In the education and extension areas, such models will have the potential to illustrate the ideas behind experimental findings. And in the research area, these models will be used to run simulations that explore many more possible avocado planting systems than can be afforded in the real world, in order to advise best-bet options for the next round of field trials in the Small Tree-High Productivity Initiative.

More information

Email Jim Hanan at j.hanan@uq.edu.au



References

- Alcaraz, M. L., T. G. Thorp, and J. I. Hormaza. *Phenological growth stages of avocado (Persea americana) according to the BBCH scale*. Scientia Horticulturae 164 (2013): 434-439.
- Grimm V, Revilla E, Berger U, Jeltsch F, Mooij WM, Railsback SF, et al. (2005) *Pattern-oriented modeling of agent-based complex systems: lessons from ecology*. Science 10:5750,987-91.
- Thorp TG, Sedgley M. (1993) *Architectural analysis of tree form in a range of avocado cultivars*. Scientia Horticulturae. 53:1,85-98.
- Thorp TG, Aspinall D, Sedgley M. 1994. *Preformation of node number in vegetative and reproductive proleptic shoot modules of Persea (Lauraceae)*. Annals of Botany 73: 13-22.
- Wang, M. (2018) *Pattern-Oriented Modelling of Biological Systems in Australian Orchards: Driving Research towards the Medawar Zone*. PhD thesis, The University of Queensland.
- Wang, M, Cribb, B, Clarke, AR. And Hanan, J (2016). *A Generic Individual-Based Spatially Explicit Model as a Novel Tool for Investigating Insect-Plant Interactions: A Case Study of the Behavioural Ecology of Frugivorous Tephritidae*. PLOS ONE 11 (3), <https://doi.org/10.1371/journal.pone.0151777>
- Wang, M., White, N., Grimm, V., Hofman, H., Doley, D., Thorp, G., Cribb, B., Wheritt, E., Han, L., Wilkie, J. and Hanan, J., *Pattern-oriented modelling as a novel way to verify and validate functional-structural plant models: a demonstration with the annual growth module of avocado*. Annals of Botany, Volume 121, Issue 5, 18 April 2018, Pages 941-959, <https://doi.org/10.1093/aob/mcx187>

Acknowledgements

The efforts of Ming Wang's co-advisors, John Wilkie and Neil White (DAF), Bronwen Cribb (UQ Biological Sciences), and David Doley are gratefully acknowledged. The Small Tree-High Productivity Initiative is an initiative of the Queensland Government with major partners the Department of Agriculture and Fisheries (DAF), DAF's research alliance with the University of Queensland (Queensland Alliance for Agriculture and Food Innovation), and the NSW Department of Primary Industries.

A key element of this initiative has been co-funded by Hort Innovation – using the across horticulture levy, contributions from DAF and contributions from the Australian Government – through the Hort Innovation project *Transforming tropical/subtropical tree crop productivity* (AI13004). We are especially grateful to Hort Innovation and the various associated industries and horticultural businesses for their support of this initiative.

**Hort
Innovation**

Snapshots

International Avocado Research Update

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

Production

Effect of different phosphorus levels on avocado inoculated with arbuscular mycorrhizal fungi

Mexico (2017): The arbuscular mycorrhizal fungi (HMA) are a biological alternative to increase the absorption of phosphorus and reduce the excessive use of phosphate fertilisers. The objective of this work was to evaluate the effect of different concentrations of phosphorus fertilisation on avocado plants with and without mycorrhiza. A factorial design was used with two factors: mycorrhizal inoculant (with three levels: Rizofermic-UV, *Pacispora scintillans* and uninoculated) and fertilisation with phosphorus (with five levels: without fertiliser, 20, 40, 80 and 160 ppm; using H₂P₀₄ as fertiliser source), each treatment with four replicates. 401 days after inoculation, height, diameter, number of leaves, leaf area, growth rate, fresh and dry weight and percentage of mycorrhizal colonization were evaluated. Variables were analysed using a Fisher's test, with a significance level of $p < 0.05$. being considered significant. The treatment with 160ppm caused the death of the plants at 150 days, while inoculated seedlings plus 20ppm showed an increase in significant growth variables ($p < 0.05$) with respect to the control. Both plants inoculated with Rizofermic-UV and *P. scintillans* showed a significant increase in growth variables with respect to the control ($p < 0.05$). The plants inoculated with *P. scintillans* and also with a treatment of 20ppm of phosphorus, promote the greatest increase in growth variables. Mycorrhization had positive and significant effects on the development of the inoculated plants compared to the control plants. Download report here (Spanish/English): bit.ly/TA301MX.



