

TALKING AVOCADOS

Avocado statistics 2016/17

Asian avocado promotion

High-density planting challenges

SPRING 2017

Print Post Approved - 100015907

Volume 28 No 3

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: 07 3846 6566 Fax: 07 3846 6577
Email: admin@avocado.org.au
Web: www.avocado.org.au

John Tyas Chief Executive Officer 07 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
Neil Shenton Western Australia	0428 330 619	n.shenton@avocado.org.au
Dudley Mitchell Western Australia	0439 802 293	d.mitchell@avocado.org.au

Talking Avocados Talking Avocados is published by Avocados Australia Limited.

Published: Quarterly – Autumn, Winter, Spring and Summer

Editor in Chief: John Tyas

Managing Editor: Lisa Yorkson Email: TalkingAvocados@avocado.org.au
PO Box 8005 Woolloongabba Qld 4102 Phone: 07 3846 6566 Fax: 07 3846 6577

Circulation: 1000 Copies

Designed and Printed by: Snap Brisbane Felix Street Email: brisfelix@snap.com.au
Level 7, 10 Felix Street Brisbane 4000 Ph: 07 3221 5850 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: 07 3846 6566 Fax: 07 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.

We all make mistakes. If we make an error, please let us know so a correction can be made in the next issue.



Talking Avocados is published through the National avocado industry communications program (AV15002), 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.

In this issue

Chairman's Perspective	3
CEO's Report	4
Around Australia	6
Avocado Nuffield Scholarship	10
Smashed avocado innovation	11
Increased sales in the Asia market	12
Asia Fruit success for avocados	13
'Ripe & Ready to Eat' in Malaysia	14
OrchardInfo Tree Census is open!	15
Australian Avocado state of play	16
Grower Study Group Workshops	18
What's new in the BPR	19
New Fruit Spotting Bug control	20
Banana spotting bug lure released	21
Blackbutt Avocado Festival success	22
Giving students a taste of avocado	23
Briefs	24
Hort Innovation Marketing Update	26
New growing technique	30
High density planting challenges	32
Managing black root rot	35
Northern avocado flower trends	40
International research updates	42
New HORTLINK!	44
Free workplace relations review	46
When low confidence can cost lives	47
New export legislation	48
ACCC urges Hort Code compliance	49
Investigating off-size fruit	50
News from Around the World	52

Cover: The Central Queensland Avocado Study Group workshop at Bundaberg included an in-field visit to a rootstock trial (high density suitability)

Chairman's Perspective

The Chair and CEO's report for the Avocados Australia Annual General Meeting in November will begin with some good news stating that the consumption of avocado grew to 3.5kg per person in 2016-17, and that our industry will grow to a production of more than 100,000 tonnes by 2025.

At this point in time, the consumption growth of 6.3 percent per annum during the past 10 years is something to celebrate but before you break out the smashed avocado for your breakfast treat consider also that the production will increase by 70 percent in future.

Now the past growth we know for a fact, but the production growth is only an estimate because we do not know the exact number of trees in production currently or what has been recently planted in the past five years.

This is now our greatest challenge looking forward. We need to get a more accurate understanding of our tree numbers by variety/age/regional location so we can calculate what our potential production will be in each year going forward from 2017.

The Australian Avocado OrchardInfo tree census is being sent out this month to all levy payers on record so I appeal to all growers to fill out this census accurately and to double check previous entries to make them correct. Also, to include new plantings, intended plantings and to remove blocks that have gone out of production.

As an industry, we can only plan marketing and export pushes in line with expected production. If we don't have accurate tree numbers, and therefore a reasonable idea of expected yields, we may be planning too little activity or too much. Avocado levy spending is on a one to two (or three) year delay because the funds you pay take that long to filter through your

collection point to Levy Revenue Service to Hort Innovation and finally through the Strategic Investment Advisory Panels and the appropriate projects. We can only spend the funds currently available in any year so we need to strategically plan to make the best use of funds when they become available. Simply, we need to have a better idea of the future production and consumer trends so we can allocate funds wisely.

Our success during the past 10 years and more has been legendary and has been the reason to prompt this massive surge in growth through new tree plantings by established growers and new growers but the time has now come for the reality to set in and for all of us to appreciate that growth has to be managed carefully to achieve the best outcomes.

Almost all of us, older growers and new growers have all come into this industry from other agricultural industries, professions or businesses. Our strength comes from looking at what we have left behind us and taking the best intentions and ideas forward into the avocado industry. We need to keep looking forward and to work together to build the tools and infrastructure that will give us all the best chance of success.

OrchardInfo tree census, do it in October.

If you need more encouragement look back over your shoulder and see why you left that crop or industry or what encouraged you to get into this successful avocado industry.

Jim Kochi

Jim Kochi, Chairman, Avocados Australia Limited



ANVAS ACCREDITED NURSERIES

ANVAS accredited trees can be purchased from the following nurseries:

Anderson's Nursery

Graham & Vivienne Anderson
Duranbah Road
Duranbah NSW
Ph: 02 6677 7229

Birdwood Nursery

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



CEO's Report



Supply update

Australia is on track to produce a record breaking 75,000 tonnes of avocados in 2017-18. I would expect that figure to increase to above 100,000 by 2025, with supply currently met by strong demand across all seasons.

The market has been strong for avocados through winter, a reflection of the demand from consumers. Traditionally, avocados were seen as a summer fruit and used in salads and for brunch. Now, we have a customer base that's comfortable with using avocado at any meal between breakfast and dessert and that's made a real difference for demand.

Avocado success under the microscope

Recently, I hosted a group of graduates working for the Department of Agriculture and Water Resources who were undertaking a study project. Their objective was to study three industries (avocado, macadamia and citrus) to understand why they have been successful.

The focus on avocados was to understand why the industry has been so successful in developing the domestic market. It was easy to respond to their questions as many of you would have heard my presentations at Qualicado workshops on this topic.

Reasons include: year-round supply; continuity of supply; healthy versatile product; not easily substituted; solid industry leadership and planning; excellent marketing and promotions capitalising on the inherent positive characteristics; high industry investment in levies; supermarket and supply chain commitment to the category; improvements in fruit quality; and there are many more.

It was a pleasure to be able to talk in such a positive way about our great industry to a group of young, enthusiastic professionals. They also visited a number of orchards in the Central and South Queensland areas where they got a first-hand insight into avocado production. They were very inspired and came away with a great understanding of our industry which will be useful in their future roles in the department.



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



Photograph courtesy of Andrew Serra.

Taste Australia a strong brand

In September, I joined North Queensland avocado grower Andrew Serra in Hong Kong for Asia Fruit Logistica, promoting avocados as part of Hort Innovation's major Taste Australia stand.

The Taste Australia area really stood out among the 43 exhibiting nations, strongly branding Australian horticultural produce. In all, more than 200 Australian horticulture industry producers and representatives attended under the Taste Australia brand, gaining access to 11,000 attendees from 74 countries. You can read more about the future of avocados in Asia on Page 12, more on Asia Fruit on Page 13 and the Ripe & Ready work happening in Malaysia on Page 14.

Chinese market update

There has been a small but significant step forward with the news that avocados have been prioritised through Hort Innovation for market access negotiations into China, with the Australian Government. This is a small but crucial step toward eventual access, but there is a long road ahead.

We are continuing to work proactively now to have additional export market access in place so that when production does exceed domestic demand, we're ready.

Communication program: we hear you

Thank you to those who completed the 2017 Avocados Australia on line communication survey recently. We were very pleased with the results which indicated that our program is delivering what our stakeholders want. More than 96 per cent of respondents stated that overall, they believed Avocados Australia is effective or very effective in sharing industry related knowledge.

Communication is one of our core roles and your feedback will help us continue to improve and excel in this area.

Congratulations also to JG Löffler who won the incentive prize for completing the survey.

John Tyas

John Tyas, CEO, Avocados Australia Limited



Around Australia

South Queensland Report

By Daryl Boardman,
Avocados Australia Director



As a levy payer, I have spent considerable time recently pushing for changes to the Hort Innovation constitution, to give levy payers more say in the running of the national research and development body. This work has been done with a table grape levy payer and various others. We will know the results of our efforts by the time our next magazine is due for publication.

The avocado industry is working to improve our export access to new markets by supporting research to prove that hard unripe avocados are not a host of Queensland Fruit Fly. I have hosted one of the field trials for this important work and am looking forward to seeing the results.

We also have our last 2017 Avocado Study Group Workshop for Southern Queensland scheduled for 7 December. I would encourage everyone to attend. These workshops are our chance to hear about the latest research, and improve our orchard operations.

Central Queensland Report

By John Walsh, Avocados Australia Director



The season ended on a good price and it's looking like that will continue into the New Year. There is heavy flowering around the Bundaberg area which should mean an increase in the crop for the next year as well.

Most avocado growers around the Bundaberg/Childers area dodged a bullet with regard to the heavy rain that impacted on the town of north Bundaberg itself at the start of October. The rainfall early in October was very well received after the dry spell we have had. However, given the continued wet conditions in some areas throughout October, we are going to have to carefully monitor our orchards for any long-term issues this may bring.

At our most recent Avocado Study Group workshop (more on Page 18), it was very good to see a range of people involved in the day-to-day operations of our local orchards in attendance. Even better, the feedback from the day indicates that almost everyone in attendance learnt something new. The ongoing programs of research, development and extension means these workshops are a good chance for all of us to keep up-to-date and improve our skills and knowledge. For example, from the Bundaberg workshop, I know people are committed to looking at their nutrition and reviewing their practices, fertilising more regularly and using more carbon mulch.

Tristate Report

By Kym Thiel, Avocados Australia Director



Now that harvest is well and truly underway and completed for many it has become obvious how much of an effect the heat last year had. Many growers have harvested just half of the previous season's crop, or in some cases even less. Other growers who have other systems in place and managed their orchards better have come through with excellent crops. Fruit size has also suffered with many growers packing a lot of count 30's and smaller. Fortunately, the market both domestic and export has been excellent for this size fruit and hence grower returns have been even better than we could have hoped for even though we knew we were going into a great season.

Therefore, I encourage growers to take up the practices such as misting, good irrigation management and better nutrition programs to lift their overall quality and yield.

At our most recent Avocado Study Group workshops in the Tristate, we heard from Ripe Horticulture's Lisa Martin on

Avocados Australia receives regular enquiries looking for your business!



Our solution is...

**the new
Avocado
Directory!**

Don't miss out

**Apply now to list your
business in the online directory so
the avocado industry can find you!**

www.avocado.org.au

07 3846 6566 admin@avocado.org.au

this very topic. She advocated for an integrated approach to combatting the impact of extreme heat: environment, protectants and diet.