Cross- vs. self-pollination in Hass avocados growing in coastal and inland orchards of southern California

US (2019): The dynamics of pollen transfer from complimentary pollinising avocado cultivars and pollen deposition onto and within flowers of Hass trees growing in southern California was examined. Experiments were conducted during the flowering seasons of 2001, 2003, 2005, and 2006. Three commercial Hass (an A-type avocado) orchards interplanted with complimentary, B-type cultivars were chosen in locations representing cool, humid or warm, dry Mediterranean conditions. Replicate cages were constructed of 40% saran shade cloth, which prevented penetration of bees and other flying insects larger than 2mm to the Hass flowers but permitted passage of drifting pollen. They were sown to form the rectangular cage roof, walls and floor and supported by a pipe framework. Four cages were installed over the canopies of Hass tree branches at the humid coastal site and at the inland, dry sites during February or early March of each year. Enclosure was accomplished during floral bud development but before the beginning of floral openings. At all locations, each caged and open-pollinated partner was staged next to each other with at least two non-observed buffer trees between the pair. The conclusions of the work were that self-pollination within Stage 2 flowers was the dominant mode of pollination at all the humid, coastal and the dry, inland test sites. Moreover, it was determined that pollen transfer between cultivars was mediated by wind, and bees had a negligible role in pollen transfer despite high forage activity. Temperatures that were marginally warm enough to allow normal floral opening and closing behaviour were still insufficient to allow pollen tube growth to the ovule before abscission of the flowers. These results provide the basis for understanding why growers utilising solid block avocado plantings in some areas achieve good yields without bees. Abstract and some graphs available here: bit.ly/TA301US2.

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

Israel (2019): The main objectives of the present 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 trees 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 $K_L = ET/ET_0$ 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). Analyses of trunk diameter variation data that lead to evaluation of trunk growth rate and maximum daily shrinkage reflect phenological stages and periodicity of shoot, fruit and root growth, and also may provide an integrative, "holistic viewpoint" of overall tree status. Abstract available here: bit.ly/TA301WAT.

On-tree indexing of Hass avocado fruit by non-destructive assessment of pulp dry matter and oil content

South Africa (2018): Commercial harvest maturity of Hass is estimated based on dry matter content (DM). Typically, a few samples representing the entire orchard are destructively analysed using time-consuming procedures such as oven or freeze drying the fruit's mesocarp. However, the maturity parameter of avocado, that is known to have a direct link to nutritional quality, is oil content (OC). This study was conducted to develop models for indexing maturity of on-tree avocado using a portable visible to near-infrared spectrometer. Rapid non-destructive models for assessing OC, DM and moisture content (MC) of avocado fruit were successfully developed using The Unscrambler® X chemometric software. The

robustness of the model was assessed in an independent test set. There were non-significant differences ($p > 0.05$) between destructive and non-destructively assessed OC in terms of means (42.45 and 41.91%), standard deviations (4.79 and 4.87%) and coefficients of variation (11.34 and 11.62%) from the independent test set. The predictability of OC was associated with its high extractability caused by drying samples at high (75°C) temperatures. The heat-drying technique can be used by other researchers to increase extractability and hence, the predictability of avocado OC during calibrations of alike non-destructive models. Commercial application of the developed models can improve maturity indexing since OC, DM and MC can be easily assessed without harvesting of sample fruit. Abstract and some graphs available here: bit.ly/TA301SA.



The Ultimate Marketing Package for Fresh Produce!



www.naturesfruit.com.au

admin@naturesfruit.com.au

Phone (07) 5496 9922

YOU'RE MUCH MORE THAN AVOCADO GROWERS TO US...

At Natures Fruit Company our members:

- Become shareholders of a grower owned and controlled packing and marketing enterprise
- Receive payments **four weeks** after the fruit has been received by NFC
- Gain access to **diversified markets** including direct access to supermarkets
- Are supplied with **packout information within 24 hours** and return estimates every Wednesday for fruit received in the previous pool week
- **Payments are guaranteed** through insurance against potential bad debts

...ISN'T IT TIME YOU CAME ON BOARD?

Pests & Diseases

A remote sensing technique for detecting laurel wilt disease in avocado in presence of other biotic and abiotic stresses

USA (2019): Early and accurate disease detection is essential for implementing timely disease management practices. Current disease detection tactics are labour intensive, expensive, requires a level of expertise in pest identification, and, may result in subjective disease identification. Diagnosis based on visual symptoms is often compromised by the inability to differentiate between similar symptoms caused by different biotic and abiotic factors. In this paper, an automated early disease detection technique for avocado trees is presented and evaluated. This remote sensing technique can detect an important avocado disease, the laurel wilt (Lw) disease, and differentiate it from healthy trees (H), trees infected by phytophthora root rot (Prr), and trees with iron (Fe) and nitrogen (N) deficiencies. Detection of Lw disease in avocado trees, in early stage, is very difficult, because it has similar symptoms with other stress factors such as nutrient deficiency, salt damage, phytophthora, etc. The proposed disease detection procedure contains several steps including image acquisition, image pre-processing, image segmentation, feature extraction and classification. For image acquisition, two cameras were

utilised and evaluated and two classification methods were studied: (a) neural network multilayer perceptron (MLP), and (ii) K-nearest neighbours, to detect Lw in asymptomatic stage and in late (symptomatic) stage. Additionally, two segmentation methods, region of interest (OVROI) and polygon region of interest (PROI), were utilised. The MLP classification method with the Tetracam was able to successfully detect Lw with an accuracy of 99% in asymptomatic (early) stage. Hence, low-cost remote technique can be utilised to differentiate healthy and unhealthy plants. Download report here: bit.ly/TA301US.

More information

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





PREFERRED

FRUIT

PHIL'S PREFERRED FRUIT PTY LTD
 STANDS 202 - 203 SHED C
 M: 0416 229 505
 P: 9763 2399 F: 9325 6009





We are your PREFERRED link to Sydney's local and country grocers, providores, exporters and the famous Paddy's Markets.
 With years of experience, we market all varieties of Australian Avocados all year round.
 Communication is key, we provide quick returns and payments.
 We specialise in providing fruit specifically ripened to our customers needs.

WE ARE ALWAYS READY.
WE ARE PREFERRED FRUIT.

 @PREFERRED_FRUIT

 @PREFERREDFRUIT

Driving practice improvements in domestic avocado supply chains

By Noel Ainsworth, DAF Queensland

A new three-year project funded by Hort Innovation aims to identify and promote improvements to practices in avocado supply chains between the farm and the retail distribution centres.

Project leader Noel Ainsworth, with the Queensland Department of Agriculture and Fisheries, said that this project (AV18000) would examine the range of practices in use and relate this to feedback from the supply chains.

“This feedback will include details of the cool chain temperatures, periods in storage and resultant fruit quality as the consignments depart the ripeners,” Mr Ainsworth said.

“This should pick up any concerns about rots and other quality issues without the impact of bruising in retail affecting the results.”

This project will build on previous experience by utilising the checklists developed by Applied Horticultural Research and the Department of Agriculture and Fisheries.

The project work will be undertaken in the five production districts of North Queensland, Central Queensland, Central NSW, Tristate and Western Australia to offer the greatest diversity in production practices and risk to postharvest issues.

In each district, project staff will work with four pack houses, both large and small, as ‘Participants’ in the project by examining two supply chains each. This will mean a minimum of 40 supply chains each year will be benchmarked nationally during the life of the project.

Project staff will also seek involvement from other pack houses as ‘Supporters’ by voluntarily contributing their practices and supply chain data for the district benchmarking.

The benchmark information about practices and feedback from the supply chains will be reviewed in post-season workshops in each of the five districts. These workshops will be critical to

enable district growers and pack houses to make sense of the information, identifying areas for improvement, and produce some interesting insights on how the industry progressively adopts what are regarded as best management practices.

Mr Ainsworth said that project staff members would develop case studies and information products to support the needs identified in district benchmarking workshops.

Project staff will link with Avocados Australia to ensure that the Best Practice Resource is updated and they will build awareness about project findings through the regional workshops planned under the *Industry development and extension* project (AV17005), led by Simon Newett (Queensland DAF).