Managing the environment can involve the use of overhead cooling sprinklers, effective irrigation, mulching to protect feeder roots, windbreaks to reduce the effect of the hot northerlies, and groundcover between rows.

There are also various "sunscreen" protectants available and, of course, ensuring your trees are healthy as we come into the hotter months. Healthy trees certainly withstand any weather extreme better than unhealthy ones.

You can read more about the Tristate study group events in the BPR Library, check in the Event Proceedings section for Study Group - Tristate - Meeting 7.

Wind blemish has also been severe in certain parts of the Tristate.

To end on a more positive note, it is too early to look at next year's potential crop but the early flowering and bud initiation is promising.

Sunshine Coast Report

By Robert Price, Avocados Australia Director



Another season has wound up in the Sunshine Coast area with an average crop for most parts, with some areas being down on predictions. Thankfully the grower price has maintained a realistic return, particularly given the seemingly unrelenting increase to the of cost of production.

Speculation on next year's crop, while being a little early to gauge, points to another set of varied results. The lead in to the flowering was extremely dry, in the last three months up until the end of September there was an average of 40mm for the period. Top that with record heat and wind it was a challenge to supply adequate water to the trees and it was visually apparent that the trees were stressing when they started flowering. Now, we have had some useful rain, albeit patchy where it fell, in our area we had 75mm during three days so it was soaking rain with very little runoff. We did notice some of the new fruit that was forming dropped off, presumably by the shock of good rains as there was no heavy downpours or wind.

We all know by now that avocado consumption is on the rise, in the United States, Europe and currently Asia such as Japan, South Korea and China. Mexico, Chile, South Africa, Peru, the United States and to some minor extent Australia is making some headway. However, whole fruit is not the only avocado product that could be sold in these markets and perhaps thought should be given to value added products such as pulp and avocado halves as well as avocado oil.

The growing awareness about healthy lifestyle is one of the factors that is driving the demand for avocado oil in some countries. Health benefits tend to be a driving force growing the

demand as the increased rate of health problems like chronic diseases and heart diseases, leads to the demand for healthy oils. In Australia there has been little attention promoting avocado oil as one of the best oils for human consumption, and while the domestic market has it on the market shelves it is not an oil of choice for the majority of consumers; this generally is because of price and lack of a marketing push. As we increase avocado production, there will potentially be additional avocados available for additional products, such as oil. The potential for the product is most likely in the export market, which will not be an overnight success but we should take the long-term view and consolidate Australian avocado oil as the oil of choice. That's food for thought!

Tamborine and Northern Rivers Report

By Tom Silver, Avocados Australia Director



The 2017 harvest is all but complete in the Tamborine/Northern Rivers growing area. Most farms have recorded below average yields, however, excellent market conditions seem to have compensated for production shortfalls. Some orchards still seem to be struggling in the

Order your Kangaroo Labels

Avocados Australia manages the Kangaroo Label and a set of barcodes for use on Australian avocados.

Kangaroo Labels can be ordered through our registered Kangaroo Label suppliers listed below. Grower packers and packhouses need to apply for a **Packhouse Registration Number (PRN)** with Avocados Australia before an order can be placed.



To apply for a PRN visit www.avocado.org.au or call **07 3846 6566**.

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

Around Australia continued

aftermath of Tropical Cyclone Debbie and the June east coast low, which is a reminder of how difficult it is to grow avocados in this region with its high, irregular rainfall, often heavier soils and long histories of phytophthora root rot pressure and why we have to remain so diligent towards tree health.

Despite these issues many growers are reporting big flowerings and excellent fruit sets. No rain fell from June's east coast low up until the start of October, which had a lot of growers on edge and irrigating like crazy, however, since the start of the month showers have returned and we can only hope they continue.

I would like to pay tribute to Neil Shenton, Avocados Australia's Western Australian grower rep, who has decided to not re-stand for a position on our board. Neil came to the board at a time when tensions were high and few were willing to stick their heads above the parapets! Neil has always looked after the interests of his constituents and the wider industry. He has always brought a pragmatic but humorous view to the table, and always called a 'spade a spade' in his cultured Zambian accent. Thank you Neil, all the best.

On a personal note, 2017 marks 30 years since my family first bought our farm. Getting out of Sydney to buy an avocado farm in the Northern Rivers now seems like a no brainer, but back then, such a move with a young family, to do something you knew nothing about was a massive decision for mum and dad.

What it gave me and my sister, was an amazing childhood and lifestyle, that only comes from growing up on a farm. It has also given us a place in an industry that continues to go from strength to strength, so to those who have just joined our industry, I say welcome. You have joined us at a time when Australian avocado consumption is at a record high (3.5kg/person), our production is increasing, our research and development is helping us improve our practices from the farm to the retail store, and our international customers recognise our quality, safe product.

It's a great time to be in Australian avocados.

Western Australia Report

By Neil Shenton, Avocados Australia Director

In the continuing tradition of Western Australia producing smart and innovative, handsome and fine representatives to Avocados Australia, your other representative, Dudley Mitchell has won himself a Nuffield Scholarship to study canopy management, in many and varied places around the world. He will come back with new and innovative ideas for us and it will be disseminated through the BPR, so stay tuned for that in the next year or so. Apparently, it's not just a junket.

Variable Weather, which used to be called Global Warming and then became Climate Change, or the other way round, continues to bring benefits in lower rainfall (more often than not), warmer winters, fewer frosts and earlier picking of the primo Australian avocado crop. I hope we don't end up with too little rain, as the



Manjimup/Pemberton region, and others, continue planting at a great rate, and the region is looking magnificent.

Speaking of levies, I hope you all joined Hort Innovation and voted for the constitutional changes that a number of levy payers are pushing for.

I am due for re-election this year, but won't be standing. Much as I have enjoyed the past few years, I only intended to do one stint to help out (former Avocados Australia director) Dave Duncan, and I feel I am pretty much out of the loop in my part of WA, and someone closer to where it is all happening would be a better option. So stand up, someone, we need youth and vigour representing us. Well done Dudley, keep up the good work.

Thanks for electing me and have a great future.

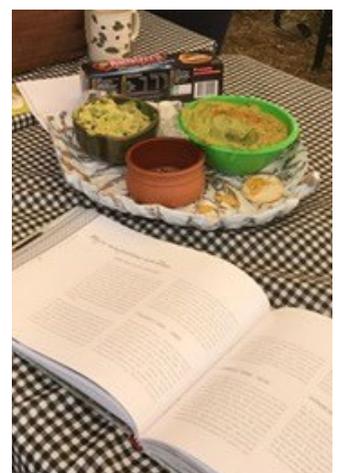
Central New South Wales Report

By Ian Tolson, Avocados Australia Director



On Sunday 24 September, Comboyne Showground was a hive of activity for the Annual Spring Fair, the ideal platform for this growing region to showcase their avocados. Upon our arrival we were greeted with extreme heat and gusting strong winds. These conditions didn't deter the crowds or the hard-working growers who had volunteered for the avocado tent, producing and distributing avocado smoothies and guacamole, along with information brochures and recipe books to a constant stream of visitors. A variety of Greenskins and Hass were on display and the growers took time to explain the different characteristics to very interested patrons. On behalf of all avocado growers I would like to thank those who spent their Sunday showcasing and promoting our industry.

Bellingen, the local Stuarts Point area and some of the Comboyne growers have finished harvesting for this season (as at 3 October 2017). Further south and the remaining Comboyne growers are in various stages of their harvest, most looking to have their Hass crop off by the end of spring.



Spring, so far, has been a bit of a mixed bag as far temperatures are concerned. The hot days and no rain is certainly a concern. Apparently we are going to have a wet summer, at this point just a good shower of rain would be very well received. On a more positive note, orchards are flowering well and with good orchard management and some moisture, should equal good fruit set and harvest for the 2018 season. Growers always talk about next year's crop with such optimism. Even if fruit set is down, the aim should be to produce premium grade fruit, maximising your returns and presenting the best possible produce for the consumer.

Our industry is so vibrant and progressive, prices have been exceptional. Having been paying a premium price for some time now, consumers deserve to be rewarded with a premium product every time.

The next Study Group, for our region will be held on 2 November, starting from 9am at the Stuarts Point Community Hall. Look forward to seeing you there.

North Queensland Report

By Jim Kochi, Avocados Australia Director



Another flowering season is about to come to an end and as usual my comments are about how variable the fruit set. Of course, I will blame the weather because that is the easiest and safest option but it does highlight the fact that there is a lot we don't know about the avocado plant that causes it to perform so erratically. Either that or we do know but do not have the skills to apply it.

The North Queensland region is one of the regions that has undergone a massive planting of new trees in the past few years and I understand that more trees are on order for the next few years also. We have established growers planting more and many new growers planting as they exit their traditional crops such as potato, peanut, maize, sugarcane, banana and pastures. New plantings are happening in the Mareeba-Dimbulah area as well as Atherton-Ravenshoe with enquiry and interest coming from growers as far north as Lakeland (near Cooktown), west as Mt Garnet and south to Ayr, Mackay-Proserpine, and into the Northern Territory.

In almost all of these areas there is one thing in common and that is the limited water supply available. The bore drillers are working flat out like the nurseries and everyone else is looking to the skies for next year.

For those who take more notice of facts than dreams, it may be of interest to read in the Avocados Australia Quarterly Infocado Report, Crop Forecast April 2017 the North Queensland production is forecast to increase to 3,376,160 tray equivalents April 17 to March 18, up from 2,948,461 trays April 16 to April 17. Or a 14.5 percent increase compared to the last equivalent period.



THE ROLLS ROYCE OF GRAPPLE SAWS



MODEL	KG	CRANE, SKID STEER	EXCAVATOR	360° ROTATION
GRAPPLE SAW				
SG160	205	X		X
SG220	320	X		X
SG280	370	X		X
SG210	235		X	
SG270	280		X	
SG270HD	300		X	
SAW CASSETTE				
SK500	85	MOUNTS TO YOUR GRAPPLE, 550, 630 BAR		
OPTIONS INCLUDE With or without Tilt • Saw Bar 350 - 630mm • Radio or Cable Control • 2 or 4 line hydraulics • Collecting Unit • Cutting Saw or Knife • 360° degree continuous rotation				

FOR PRUNING & LOPPING

Extremely user-friendly and able to simply attach to your excavator, wheel loader, skid steer or crane, Grapple Saws range from small lightweight models to large, industrial, heavy-duty machines. Gordon Burch, who owns Waterfall Avocados just outside of Port Macquarie, recently started using a Mecanil Grapple Saw and can't speak highly enough about how this modern piece of machinery has helped his business. Gordon said "It's been excellent: it's like a pair of giant hands for pruning our trees."

www.cangini.net.au or call 0408 233 337 or email: don@cangini.net.au

Cangini Australia & New Zealand
Cnr. Riverstone Pde. & Loftus St.
Riverstone. NSW. 2765

Nuffield Scholarship: Avocado canopy management

The avocado industry's Dudley Mitchell, an Avocados Australia director, is one of the 24 Nuffield Scholars named for 2018.