More information

With the harvest well underway in North Queensland, growers and pack houses interested in taking part in the project are encouraged to contact Geoff Dickinson (0407 177 237) or Ebony Faichney (0491 212 948) at DAF in Mareeba. Interested avocado growers and packhouses in Central Queensland, should contact Andy Mead (0401 676 360) at DAF in Bundaberg. Project staff supporting the other target districts include Noel Ainsworth (Central NSW), Bridie Carr (Tristate) and Declan McCauley (WA).

Acknowledgements

This project has been funded by Hort Innovation, using the avocado research and development levies and contributions from the Australian Government, the Queensland Department of Agriculture and Fisheries and the Western Australia Department of Primary Industries and Regional Development.

**Hort
Innovation**
Strategic levy investment

**AVOCADO
FUND**



New researcher for WA avocado industry

Avocados are a popular food and their new fame ranges from the household where on average 3.5kg of avocado per person is consumed annually.

The Western Australian (WA) industry, located mainly in the Manjimup/Pemberton area, has grown from an output of 3,053 tonnes in the 2007/08 financial year to more than 19,000 tonnes in the 2017/18 financial year. There are plenty of young trees that have not yet borne fruit, so production is only expected to rise.

The Department of Primary Industries and Regional Development (DPIRD) has recently started a three-year *Avocado Capacity Building - WA* project, also funded through Hort Innovation.

DPIRD recruited young research officer Declan McCauley especially for this project. Declan graduated from the University of Western Australia in 2017 with a Bachelor of Science with First Class Honours, majoring in Agricultural Science.

"Growing up in Carabooda surrounded by vegetable farms, I always wanted to contribute to the horticulture industry," Declan said.

"Avocado yields in Western Australia can be improved and this project aims to increase avocado yield and to foster new communication networks for research and extension in WA."

A research paper from the 1980s set the benchmark for avocado yield as 30 tonnes per hectare. This benchmark was derived from comparing the energy value of an avocado to an apple and computing the yield based off a high yielding 100 tonne per hectare apple crop (Wolstenholme, 1987). The reason for the lower yield is that avocado fruit contains much more energy than an apple fruit; it is not because avocados are 'lazy' trees.

Thirty tonnes per hectare is achievable in WA, the difficulty is in achieving that every year.

Considerable research in this field has been undertaken, but there are areas that require more research. Irregular bearing, the phenomenon whereby yields vary over the years with no underlying pattern, has not received as much attention as it deserves. It is not alternate bearing which is where the yields varies on a two year basis.

The yield component of the project will have two primary aims.

1. Guided adoption of best practice research will be the principal extension activity - this project will assist



growers to find and adopt best practice research. Research includes, but is not limited to, pollination, pruning, growth regulators, mulching and relatively new varieties to replace Hass.

2. Irregular bearing requires understanding; while a component of irregular bearing is due to certain production practices, these practices can most likely be improved to an acceptable level by fulfilling aim 1. What isn't known is why so many fertilised fruitlets drop off after they have attained a size of 4.4 mm. Understanding this is required to improve yield. Note: This is not summer fruit drop which is more related to production practices (see aim 1).

To facilitate these aims and achieve uptake by the avocado industry, effective communication will be a high priority. The DPIRD website will soon host or contain links to information on high quality best practice cultivation research for growers to access.

"We will be collaborating with researchers from Queensland and other states to maximise benefit to the WA avocado industry from research undertaken in other avocado growing regions of Australia," Declan said.

"The intention is to share information and encourage projects that are run from other states to have WA based activities; WA represented 25% of all Australian Avocado production in 2017/18 so this is well justified."

Research findings from the project will be available on Best Practice Resource website. Growers are encouraged to sign-up for this free service at www.avocado.org.au.

If successful, the project will have achieved a greater uptake of best practice research and contributed to the knowledge of irregular bearing, ideally resulting in an improvement in avocado yield in WA.

More information

For more information on the project, contact Declan McCauley at the DPIRD Manjimup office on +61(0)8 9777 0184 or email declan.mccauley@dpiird.wa.gov.au.

References

Wolstenholme, B. N. (1987) 'Theoretical and applied aspects of avocado yield as affected by energy budgets and carbon partitioning', South African Avocado Growers' Association Yearbook, 10(1979), pp. 58-61.

Avocado seed extract shows promise as anti-inflammatory compound

An extract from the seeds of avocados exhibited anti-inflammatory properties in a laboratory study, representing a potential source for novel anti-inflammatory compounds that could be developed as a functional food ingredient or pharmaceuticals.

Researchers from Penn State University in the US developed the extract over the last decade as a food colorant. It is not known whether the compounds responsible for the extract's vibrant orange colour play any role in its ability to inhibit the production of pro-inflammatory mediators, noted Joshua Lambert, associate professor of food science.

To determine the anti-inflammatory properties of the avocado seed extract, the researchers used cell culture models and enzymes that are important in immune response and inflammatory diseases. A class of immune cells called macrophages were grown in petri dishes and activated with a pro-inflammatory stimuli in the presence or absence of the avocado seed extract. The researchers measured the production of important pro-inflammatory mediators and signalling pathways in the cells after treatment with the extract.

"The next step, before we can draw further conclusions about the anti-inflammatory activity of this avocado seed extract, will be to design animal model studies," said Lambert, co-director of Penn State's Center for Plant and Mushroom Foods for Health.

"For example, we can look at a mouse model of ulcerative colitis where we formulate the avocado seed extract into the mice diet and look at whether it is able to reduce inflammation."

Lambert believes the study lays the groundwork for more research because it provides evidence that there are bioactive compounds in avocado seeds that have anti-inflammatory activity.

"The level of activity that we see from the extract is very good. We saw inhibitory activity at concentrations in the low microgram-per-millilitre range, which is an acceptable amount of activity to justify further studies."

The discovery could be important because cancer, cardiovascular diseases, arthritis, colitis and many more serious conditions are associated with chronic inflammation, explained Lambert, whose research group in the College of Agricultural Sciences conducted the study. He pointed out that the findings, published recently in *Advances In Food Technology and Nutritional Sciences*, are especially encouraging because avocado seeds presently go to waste.



Researchers Gregory Ziegler (left) and Joshua Lambert (right) along with Rachel Shegog, a food science graduate student, examine a sample of bright orange liquid extracted from avocado seeds that has been shown to have anti-inflammatory properties. Image: Penn State.

"If we can return value to avocado growers or avocado processors, that would be a benefit," he said. "And if we can reduce the amount of this material being dumped in landfills, that would be a good thing, given the huge amount of avocados that are consumed. This is encouraging because there is a market for other high-value sources of bioactive compounds we have tested in my lab, such as cocoa and green tea – whereas avocado seeds are essentially considered to be garbage."

The researchers have filed a patent application for the use of the extract as a food colour additive. In 2016, researchers and partners founded a company, Persea Naturals, to develop the extract for this application. The identification of potential beneficial biological activity, if it is borne out in subsequent studies, may add value to the extract and provide additional avenues for development.

The United States Department of Agriculture's National Institute of Food and Agriculture supported this research.

More information

The research paper can be downloaded in full at bit.ly/TA301seed.

And why does the seed produce orange liquid? bit.ly/TA301penn

News from Around the World

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

WAO adds promotions to China

The third annual World Avocado Organization (WAO) Annual Meeting welcomed over 250 avocado producers, handlers, exporters, importers, and retail, trade and marketing professionals from more than 20 countries around the world to the Ritz-Carlton in Berlin, Germany in February.

WAO reports a 35% increase in overall demand resulting in 1.4 billion pounds (650 million kilograms) supplied to Europe in 2018 -further establishing the WAO's brand, The Avocado - the Fruit of Life.

WAO also announced several companies from Chile had become members of the world organisation.

WAO Zac Bard, of Westfalia Fruit, said the organisation also expected to add Kenya and Morocco as member countries later this year.

WAO also announced the establishment of the China Committee which will be chaired by WAO Director Jose Antonio Gomez-Bazan, Camposol International. The committee will lead the implementation of WAO's first marketing program in Asia. The focus on China is a natural for WAO as it is considered the second fastest growing market for avocados in the world.

"Since the establishment of WAO in 2016, avocado consumption

in Europe is up over 60%," said Vice-Chair Daniel Bustamante, Agricola Serro Prieto of Peru. "We expect robust growth to continue in the EU and UK as more and more consumers become aware of the health benefits and culinary versatility of avocados."