Dudley, from Bunbury, Western Australia, has received a scholarship supported by Woolworths, and will study current trends in canopy management of avocado orchards and how cultural practices will need to be addressed when considering high density planting.

"These will include but are not limited to establishment costs, pre-bearing tree management (from nursery to first year), use of PGRs, canopy architecture, pruning methods, machinery selection and use as well as a component of what the future holds in terms of 'robot ready' orchard design," Mr Mitchell said.

"Conventional growing methods have led to a decline in water and land resources and have seen a plateau in profitability across the avocado sector.

"These factors are shifting grower interest away from conventional techniques to the use of high-density avocado planting to remedy these issues."

However, Mr Mitchell believes the avocado industry's current architectural growing model is not suited to high density plantings and will seek to identify new growing techniques, technologies and management systems that will be effective in the Australian sector as part of his study.

Dudley's company HCMS Pty Ltd manages Avonova Farms, a 50 hectare avocado orchard producing 800 tonnes of fruit per



Dudley Mitchell

year on average, and a pack shed, which handles approximately 1,700 tonnes annually. Additionally, he is a co-investor in a planned 50 hectare expansion of the orchard that will be rolled out during the next three years.

"One of the four pillars of the recent Strategic Investment Plan for the avocado industry is to increase productivity by 10 percent without commensurate increases in production costs per kilogram," Mr Mitchell said.

"Higher density planting may deliver greater productivity initially, and at a similar cost of production, however, without effective canopy management productivity will decline earlier in the life of the orchard when compared to conventional planting methods.

"I will be looking at the avocado industries in Chile, North America, Israel, New Zealand and South Africa during our off season, as well as studying other fruit cropping systems in these areas that have been successful in high density production in an effort to identify principles that can be adopted or adapted," he said.

"Chile in particular is a world leader in high-density avocado orchards."

Mr Mitchell said the goal was to produce avocados two or three years after planting, rather than four or five.

Speaking to *The Land* newspaper, Nuffield CEO Jodie Dean said the scholarships had helped build the capacity of young agricultural leaders for more than 67 years.

You can read more about high density planting trial work on Page 32 of this edition.



HIGH YIELDING DIMBULAH ORCHARD

- 63.94 ha elevated & frost free, 230 ML water.
- 2000 Shepard avocados and 500+ mangoes.
- Room for expansion, comprehensive inventory list.
- 2 dwellings (main residence & cottage)
- New, fully equipped 495m2 packing shed with Granite built packing machine, new pallet wrapper, 12 pallet cold room, 1.5 tonne Toyota fork lift, staff amenities, multiple sheds.



John Falvo
0408 456 344

\$3,000,000 NEG

Smashed avocado innovation drives demand

By Lisa Yorkston, *Avocados Australia*

Australians ate about 86,000 tonnes of avocados in the past 12 months, cementing their place amongst the highest consumers of avocados in the English-speaking world.

Avocados Australia CEO John Tyas said based on the latest industry figures, Australians ate about 3.5kg of avocado per person in 2016/17, a significant jump from 3.2kg/person the previous year.

Mr Tyas said the increased consumption was driven by avocados making their way into avo lovers' shopping trolleys more regularly.

"People now know ways to use avocados at every meal, from the smashed avo at breakfast to avocado chocolate mousse for dessert, and that means they're also buying avocados more often," he said.

The innovation that's taken avocado from a largely unrecognised fresh product to a shopping trolley regular was recently recognised by Australia's chief scientist, Alan Finkel.

Speaking at the *Financial Review's* Innovation Summit in September, Dr Finkel used the smashed avo as an example of hidden innovation, at a time when there is a domestic perception that Australia is "basket case of OECD" when it comes to innovation. Instead, Dr Finkel argued that innovation such as the smashed avocado was largely unrecognised as such.

"A decade ago, avocados were good for two things: salad and guacamole," he told the Sydney audience.

"They were seasonal, the quality was variable and for many people the price was exorbitant, so the industry set out to redefine the avocado as the all-round, everything food."

Dr Finkel said the industry re-engineered the production chain to raise the quality, ensure supply and lower the price.

"At the same time, they transformed our awareness of what an avocado could be," he said.

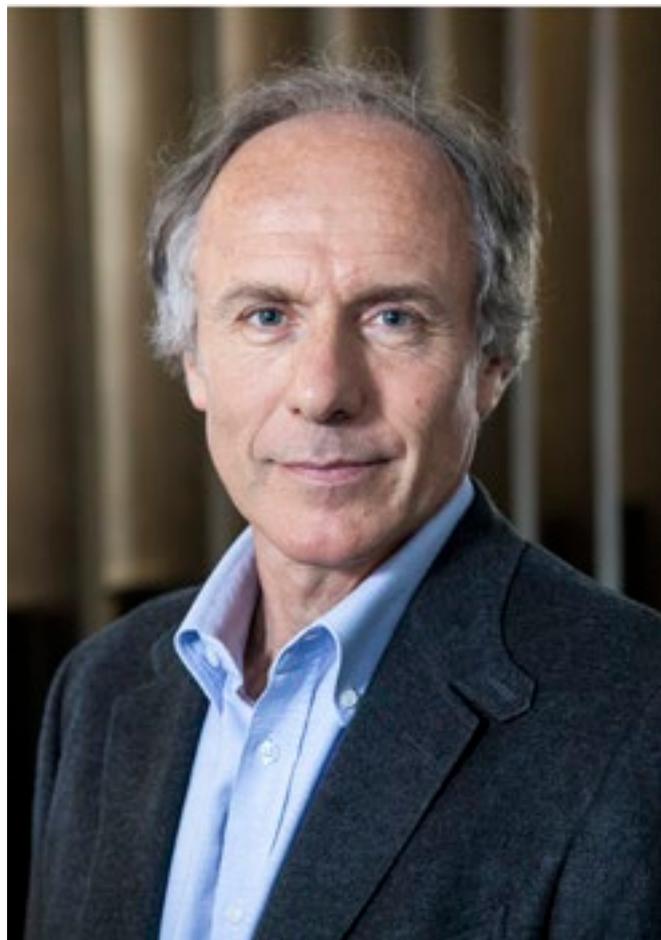
"Now, it's smashed avocado for breakfast, avocado smoothie for morning tea, avocado in sushi for lunch, avocado in tacos for dinner and wait for it, avocado brownies for dessert.

"Avocado may well be the first solid food that an Australian baby will eat.

"And the retail value of the Australian avocado industry has almost trebled in the past decade from \$340 million to \$920 million and that does not include the value added by countless cafes and the way they have built the Aussie brunch into a global brand.

"We shouldn't undervalue the innovation that smashed the avocado, simply because it is creativity in a different form."

CEO John Tyas said that domestic demand was great news for Australian farmers, as production levels were expected to continue to increase to more than 100,000 tonnes nationally within the next eight years.



Dr Alan Finkel

"Australia produced 66,000 tonnes of avocados in 2016/17 and the Australian crop is forecast to reach a record of 75,000 tonnes in 2017/18," Mr Tyas said.

Mr Tyas said the country's avocado producers were doing their best to ensure consumers had a year-round supply, although New Zealand still supplemented supply during the summer period with more than 20,000 tonnes imported last year.

"We now have avocados growing in all states and the wide range of climates where avocados are grown means consumers can find fresh, Australian avocados for sale year-round," he said.

Queensland and Western Australia continue to produce a majority of the crop (42,000 tonnes and 13,000 tonnes respectively in 2016/17). There were 1,500 tonnes from the Tamborine/Northern Rivers area, 5,500 tonnes from Central New South Wales, and 3,500 tonnes from the Tristate area (parts of Victoria, New South Wales and South Australia) in the same period.

More information

Check out our 2016-17 Avocado Facts At A Glance on pages 16 and 17.

Potential for increased sales in the Asia market

Maintaining the value of avocados is the key message for avocado grower Andrew Serra, after attending Asia Fruit Logistica as part of the Hort Innovation Taste Australia campaign.

Mr Serra joined Avocados Australia CEO John Tyas in Hong Kong for the giant trade show.

"The Taste Australia stand really stood out among the 43 exhibiting nations, strongly branding Australian horticultural produce," Mr Tyas said.

Mr Serra said there was clearly strong demand for Australian avocados, especially in Hong Kong, for both fresh sales and use in the food service sector.

"However, what we need to work toward as an industry is maintaining value in the category," he said.

"For example, we also grow bananas and while consumption and supply of bananas has increased in recent years by around seven percent, the value has correspondingly decreased by seven percent."

And that's where export markets could play a key role for avocados, he says.

"In five to 10 years, I predict that the smaller fruit is where the interest will be for export, in the premium and first grade categories," Mr Serra said.

"If we are directing the smaller size premium grades overseas, this would also mean more consistent sizing going into domestic markets. That said, we have to keep the eating quality of the fruit high, both domestically and for export markets."

Speaking to Hort Innovation, Deputy Consul-General and Senior Trade Commissioner for the region, Sam Guthrie said a growing middle class in Asia was demanding quality produce that's also safe.

"One of the key points about this though, is that it's an extremely competitive market so whilst there's a lot of opportunity in Asia, this is a market we have to fight for," Mr Guthrie said.

"There is so much competition here (in Hong Kong). It's a wonderful free market, it's a free protocol market but that means everyone is here and selling their product, be it in the wholesale market or elsewhere.

"It's really about putting investment and time and commitment into a market in order to seal that opportunity by telling your story effectively."

Mr Serra said with a goal of Australia producing 100,000 tonnes a year by 2025, having accessible export markets would be important.

"It is forecast that the growing supply of Australian avocados will gradually catch up with the growing domestic demand and provide excess fruit for export," he said.

Positively, Mr Serra said when he was questioned about Australian avocados during both Asia Fruit Logistica and the market tours surrounding the event, the first point of interest



Tolga avocado grower Andrew Serra (centre) and Avocados Australia CEO John Tyas at Asia Fruit Logistica with a fellow attendee.

was quality, the second consistent supply of that quality fruit and the third price.

"It also seems to me that there's a struggle to get good quality avocados on a regular basis in the Hong Kong market," Mr Serra said.

"The demand is there, the question is whether we can compete on the international market with the strong Australian domestic avocado prices."