WAO is expanding top retailer and PR programs from eight to 11 countries this year, and will include UK, France, Spain, Holland, Germany, Poland, Italy, Belgium, Iceland, Norway and Sweden.

"Following WAO's exciting collaboration with Michelin Guide's 110th Edition, Carrefour, the world's second largest retailer, chose to partner with WAO to implement their first ever marketing program concurrently covering four countries (France, Spain, Italy and Belgium)," said Xavier Equihua, WAO CEO.

"WAO will also implement a multi-market marketing program in Europe and introduce its generic brand for avocados in the US during World Avocado Month in June."

The WAO expects 2019 to be another record breaking and memorable year with large scale retail, trade and foodservice collaborations with some of the biggest names in their respective sectors. These initiatives will be supported by robust and holistic digital and social marketing campaigns worldwide.

As the avocado becomes the global icon for superfoods, epitomised by the WAO's first-of-its-kind collaboration with The Michelin Guide, demand is expected to continue to increase in 2019 and beyond.



Avocado growers stick with us

We deliver the worlds most advanced and reliable labelling systems for avocados.

Purpose built options for in-line or tray labelling.

Fully serviced, scheduled preventative maintenance.

Qualified service technicians on call 7 days a week, right across the nation.

Avocado growers stick with us because we stick to avocados.

Call 1300 301 784 or visit www.jtechsystems.com.au



j-tech systems

Creating value around
fresh produce



News from Around the World continued

Economic outlook for Australia's markets

Strong income and population growth in emerging Asian markets are expected to support demand for Australian agricultural exports to 2023/24, according to a new report from ABARES.

However, the latest March quarter report from ABARES (the Australian Bureau of Agriculture and Resource Economics and Sciences) also indicates economic growth in some advanced economies, including Japan, weakened in the second half of 2018 because of softer growth in exports and declining consumer and business confidence.

Factors at play included an escalation in trade tensions, increases in interest rates in the United States and other advanced economies, financial crises in Turkey and Argentina that affected India and Indonesia, heightened geopolitical tensions in the Middle East and political unrest in Latin America.

ABARES said in preparing the agricultural commodity forecasts, global economic growth was assumed to decline from 3.7% in 2018 to 3.5% in 2019 and 3.6% in 2020.

Of Australia's largest agricultural export markets, average annual income growth is assumed to be strongest in China, India, Indonesia and Vietnam, ABARES said in its March quarter economic overview.

ABARES expects income growth to accelerate in India and Indonesia over the outlook period (to 2023/24) and remain relatively constant in Malaysia and Vietnam. Income growth in China is expected to decelerate by 0.5 percentage points over the same period.

"Another important indicator of import demand, particularly for agricultural products, is population growth. Of Australia's 10 largest export markets, Malaysia is assumed to have the strongest annual average rate of population growth over the projection period. Its population is assumed to increase by 1.2% per year. This is followed by India, Indonesia and Vietnam," ABARES said.

Economic growth in South-East Asia is assumed to increase by 5.3% in 2019 and 5.2% in 2020. Economic growth is assumed to be stable at around 5.2% per year over the outlook period (to 2023/24).

"Strong growth in domestic demand, including government-led infrastructure investment and government policy reforms, is assumed to support economic activity across the region in 2019 and 2020," ABARES said in the report.

"However, the external environment is complicating the outlook. Risks to the outlook over the short term include higher US interest rates, an increase in trade tensions and softer global export demand. These events already tested the resilience of the region in 2018 and highlighted the region's ability to withstand negative external shocks and contagion in financial markets from

other emerging and developing economies."

In looking at India, ABARES said the country's economic growth was assumed to accelerate over the outlook period from an estimated 7.5% in 2018 to 8.2% by 2023.

"Strong growth for South-East Asia and India during the outlook period is due in part to the relatively young population in this region. India, Indonesia and the Philippines have a particularly high proportion of young people. Working-age populations (15 to 64 years) in these countries will increase substantially in coming decades."

Domestically, the value of Australia's horticultural production is expected to increase 3% to \$11.7 billion by 2019/20, primarily from growing fruit and nut production.

"In 2018-19 export prices of citrus, nuts, stone fruit and table grapes are expected to increase because of rising demand from China. The competitiveness of Australian produce has been improved by tariff reductions, reduced shipping times and favourable exchange rates," ABARES said.

Of longer term interest to the avocado industry, Australia (which does not currently have access to China for avocado) is expected to face greater competition in China from Chile than from other southern hemisphere competitors.

"Chilean companies have invested in cold storage and quality inspection facilities in China, and have signed agreements with retailers to expand distribution networks. These developments are expected to support Chile's competitiveness and slow Australia's export growth," ABARES said.

In February, ABARES also released an insight report, *The future of Chinese agricultural policy*.

"Each year China sets out policies in its No. 1 Central Document. In 2017 the No. 1 Central Document was unique because it marked a clear directional change for agricultural policy, one which emphasised supply-side reform," the insight report said.

"The longevity of the stated reforms was unclear, but the 2018 No. 1 Document confirmed their continuation and supplemented them with an emphasis on revitalisation of rural areas.

"The 2017 and 2018 reforms arose from a number of longstanding domestic issues. These included the degradation of farm soil and water quality, sluggish farm income growth, small average farm sizes, food safety concerns and high consumer prices, domestic grain production, imports and stock levels."

The ABARES report primarily focussed on beef, dairy and grains, so how this focus from the Chinese government could impact on smaller commodities such as avocado is unclear, although as we have previously reported in *Talking Avocados*, China is developing a domestic industry.

Information in this article is primarily from the March 2019 edition of *Agricultural commodities* by ABARES, www.agriculture.gov.au/abares/research-topics/agricultural-commodities/mar-2019.

Avocado seed could be a lifesaver

While eating the seed of the avocado isn't encouraged (it contains elements unsuitable for human consumption), researchers in Mexico have found elements that may have applications in the food and pharmaceutical industry

Researchers at the Tec de Monterrey have found elements in the seed that may help reduce cardiovascular diseases and reduce the risk of cancer related to the consumption of preservatives.

The group, led by researcher Carmen Hernández Brenes found molecules called acetogenins that could be used as medicines and food preservatives.

This research, from which Avocardio (an ingredient that can be used in foods or supplements as a natural alternative for the prevention of cardiovascular diseases) and Avosafe (a preservative) were derived, was recognised during the 49th Tec Research and Development Congress, as one of the five projects with the potential to transform Mexico.

The acetogenins have an anticoagulant effect that prevents blockages from forming in the bloodstream, reducing strokes and heart attacks, Hernandez said in an interview with CONECTA.

This effect is similar to that of medications such as aspirin, but since it is a natural treatment, it may have no side effects, Hernandez said.

Dr Dariana Rodríguez, a member of the research team, said that although Avocardio did not completely eliminate cardiovascular diseases, it could be used preventively.

The acetogenins may also be used as natural preservatives replacing those containing nitrite. The researchers say the molecules have a broad spectrum of use, and can be used in cheese or prepared foods.



Image: Tecnológico de Monterrey



Grower Member Application Form

Avocados Australia Limited

ACN 105 853 807

The Australian avocado industry is a growing, successful and progressive industry. As the Australian avocado industry's peak industry body we work closely with all of the stakeholders that can have a direct impact on the marketplace. If you are looking to gain the maximum benefit from being a part of the Australian avocado industry we recommend that you become a member of Avocados Australia.

Avocados Australia provides online and offline information, programs, materials and events to advance the industry. On top of this there are other services we can provide that are only made possible through the support of our members. Join today. All membership enquiries can be directed to admin@avocado.org.au or call toll free 1300 303 971.

For Associate and Affiliate membership application forms please go to: www.avocado.org.au or call **07 3846 6566**

Member Details

Business name
and/or trading name:

ABN:

Key contacts:

Preferred address
(postal):

Address of property
(if different):

Contact Details

Business phone:

Home phone:

Fax:

Mobile:

Email:

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 8005
Woolloongabba Qld 4102

(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**

News from Around the World continued

“(It may be suitable) for products that are ready to be consumed, such as a chicken salad where there is a warm climate and you have to make sure that people are not going to get sick,” Hernández said.

The project was born more than 10 years ago from the approach between a company that uses the pulp of the avocado to make guacamole for commercial purposes and the Tecnológico de Monterrey.