Serra Farming is based at Tolga in North Queensland. The company has been growing avocados for six years and currently has about 8,500 trees, mainly Hass with some Shepard.

More information

Hear more from Sam Guthrie here: www.facebook.com/hortinnovation/videos/1399954430126067/

Asia Fruit success for avocados and Taste Australia

Avocado representatives were among more than 200 Australian fruit, vegetable and nut producers in Hong Kong in early September to showcase their produce at Asia's largest horticulture trade show, marking the beginning of a six-month tour across Asia and into the Middle East.

The group – the industry's biggest trade delegation yet – joined Hort Innovation in officially opening the new Taste Australia pavilion at Asia Fruit Logistica. During the two-day event, the group gained exposure to 11,000 top trade decision-makers from 74 countries.

Hort Innovation chief executive John Lloyd said the group was excited to be at Asia Fruit Logistica, especially when Australia's horticulture export position was so strong.

"This year took the new Aussie horticulture position, Taste Australia, to key world markets for the first time," Mr Lloyd said.

"And, we are also showcasing more produce than ever with a record number of growers and industry representatives," he said.

"Our Taste Australia pavilion at Asia Fruit Logistica was huge – it was 30 percent larger than last year at close to 500sqm. And the upcoming six-month trade tour to events in Dubai, Beijing and Tokyo is going to be massive."

Mr Lloyd said the trade tour would allow industries to build further on existing successful export endeavours.

He said through Taste Australia, the nation's produce would be positioned as a high-end, high-quality offering that is supported by technology, science and innovation.

"We are taking a loud and clear message to importers throughout Asia and the Middle East: Australia has plenty of premium, high-quality produce, and we are open for business," Mr Lloyd said.

Asia Fruit Logistica is Asia's only dedicated fruit and vegetable trade show. On top of the opportunity to meet hundreds of importers in person at the pavilion, growers and industry representatives gained valuable information first hand from some of Hong Kong's leading food service and retail businesses through a market insights tour.

To facilitate long-term relationships, growers were introduced to key decision makers from nine key Asian markets through invitation only business matching sessions. These activities are managed by Hort Innovation with support from Austrade.

Taste Australia was launched domestically in Sydney in August as part of Australian horticulture's biggest trade push in history. The new initiative comprises trade expo activities plus in-market retail campaigns using the Taste Australia signage.

More information

Growers, exporters and horticulture industry representatives keen to get involved in Hort Innovation trade activities can email Julie Willis at julie.willis@horticulture.com.au or 0404 392 311.

Read more about Taste Australia here: <http://horticulture.com.au/export-markets-to-taste-australia-through-mammoth-horticulture-trade-drive/>



Olam Almonds' Toby Smith, Senator Anne Ruston, Fresh Produce Group's Meg Mason, Hort Innovation Chair Selwyn Snell, Sevenfields' Brett Jackson and Mulyan Farms' Ed Fagan at the Taste Australia campaign launch. As well as promoting premium Australian produce in current and future markets, the plan also includes more research and development to grow market access, and increased support for current and aspiring exporters.

'Ripe & Ready to Eat' in Malaysia

By Jenny Margetts, P2P Business Solutions

During October, 'ripe & ready to eat' export trials will be ramping up in the Malaysian market.

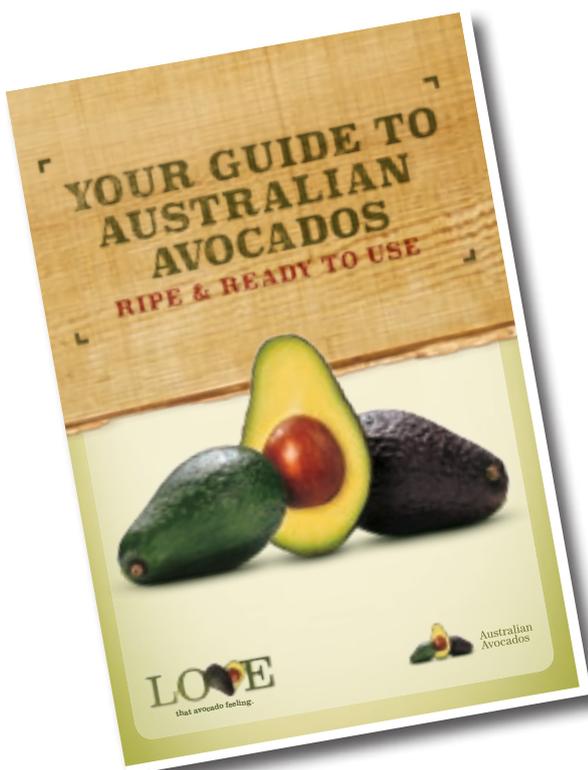
"It's an ideal time for these trials with the commencement of the Western Australian season," Avocados Australia CEO John Tyas said.

"Like the other export markets in which we are working, we know that there is a strong trend to offering 'ripe & ready to eat' product and we know that customers and consumers want to be able to access Australian avocados.

"We are working closely with DAF Queensland and Jennie Franceschi of The Avocado Export Company to help develop the knowledge and understanding of delivering a 'ripe & ready to eat' product in the Malaysian market – and the supply chain partners we are working with are very keen to participate."

Recent visits to the market indicated that there is a growing demand for avocados generally and Australian avocados are highly regarded for their freshness and quality. Retailers indicated that Malaysian consumers are becoming a lot more interested in avocados because they are increasingly understanding the health benefits of the fruit. Consumers, however, are quite often not sure how to choose a ripe fruit or the different ways that they can be used. As in many Asian countries, avocados are often consumed as a drink or smoothie, but there is a genuine interest in understanding how avocados can be included in salads and with meat and rice dishes.

"Presenting consistent quality 'ripe' fruit can be a challenge. By working with selected supply chains in Malaysia we are aiming to build their knowledge and skills," Mr Tyas said.



Australian exporter Jennie Franceschi meets with importers in Malaysia.

"We are also encouraging them to invest in new infrastructure and technology to support the post-harvest and ripening process, so we can achieve the best possible quality outcomes for Australian fruit.

"We know from research here in Australia and in other countries that offering a 'ripe' selection of fruit will increase overall sales in the category, however, with the trials we are doing we hope to be able to quantify the benefits and encourage other supply chains to follow."

Mr Tyas said point-of-sale signage and other material was also being tailored to educate Malaysian consumers on how to choose a ripe avocado, ways to use avocados and why they should be buying Australian avocados.

"We are also testing and modifying the training material that has been developed for the supply chain so that it is appropriate for the market," Mr Tyas said.

"Although the focus is on retail, the training being undertaken will also benefit food service supply chains that Australia services in Malaysia."

Acknowledgement

These market development activities are being undertaken as part of a project being funded by the Australian Government's Package Assisting Small Exporters Program, the Avocado Export Company, Sunfresh and The Avolution.

OrchardInfo Tree Census is open!

Sue Plunkett-Cole, Avocados Australia

That's right avocado growers, it's time to count your trees again! The 2017 OrchardInfo Tree Census will be open until 12 November.

The simplified web form was a great success last year; we had a great response from growers and we're looking forward to topping that this year.

Each orchard will be emailed a link to their web form, and if you've participated in the tree census before, your form will be pre-filled. All you need to do is check the existing data is still accurate, change it if not, and add details for any newly planted trees.

If you're participating for the first time, simply enter the tree information requested on the form: block name/s, number of trees or number of hectares, year/s planted, and space between trees and rows.

If you complete and send your orchard's web form by midnight Sunday 12 November 2017, you will go in the draw to win one of ten \$100 Visa gift cards*.

The Avocados Australia team will be standing by to answer any questions you may have about the tree census, how to open

the form, or how to fill it in. We are more than happy to help, as this data contributes vital and valuable knowledge to our industry. It helps us prioritise everything from what research to advocate for on behalf of industry, to the domestic marketing effort, and developing export markets based on future predicted production.

Avocados Australia maintains this data on behalf of all avocado growers. The individual's data remains entirely confidential; for reporting, data is aggregated to regional and national levels.

The OrchardInfo Tree Census report for 2017 will be sent to contributors at the end of December 2017.

*Avocado orchard businesses submitting their completed OrchardInfo Tree Census form by midnight 12 November will be entered into the draw to win one of ten prizes of \$100 (pre-loaded Visa gift card).

The winners of the prizes will be notified by phone, and announced in the Summer edition of *Talking Avocados*.

More information

Contact the team at Avocados Australia on 07 3846 6566 if you have any questions.

WHERE CUTTING EDGE MEETS SUSTAINABILITY • SAVE PRODUCTION COSTS BY MULTI-TASKING

Use code **fischer10** for our anniversary discount.

GREEN, QUALITY, INNOVATIVE SOLUTIONS

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



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



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 OR AT WWW.FATCOW.COM.AU

WWW.FISCHERAUSTRALIS.COM.AU

You Tube



fischer
AUSTRALIS Pty Ltd

Australian Avocado state of play: 2016/17

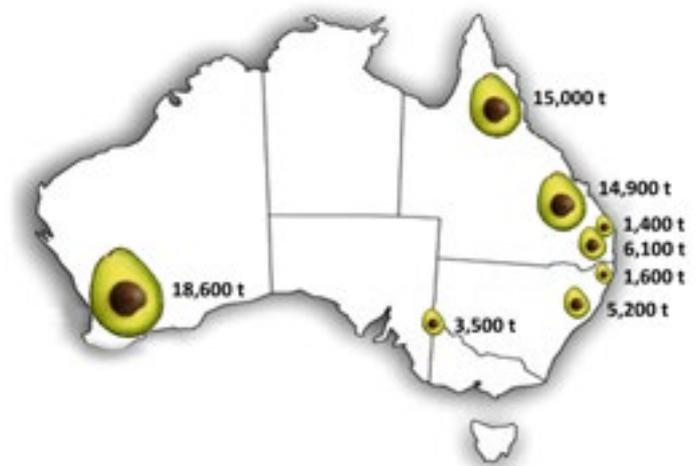
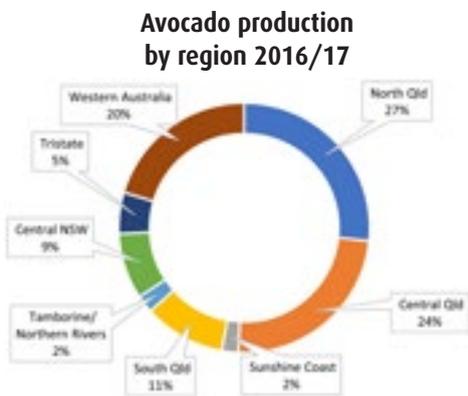
Each year, Avocados Australia produces a *Facts At A Glance* to provide key statistics for our industry stakeholders. You will be able to find the full document at www.avocado.org.au/news-publications/statistics/ but we're pleased to present this summary in *Talking Avocados*.