The company discarded the avocado seeds, so it approached the Tec Biotechnology Center, where they began to investigate potential uses.

Dr Rodriguez said that in the first instance, the intention was to help solve an environmental problem derived from avocado waste. It was then that they discovered the presence of acetogenins, leading to the products currently in testing, and could soon be consumed by humans.

While the researchers believe the molecules are safe for human consumption, Hernandez still estimates an investigation of approximately two more years.

bit.ly/TA301MEX

Chile production area drops

Nearly 30% of all Chilean avocado market is destined for the country’s domestic market, according to the most recent report into the country’s industry by the United States Department of Agriculture’s Foreign Agricultural Service.

In the December 2018 Global Information Network (GAIN) report, a majority of the production is Hass, which represents almost 88% of the 29,166 hectares planted at the point of publication.

“The Chilean Avocado Committee (CAC) estimates that MY2018/19 (marketing year) production will reach 245,000 metric tons (MT), which represents an 8.8% increase over MY2017/18,” the report said.

“In a normal year, Chilean avocado harvest starts in June, but in MY2018/19, avocado producers strategically delayed the harvest until July in order to avoid overlapping with the Peruvian avocado supply.”

The GAIN report said while growth was anticipated, Chilean producers faced challenges from the avocado’s sensitivity to low temperatures, and limited water availability.

“For instance, earlier this year (2018), there was a conflict between avocado producers and a community in Petorca, Valparaiso region,” the report said.

“The latter claimed that avocado producers had drained water resources in the community of Petorca, leaving the community without water for human consumption. This issue reached international press’ attention and local environmental civil society groups (NGOs) amplified it via social media. As a result,

the Chilean Fruit Exporter Association (ASOEX) designed a communication campaign to respond to its international clients in the European Union (EU) and Minister of Agriculture Antonio Walker intervened to resolve the conflict."

And the cold sensitivity may have a part to play in Chile's reduced national orchard size (in hectares). According to the GAIN report, the area planted to avocado has decreased in the past five MY. Avocado planted area reached 36,355 ha in MY2013/14, however, overall planted area has since decreased to 29,166ha.

"This decrease is a result of avocado producers planting orchards only in areas with high temperatures and taking away avocado orchards from flatlands and areas with not enough water availability," the report said.

Unlike other fruits produced in Chile, the avocado fruit has a strong domestic demand that reaches 66,000MT per year or 30% of annual avocado production.

"Chilean avocado price increases during May and June when it can reach up to \$8 per kilogram since there are no domestic supplies available during those months," the report said.

"Chile imports avocados from Peru, Mexico, Argentina, and the United States during the production counter-season (April-August). From January to September 2018, imports increased 318% in volume over the same period in 2017 because of a lower domestic supply."

However, the country is also an exporter. In MY2017/18, Chilean avocado exports grew 3.5% in volume over MY2016/17 totalling 157,697MT.

"Chilean avocado exports totalled \$364 million in MY2017/18, a 16% increase over MY2016/17. The main export market for Chilean avocado in MY2017/18 was the Netherlands, which received 40% of Chilean avocado exports, followed by the United States (19%), and the United Kingdom (11%). That same MY, exports to the Netherlands and the US grew by 15.4% and 0.6% respectively while exports to the United Kingdom decreased by 1.9%," the GAIN report said.

The report said Chilean avocado exports to China had also grown consistently in the past three marketing years after Chile gained market access in 2014.

"Chilean avocado exports to China grew by 11.6% in MY2017/18 over MY2016/17, totalling 14,578 MT. In MY2018/19 (data available through September 2018), Chilean avocado exports have decreased 58.3% mainly due to delayed harvest, which caused exports to fall behind when compared to the previous marketing years. However, the CAC estimates an 8.8% increase in production, which would also increase exports over MY2017/18.



SIDEWINDER TREE INJECTORS

Under New Management

**1/13 Josephine St
Loganholme Q 4129
0424 577 033
sales@treeinjectors.com
www.treeinjectors.com**



agrichem[®]
yield through innovation

WHY RISK POOR PERFORMANCE?



NOW the ONLY label REGISTERED phosphite product for optimised rate use in Avocados on phytophthora

Australia's Premier Quality / Trusted for over 30 years