Australian avocado growers produced almost 66,000 tonnes of avocados in the 2016/17 financial year, slightly less (1 percent) than the previous year.

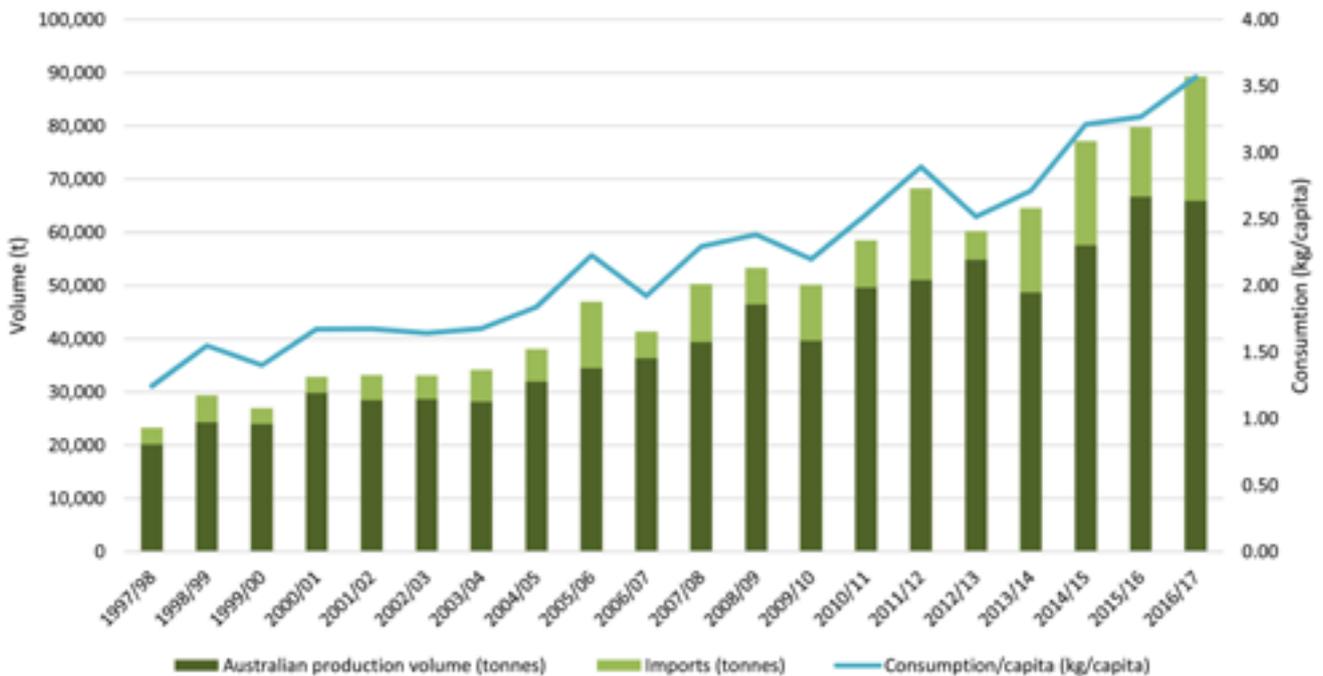
Queensland continues to produce the majority of Australian avocados, with 69 percent of production; Western Australia produced the next largest share at 18 percent.

Production in Central Queensland is showing continued signs of recovery from the two flooding events of 2011 and 2013, producing 24 percent of the national crop in 2016-2017. Western Australian production has continued to increase significantly, albeit with some 'off years' with a much-reduced supply. North Queensland production continues to grow steadily.

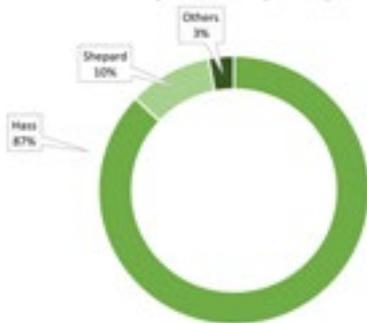
Australian avocado production by state 2016/17



Australian annual avocado production, NZ imports and Australian per capita consumption



Australian avocado production by variety 2016/17



In Australia, avocados are produced all year round due to the range of climates and conditions in our eight major avocado growing regions. Hass is the main avocado variety, and is produced almost all year round. In 2016/17 Hass represented 87 percent of production. Shepard, which is grown in Queensland through late Summer and Autumn, made up 10 percent of production, and at that time of year, is the dominant Australian variety on the market.

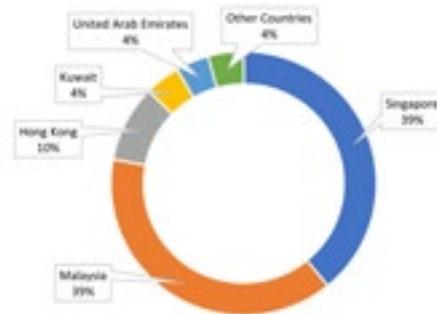
Australians' love of avocados grows steadily each year. Consumption in 2016/17 reached just over 3.5kg per person. Imported New Zealand fruit supplements Australian supply during their harvest season over Spring and Summer.

Australian production is forecast to increase strongly over the next few years, with at least 100,000 tonnes per annum expected to be produced by 2025.

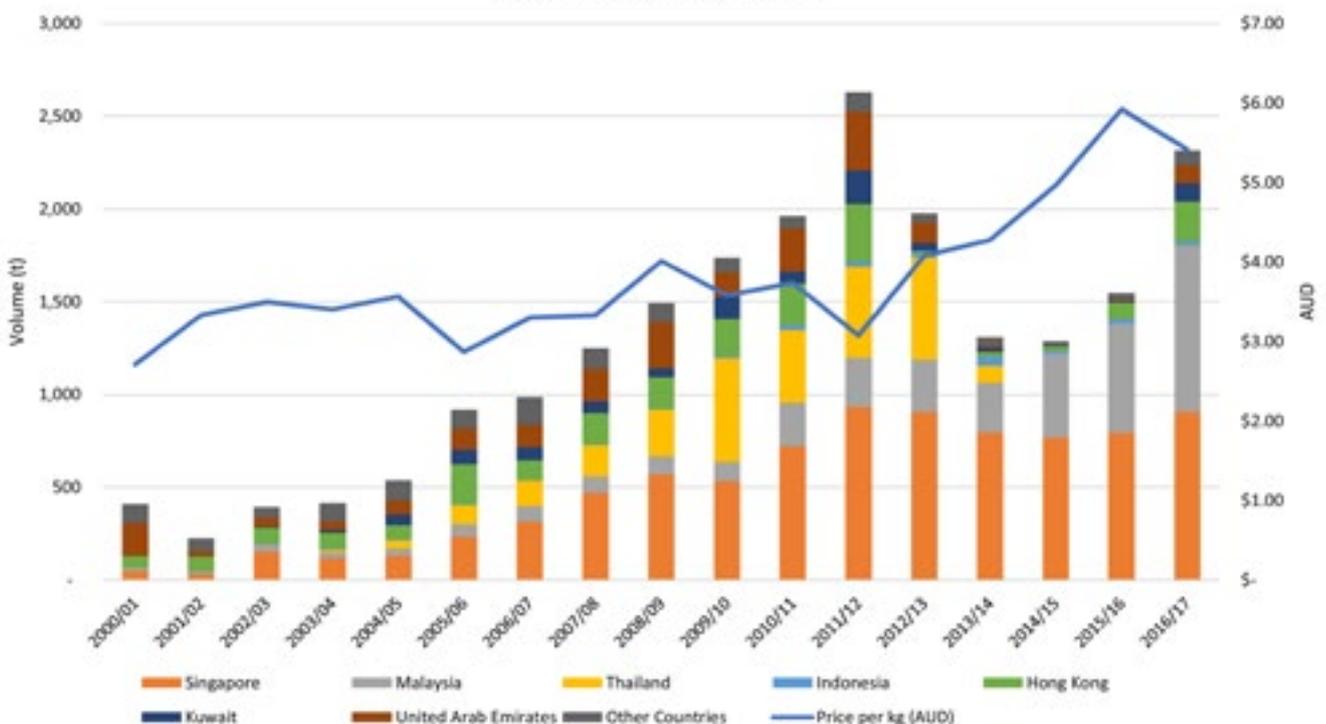
In both production and exports, Australia is currently a small player in the world avocado market. Ongoing activity is underway targeting Australia's growth in export markets with Malaysia and Singapore currently Australia's main avocado export markets.

In 2016/17 Australia exported more than 2,300 tonnes of avocados, a one-third increase on the previous year, approaching the highest exports previously recorded in 2011/12.

Countries Australia exported avocado to in 2016/17



Australian annual avocado export volumes in tonnes by country and AUD price/kg (blue line)



Avocado Grower Study Group Workshops

The Avocado Study Group Workshops continue to be a major drawcard for industry members keen to hear about the latest research, new practices and techniques, and also to catch up with other growers.

Study group workshops are hosted by local growers and Simon Newett and Peter Rigden from the Queensland Department of Agriculture and Fisheries (DAF). These workshops help equip growers with the knowledge needed to implement practices that will lead to more consistent high yields of good-quality avocados.

At Bundaberg on 17 August, 81 attendees heard from Queensland DAF's Helen Hofman with an assessment of the 2016 flowering season, and Applied Horticulture Research's Dr Jenny Ekman and Adam Goldwater who talked about the importance of temperature loggers to monitor what's happening in the cool chain to prevent the early start of ripening. Attendees also had the chance to hear the latest from the **Small Tree High Productivity Initiative**, with Dr Francois Barbier from the University of Queensland discussing the genetic induction of flowering in avocado. Researchers are working to understand how flowering, fruit drop and vegetative growth is regulated at a molecular level, and ultimately how these processes can be influenced by grower management.

In the Tristate area, two events have been held: at Renmark in South Australia on 26 July and Nangiloc in Victoria on 27 July.

The 81 attendees across the two events heard from Ripe Horticulture's Lisa Martin on two weather extremes: frost management and also managing heat waves. Growers heard there are a range of management strategies to minimise frost damage and as these mostly reinforce each other, as many as possible should be used for the best results. Similarly, an integrated approach including improving the environment (overhead cooling sprinklers, irrigation, mulch and windbreaks), the use of protectants and ensuring trees are healthy is needed to minimise heat damage.



Glen Goldup talks about his family's use of frost machines on their orchard at Nangiloc (near Mildura) at the Tristate event in Victoria.



Nick Hobbs (centre) discussing canopy management at his orchards near Renmark in South Australia.

Growers also heard from CSIRO's Dr Harley Smith on a new irregular bearing project. The three-and-a-half year project started in June and seeks to address two issues: fruit abscission and the physiological basis of high production.

Full details of all of these talks are available in the workshop meeting minutes, available in the Best Practice Resource Library at www.avocado.org.au/best-practice-resource/.

Upcoming workshops

Dates (subject to change) for upcoming study group workshop events around Australia can be found on the Avocados Australia's Event web page (www.avocado.org.au/events/).

- Central New South Wales – 2 November
- Central Queensland – 16 November
- South Queensland (Moreton) – 7 December

Are your details up-to-date with Avocados Australia? Final details for all events are sent via email with details on venues, times and workshop program plus a request to RSVP. Please contact Avocados Australia on (07) 3846 6566 to make sure you receive all industry communications.



Queensland DAF's Helen Hofman speaking in the field at the Bundaberg event.

Farewell

After 4.5 years in the Atherton Tablelands horticulture horticulture industry, including organising many North Queensland study group events, Kaila Ridgway is trading her 'Horti Cap' for her 'Cowgirl Akubra'. "Although I am sad to leave my role as Queensland DAF's Development Horticulturist, I am very excited to take on my new challenge of assisting in running my partners' Cape York cattle station," she said.

Acknowledgement

These workshops are part of project **Achieving More Consistent Yields of Quality Fruit in the Australian Avocado Industry** (AV14000), which is a strategic levy investment under the Hort Innovation Avocado Fund. This project is funded by Horticulture Innovation using the avocado industry research and development levy, co-investment from the Queensland Department of Agriculture and Fisheries, and contributions from the Australian Government.



There were 30 attendees at the South Australian Tristate event in July.



Jarrad Griffin explaining the high density trial at Bundaberg. image Simon Newett, Queensland DAF.

More information

If you are interested in offering your venue/farm to host an event, or have any further event enquiries please contact Simon Newett (Simon.Newett@daf.qld.gov.au).

The illustrated minutes from these workshops have been added to the BPR Library: www.avocado.org.au/best-practice-resource/. The BPR is Avocados Australia's free online one-stop-shop to support best practice throughout the Australian avocado supply chains. We encourage all of our stakeholders to register and use this vital resource.

What's new in the Best Practice Resource

A host of a new materials from the Avocado Study Group workshops and research reports have been added to the Best Practice Resource in the last quarter.

The BPR is Avocados Australia's free online one-stop-shop to support best practice throughout the Australian avocado supply chains. We encourage all of our stakeholders to register and access this vital resource:
www.avocado.org.au/best-practice-resource/.

Event proceedings

The valuable content in the growing section of the BPR is kept up-to-date by the Queensland Department of Agriculture and Fisheries (DAF). Event proceedings (including meeting minutes and presentations) have been added to the BPR Library for the Avocado Study Group Workshops in Tamborine & Northern Rivers, South Queensland, Central Queensland, North Queensland, Tristate, Western Australia and Central NSW.

Don't forget

The reinvigorated BPR also now has an Export section.

This new section of the BPR addresses: the current status of avocado exports; is exporting right for your business?; selecting an export market; doing the market research; being export ready to trade; the export process; and looking for help.

What's new in the BPR

To make it easier to keep up with what's new in your BPR, we've added a handy link to the BPR homepage. Once you have logged in, the main page will provide you with a link to the what's new page, where you will find a summary of new content and links.

More information

You can log in (or request access!) via
www.avocado.org.au/best-practice-resource/.

New Fruit Spotting Bug control option

A new product from Dow AgroSciences, Transform™, has been approved for use in avocados, targeting fruitspotting bug (*Amblypelta nitida*) (FSB) and banana spotting bug (*A. lutescens lutescens*) (BSB). Transform was evaluated as part of project *A multi target approach to fruitspotting bug* (MT10049) which included contributions from the avocado R&D levy.

The two species of pests are virtually indistinguishable and although they have different geographical range, they can be viewed as identical pests. These native species are highly mobile and can cause significant damage even at very low pest density. Individual growers have suffered losses of more than 50 percent and the NSW Department of Primary Industries have estimated industry losses of tens of millions of dollars each year from FSB alone.

In the past these pests were often controlled using endosulfan; however, with its withdrawal in 2010, growers were forced to use broad spectrum chemicals which can cause disruption to beneficial insect populations. Several species of flies, spiders, ants, predatory bugs (eg assassin bugs) and lacewings are natural enemies to FSB and target different parts of the FSB life cycle. Birds and frogs also consume FSB, as well as numerous species of egg parasitoids, who lay their eggs into FSB eggs and consume the developing pest larvae. Management systems that sustain these beneficial insects (integrated pest management – IPM – friendly) help to keep FSB populations at low levels.

Since 2011, Dow AgroSciences has carried out an extensive research program in collaboration with industry and government researchers to develop a ‘softer’ chemistry that is efficacious against FSB in avocados and macadamias crops.

“Transform™, has an excellent IPM profile, being soft to beneficial arthropods, and also has excellent efficacy on a broad range of sap-feeding insect pests, including aphids, plant bugs, scales and mealy bugs,” Dow AgroSciences’ Dr Rob Annetts said.

“Dow AgroSciences has been trialling Transform on FSB and BSB in various orchards which have confirmed excellent efficacy, making it a perfect fit for IPM programmes.

“Data clearly shows that Transform has low impact on beneficials such as: lacewings, spiders and predatory beetles and bugs.”

More information

The final report for the project *A multi target approach to fruitspotting bug* (MT10049) can be found in the BPR Library (www.avocado.org.au/best-practice-resource/). More on Transform can be found at www.dowagro.com/en-au/australia.



STOP THESE GUYS IN THEIR TRACKS



WITH THE NEW BANANA SPOTTING BUG TRAP!

- Available as single lure & trap or packs of 10
- 10 traps needed to make spray threshold decisions
- Place traps every 40m
- Lures last up to 6 weeks

For more information visit www.ocp.com.au

or call

1800 634 204
0448 016 551

(Jason your local OCP Agronomist)



Banana spotting bug lure released

A pest lure and trap, 25 years under development, has been released to help fruit and nut growers boost production and reduce control costs.

Banana spotting bug is a major threat to the production of a range of crops, including avocado, banana, cashews, custard apple, macadamia, mango, blueberry, papaya, guava, lychee, passionfruit, citrus and other tree crops.

The lure and trap relies on a synthetic pheromone that simulates the bug's own attractant. Growers will be able to use the lure and specially designed trap to detect the bug's presence, and then only apply pesticides if and when they are required.

The Queensland Department of Agriculture and Fisheries (DAF) has led the development and commercialisation of the lure and trap – an initiative that has taken more than a quarter of a century of work, and expertise, to refine.

The last stage of the research was co-funded by Hort Innovation using avocado, custard apple, lychee, macadamia, passionfruit and papaya industry levies and contributions from the Australian Government.

Queensland DAF senior entomologist Ian Newton said banana spotting bugs were difficult to see as they were camouflaged and shied away from movement, which made monitoring extremely difficult.

"As a result, some growers will often wait until damage is already done, or resort to calendar spraying, which results in too many unnecessary sprays," Dr Newton said.

"The trap allows growers to make informed decisions on when to spray, based on real-time bug pressure. This trap results in spray cost savings, improved fruit quality and reduced losses."

The trap is now available to all growers to purchase for the first time, under commercial arrangements with Organic Crop Protectants (OCP) and will be stocked by most agricultural supply retailers.

"Insect pheromone technology and trapping like the BSB Lure and Trap will help farmers better predict and control this key



The trap in use.

pest which is a triple bottom line result for all involved," OCP managing director Gary Leeson said.

Please note

It should be noted this new lure is not effective against fruit spotting bug. More information on both bugs can be found in the Avocados Australia Best Practice Resource (www.avocado.org.au/best-practice-resource) in the Growing section or by searching for "spotting bug".

Amino BOSS™

(Previously Flower 'n' Fruitmaker)

- Fully loaded amino acid liquid
- Improves pollen germination and fruit set to provide greater crop yields and fruit size
- Trialled, proven and used on Australia's biggest avocado farms

For more information call 07 3348 4113 or email sales@agricrop.com.au.



Power For Plants



AGRICROP



www.agricrop.com.au

Blackbutt Avocado Festival success

The Blackbutt Avocado Festival was a roaring success in September, attracting an estimated 3,000 people to the town in Queensland's South Burnett.

Among the many special guests at the festival, formerly the Bloomin' Beautiful Blackbutt Festival, was Avocados Australia's Alvin the Avocado who was everywhere from the street parade to the costume judging. We're not sure if he took part in the avocado roll, avocado juggling or avocado tossing though.

Celebrity chef and official South Burnett Food Ambassador Jason Ford, from Ford on Food, was kept busy showcasing avocado recipes to packed crowds during the day. His recipes ranged from crispy skinned salmon and avocado mousse to a warm avocado, asparagus and egg salad, to a green pea and avocado risotto and a popular avocado chocolate mousse.

"I find that these days more than ever, the question is, is it healthy so I make sure my recipes are healthy and tasty," Jason said.



Celebrity chef Jason Ford from Ford on Food (right) and South Burnett Regional Council Mayor Keith Campbell cooked up a storm at the festival, wowing the crowd with this crispy skinned salmon with avocado mousse on a tomato and caper salsa. Photograph courtesy of Jason Ford.

"I emphasise to the audience that avocado can be an alternative for other ingredients, for example, the avocado chocolate mousse has a lovely creamy texture but no dairy and no sugar."

Jason said the change to the Blackbutt Avocado Festival had obviously been a popular move with more than 3,000 people turning out on the day, making it one of the region's major events.

"I really believe the festival is going to grow and make a real name for itself in future."

Acknowledgements

These images are courtesy of Claire Batchelor, unless otherwise indicated. Clockwise from top right: Alvin participates in the street parade, the avocado costume competition and the avocado roll.

More information

www.facebook.com/bbbfestival/

www.facebook.com/fordonfood/



Giving students a taste of avocado

Some of the next generation of ag industry members introduced themselves to avocados at Victoria's Robinvale College in September.

With the help of Tristate growers Barry and Jess Avery, Peter McIntosh, Cosi Natale and David Smith, and Avocados Australia, the Year 11 VET (Vocational Education and Training) students organised an Avocado Expo. The event, for the school and community, also included field visits to the Avery's orchard for Prep to Grade 4 students.

Robinvale College VET Business Teacher Peter Hughes answered a few questions for *Talking Avocados* on the students' experience.



The VET students prepare for a food showdown: avocado smoothies vs avocado on a biscuit.

Why did the VET students choose to focus on the avocado?

I saw an article in the ABC news on exports. It showed an increase in avocado exports. My students have already visited a large almond farm and plant so I decided to focus on avocados and your industry body supported me. The expo and excursion turned out well.

Once they started studying the avocado, what was of the most interest/most surprising for the VET students?

They had a good look at the Avocados Australia and Australian Avocados websites especially the YouTube clips. This was of interest to them. They then used their own experience to look at possible menus for the expo. The meeting with Barry and his daughter Jess increased their knowledge of what to present in the way of food at the expo.

What was of most interest for the younger students? What did they ask about most?

Three-quarters of our younger students went on the excursions. They enjoyed picking the avocados. They were also interested in how to tell if an avocado is ripe. Also, the Prep to Year 4s all attended the Avocado Expo. I believe this is where my Year 11 VET students gained their best experience, as the junior students became their customers.



Grade 3 and 4 students at Macca's Farm on Tobruk Road, Robinvale during an excursion organised by Robinvale College's VET students and local growers.

Editor's note: a survey carried out by the VET students found that the excursion and expo was the first time more than 40% of the younger students had eaten an avocado. A majority of the students said they were keen to keep eating them.

What led to your VET students selecting a smoothie and a dip for their survey? Were they surprised at how popular the dip was?

Barry and Jess helped my students choose the smoothie and dip. I also encouraged them when we bought the ingredients. My students compiled the survey and distributed/collected the results. They were competitive in their own participation in the food expo.

What's the goal of your VET program?

I wanted to see if my students could apply their learning in VET Business for a commercial partner such as Avocados Australia. To do this would require them to use their organisational, communication and leadership skills. Whilst Barry, Jess and myself guided them in this exercise, I am quite confident they could run an event such as this on their own in the future.

If I could recommend a change to a future outcome such as this, I would have the students make a shopping list before heading to the supermarket to buy ingredients. They really struggled to know what to buy!

Are the students interested in agricultural careers?

Definitely. You may even have a future director for Avocados Australia in one of the young men. His parents currently grow avocados in this district. I would recommend mentoring young people such as this as the future of your industry relies on farmers giving time back to industry to benefit it as a whole. Teaching children such as the ones in our expo is a great way for senior students to realise the future of Australian Food relies on good education of children.

Briefs

Phosphorous acid off-label permit renewed

The Australian Pesticides and Veterinary Medicines Authority has recently granted a permit extension to Liquid Fertiliser Pty Ltd (trading as Agrichem) for the use of phosphorus acid as a foliar application on avocados for Phytophthora root rot until 30 September, 2019 (PER14813). Agrichem is in the process of seeking a label registration for this use.

ACCESS the permit here – <http://permits.apvma.gov.au/PER14813.PDF>

Hort Innovation advanced production fund

Hort Innovation has launched a multimillion-dollar smart production systems fund. The new initiative will comprise investment in projects that increase farm productivity through greater crop intensification, protection and disruption.

Hort Innovation Chief Executive John Lloyd said they would look to partner with suitable co-investors and research providers – such as universities and technology companies – to deliver a host of new projects.

The Advanced Production Systems Fund will comprise investments that deliver outcomes such as: farm automation such as robotics, sensors and mechanisation; plant genetics that employ next generation genomics and other platform technologies; data integration that improves decision making

through real-time, reliable crop data; intensive farming through ultra-high-density cropping and advanced protected cropping systems; access or develop superior planting materials including rootstocks and cultivars with exceptional characteristics.

The Fund is part of Hort Frontiers, a strategic partnership initiative developed by Hort Innovation that addresses the biggest challenges facing the future of Australian horticulture.

For more information: <http://horticulture.com.au/co-investment-fund/advanced-production-systems-fund/>.

Australia a strong global ag investment

Attendees at the Global AgInvesting Conference in New York in August heard Australia was a key investment destination.

In a report compiled by BDO, the Australian agricultural sectors with the most investment appeal are permanent crops such as avocados, citrus and nuts.

The BDO report says not only are there a number of North American institutions looking for Australian investments in excess of \$150 million, there was a trend toward investing directly in food and agriculture entities, rather than via funds.

For more information: www.bdo.com.au/en-au/insights/food-agribusiness/publications/2017-global-aginvesting-conference-report.

At All Aussie Farmers we offer diversified markets through:

- Market Floor Sales
- Direct Supply to Food Service
- Chain Stores
- Export
- Avocado specialists
- Custard Apples
- Figs
- Kiwi Fruit
- Passionfruit
- Persimmons
- Tropical Fruits



All Aussie Farmers are the premier licensed marketers of Gem Avocados® in Australia.

Block C, Brisbane Markets
385 Sherwood Road, Rocklea QLD 4016

Pad 4 Warehouse 1, Melbourne Markets
35 Produce Drive, Epping VIC 3076

Travis Murphy
General Manager
m: 0421 020 311

Dudley Mitchell
Chief Operating Officer
WA Representative
m: 0439 802 293

Jack Wilson
Director of Sales & Distribution
Melbourne
m: 0422 799 492

Kerry Mitchell
Accounts Manager
m: 0407 088 221





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

Hort Innovation Marketing Update

By Claire Tindale-Penning, Marketing Manager, Hort Innovation

In this marketing update, we give you a snapshot of the latest marketing activity that's helping Aussie consumers connect with Australian avocados. This activity is managed by Hort Innovation on behalf of the industry, and is funded by the avocado marketing levy. Hort Innovation develops consumer-focused promotions using a variety of channels, including social media platforms such as Facebook and Instagram, as well as targeted partnerships with consumer-related publications and platforms.

Studio 10

Australian Avocados were the focus of a segment on Studio 10 on Monday, 11 September. Celebrity chef Damian Heads cooked up three delicious recipes that showcased the versatility and ease of using avocados in a variety of dishes. Cooking live on set, Damian prepared an avocado smoothie, avocado salsa with steak, and avocado brownies. The segment was hosted by Ita Buttrose and Sarah Harris, with all the hosts then sampling (and loving) the food that Damian prepared. More than 133,600 people tuned into the segment, and with a key section of the viewers being young mothers who are responsible for the household shopping; it was a great environment to get the key messaging out. You can view the segment here – <http://bit.ly/2gUNOTu>.

Out of Home

The Australian Avocado Out of Home Cinema campaign started on 21 September, and runs for eight weeks until 18 November.

The first burst of activity ran during the school holidays and the October public holiday in order to capitalise on increase in audiences at this time, while the second burst of cinema activity coordinates with Blockbuster releases such as *Thor: Ragnarok* and *Blade Runner 2049*.

There will be a rotation of two Perfect Match videos running: Chocolate and Haloumi. The two Perfect Match ads will be played more than a combined 596 times during the campaign, with the aim to reach more than 436,000 people.



Digital activity

The most recent digital activity also went live on 10 September, and is running until 17 December. This activity involves showing four Perfect Match videos, as well as the 15 second television commercial, and will be targeted towards females 25-49.

The aim of this activity is to generate a high level of awareness, with the goal of the campaign to reach more than 1.7 million eyeballs during the campaign. The activity will be tailored to relevant environments (for example, *mamamia.com.au* for its female audience, and 'food, lifestyle and health' related websites for its contextual relevancy), as well as on premium catch-up television placements on 9Now, tenplay etc.

Results will be reported at the conclusion of the campaign.

In-store activity

Australian Avocados will be undertaking in-store demonstrations in 100 Woolworths stores nationally. These stores were picked based on foot traffic and performance of stores, with a focus on busy metro stores.

There will be two in-store sampling periods (Thursday to Saturday) from 21-23 October and 26-28 October.

Each session will run for four hours and will involve sampling Avocado Smoothies and handing out recipe cards. The objective to demonstrate the ease of use and versatility of avocados to consumers via a high traffic retailer at point of purchase.





Social media

The 'always on' approach to Australian Avocados social media has continued across the consumer-facing Facebook page (www.facebook.com/AustralianAvocados). Australian Avocado's 187,000 fans on Facebook continue to be very engaged with the content. The page had its second best result to date in August in regards to reach, with a huge 1.6 million people seeing content posted by the page in just that month alone. Content has continued to resonate with the target audience into September; the latest post, a video featuring Channing Tatum (below), has been viewed more than 230,000 times, with 2,400 likes and a huge 1,748 comments in just four days. This engagement shows that people are loving the content enough to comment and share amongst their friends.



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

Hort Innovation Marketing Update continued

Good Fat

After successful avocado restaurants in Amsterdam and New York, Australia will be getting its own, with Good Fat by Australian Avocados opening in a central Sydney location on 1 November. Running for one month, the restaurant will be presenting and celebrating an avocado inspired menu full of avocado dishes that are amazingly simple and delicious. Chef Liam Crawley has been appointed as head chef and menu creator, with the restaurant to be supported by PR, social media and a website, with this activity looking to kick off in mid-October.

The premise for the restaurant is that consumers will be able to cook every dish sold at the restaurant in their own home, with the recipes all housed on a specially designed website. The aim is to show how versatile and easy it is to use avocados in many different types of dishes during all meal occasions, whilst getting great media coverage for both the restaurant, and Australian Avocados key messaging.



Consumer research

Consumer research was recently undertaken by research company Colmar Brunton, to evaluate the existing 'Avocado feeling' television commercial (TVC) against two primary objectives:

- to determine whether the creative elements in the current TVC are: Good, Strong, Recognisable, and Valuable
- to review whether the current jingle is: Recognisable, Distinctive, Memorable, and Likable.

They held six focus group in Sydney and Melbourne, consisting of a total of 47 people, from a variety of demographics and avocado buying habits, with some of the key learnings below.

This research provided great learnings that will be utilised when creating the next commercial. As well as the above, they identified three overarching areas that will help guide future messaging:

- a need to understand greater versatility
- a need for stronger association with health
- emphasis that avocados can be a regular healthy indulgence.

Areas to celebrate

- ✓ The current jingle is upbeat and playful. It plays a neutral role in communication and does not discourage avocado purchase or consumption.
- ✓ For those who associate avocado consumption with fun and entertainment the current ad resonates.
- ✓ The visual cues of "Love" and the avocado image on the final frame are relevant and memorable.
- ✓ Well known and relevant consumption occasions are included.
- ✓ The scenario in which the man dances while eating avocado on toast is relatable and appealing.

Areas to consider

- ✗ When played in isolation of the TVC, the jingle is not recalled.
- ✗ Although inoffensive the jingle is not delivering the core message.
- ✗ The current TVC struggles to stand out from others with a clear and compelling message.
- ✗ The "Love that avocado feeling" dance is currently not resonating and tends to distract the viewer from the core message.
- ✗ The call to action is not clear, particularly among infrequent consumers.
- ✗ Infrequent consumers need greater support with recipe ideas, and a reminder that an avocado is a healthy choice.

We are also currently undertaking further consumer research run by research company Quantum. The learnings from this will be used in conjunction with the Colmar Brunton report to develop a new television commercial which will air in the first quarter of 2018.

Acknowledgement

Marketing activity is managed by Hort Innovation on behalf of the industry. Under the Hort Innovation Avocado Fund, it is funded by the avocado marketing levy.

More information

<http://australianavocados.com.au/>

Facebook: www.facebook.com/AustralianAvocados/

Instagram: [@AustralianAvocados](https://www.instagram.com/AustralianAvocados)



*If it's on the label,
It's in the drum*



New growing technique could increase orchard options

Research and Development

A world-first innovative plant growing technique that could alleviate the global shortage of avocado trees and provide improved management options is underway in Queensland.

Professor Neena Mitter, from the Queensland Alliance for Agriculture and Food Innovation at The University of Queensland, said the trade-secret tissue-culture system took a single cutting and could create 500 new plants in eight to 10 months. This is compared to the current system that typically takes up to 12-18 months to produce one plant from a cutting.

Professor Mitter said along with increased availability, another benefit would be the uniformity of the trees, as it could lead to trellising and mechanised harvesting.

She said a Queensland Government grant would enable the researchers and industry partners to launch field trials early next year.

"There are farmers who want to expand their avocado orchards, and entrepreneurs who want to enter the avocado farming industry, but they cannot get source plants to grow because of a global shortage of trees," Professor Mitter said.

"Receiving the Advance Queensland Innovation Partnerships grant, and working together with our industry partners, we will be able to take our innovation to the next stage of field trials," she said.

Professor Neena Mitter was recognised at The University of Queensland Women in Technology awards in September.

Professor Mitter received the Life Sciences Outstanding Award. As a leading contributor in both the Centre for Plant Science and the Centre of Animal Science, Professor Mitter is creating change with research in technological platforms impacting agricultural production, environmental sustainability and socio-economic dynamics of farming communities.



Professor Neena Mitter, Dr Alice Hayward and PhD student Jayeni Hiti Bandaralage inspect avocado clippings that could contribute to easing the shortage of new avocado tree stocks.

Professor Mitter said there would be six sites for the field trials, at orchards in Far North and Central Queensland, Western Australia, and Northern New South Wales.

She said there would be 150 to 200 trees per trial site, with 500 already being grafted and made ready for the field sites (as at September 2017).

"We're working with one industry rootstock, grafted with Hass, at the moment and we will add to the field trials as and when we have the required numbers for other cultivars," Professor Mitter said.

In addition to the shorter wait time for orchard stock and the potential alternative orchard management options, Professor

Mitter said the technology also had the potential to quickly produce stock suited to particular regions.

"While it's not as if we can instantly double productivity, it can reduce the timeframe because plant supplies are a major bottleneck at the moment," she said.

"This research could give a big boost to the avocado industry, particularly its major initiative to increase productivity meet domestic demand and grow the export market.

"I don't see there being a glut because there's so much demand for avocado across the globe, including from China and into the future, India."

Talking to ABC Rural, Professor Mitter said to provide new trees at the moment, the avocado industry followed the same process that had been in place for the past 40 years.

Planting Avocado Trees?

Birdwood Nursery is a specialist fruit tree nursery supplying the highest quality fruit trees to commercial growers throughout Australia.

- We are BioSecure HACCP and ANVAS certified to provide the healthiest trees possible.
- Phytophthora-tolerant clonal rootstocks available to order.
- Enquire about the latest Hass-like cultivars: Maluma, Carmen and Gem.



Part of the Fleming's Group

BIRDWOOD NURSERY
Telephone:
(07) 5442 1611
Email:
info@birdwoodnursery.com.au



www.birdwoodnursery.com.au

"There's no genetic modification, there's no change, it's the same cutting from that same tree ... all we have done is provide it with certain, really nice and suitable conditions," she told ABC Rural.

"It's not just that the plant supply will increase ... it also means that because we will be supplying uniform plants we can go to high-density plantings.

"We can produce about 10,000 plants in a 10sqm room so you can imagine the saving in terms of land, fertiliser, pesticide usage. It's a very environmentally sustainable and efficient method of multiplication," Professor Mitter told ABC Rural.

Queensland Innovation Minister Leeanne Enoch said the initial 'matched' investment of less than \$1.5 million could return \$335 million a year for the state's economy across the production and supply chain.

"The project between The University of Queensland and industry partners to develop this Queensland-owned world-first technology to tackle the global shortage of avocado trees is a terrific example of the powerful and profitable outcomes achieved when researchers, industry players and entrepreneurs come together with a common purpose," Ms Enoch said.

The project has received a \$636,000 grant through the second round of the Queensland Government's Advance Queensland Innovation Partnerships program.

"It has the potential to generate new jobs, from the number of people growing and picking the fruit right through the line to those transporting, packing and processing the fruit," Ms Enoch said.

"This world-leading, Queensland-owned technology will overcome the bottleneck of a shortage of high-quality planting material that is currently crippling industry expansion, and conservative estimates predict Queensland avocado farmers will be able to double production to 70,000 tonnes a year creating industry growth and jobs in the region."

More information

To find out more about the Advanced Queensland Innovation Program, visit <http://advance.qld.gov.au/industry/innovation-partnerships.aspx>.



A LEGEND IN THE FIELD

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



Meeting high density planting challenges

Helen Hofman and John Wilkie, Queensland Department of Agriculture and Fisheries

Research and Development

The challenges of high density planting of avocados are rapidly becoming evident in the *Avocado Planting Systems Trial in the Small Tree High Productivity Initiative* led by the Queensland Department of Agriculture and Fisheries.

This trial, now in its third year, compares Hass on two rootstocks, Ashdot and Velvick, in three different planting/training systems:

- a conventional or low density planting of 9x5m (222 trees per hectare) with minimal pruning to date
- a medium density planting at 6x3m (556 trees per hectare), pruned to a central leader to approximate a cone shape to improve canopy light distribution and
- a high density planting at 4.5x2m (1,111 trees per hectare), trained and pruned onto a trellis, also with a single central leader.

Our focus in this trial is to synthesise strategies to manage vigour, maximise light interception and distribution, optimise tree architecture and increase crop loads. In May this year, three years after planting, we harvested our second crop.

Effects of planting densities and tree training to date

Overall, the crop load this year was relatively low at 7.9 tonnes per hectare. We believe this is due in part to the normal rapid vegetative growth of young trees, but also to climate. Warm temperatures in early spring 2016 appear to have accelerated the growth of the spring vegetative shoots, competing strongly with the setting of young fruit during mid- and late-bloom.

Figure 1 shows the yields per tree for the three different densities in 2016 and 2017, and Figure 2 shows yields per hectare. On a per hectare basis, the high density plantings yielded the highest crop per hectare. However, the advantage was small and variability was high so this result does not meet the usual standard of 95% confidence that the means or averages of the three density treatments are significantly different.

While this result is not definitive, it is important to recognise that the trial is still in its early years. At this stage of orchard development, the conventionally-spaced or low density trees still have advantages which may not be maintained in future years. Their canopies are still fully irradiated, and the centre of the trees are receiving sufficient light to foster flowering and fruit set well into the canopy. In addition, they were not pruned, and thus have complex branching structures and more fruiting sites.

The medium density trees are also well irradiated, but they were heavily pruned in winter 2016 in order to shape the trees to a single central leader. This reduced the branch complexity and number of fruiting sites per tree (Table 1). The pruning also appears to have some influence on reducing flowering intensity and fruit set, leading to a poor harvested crop.

The high density trees were also pruned, and thus had a similar number of fruiting sites per tree to those planted at the medium density. In this case, fruit set may have been more affected by light limitation. The support provided by the trellis meant many of the high density trees were already over 4m high in spring and up to 5.5m in summer, and because they are planted in rows 4.5m apart, and grew very dense in the tops and shoulders, some shading appears to have affected performance, especially on the lower branches.

	Flowering terminals per tree	Flowering terminals per ha ('000)	Flowering terminals per m3 canopy ¹	Fruit set % (harvested fruit per flowering terminal)
Conventional	676 b	150	58.1 b	17.1% ns
Medium density	329 a	183	30.7 a	17.2% ns
High density	294 a	327	28.8 a	12.0% ns

Means within one column followed by the same letter (a or b) or 'ns' are not significantly different at the 95% confidence level.

¹Canopy measured in spring 2016

Table 1: Plantings Systems Trial mean flowering sites and fruit set for each planting density 2016-17

In light of these results, this season we changed our pruning strategy. We pruned later in winter this year (July rather than June) and have made proportionally fewer cuts per tree to both optimise numbers of fruiting sites and reduce possible impacts on flowering intensity and fruit set. We will also be more vigilant in managing regrowth at the tops and shoulders of the high density trees to ensure good light distribution.

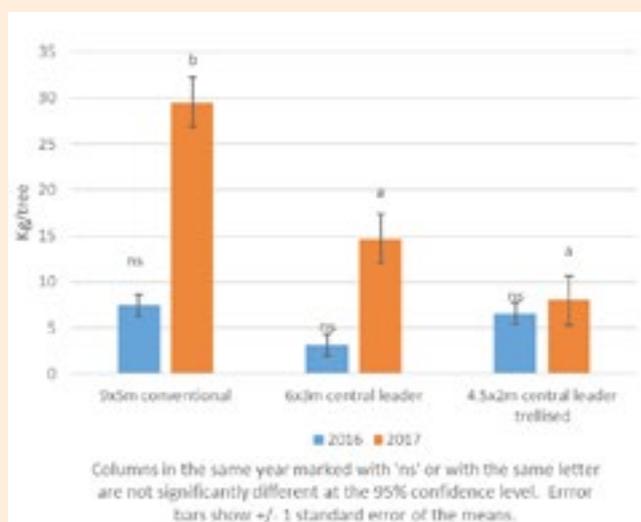


Figure 1 - Yield (kg) per tree 2016 and 2017 in the three density/training systems

In each planting density we will measure the light levels prevailing on the periphery of the canopy from the bottom to the tops of the trees and in transects through the canopy. We will relate these light levels to flowering intensity and fruit set. This data will provide insights on appropriate height-to-spacing relationships, and on optimising light environments within the canopy, which will be useful for both low and high density orchard systems.

We are also continuing our strategies to increase crop load, including use of plant growth regulators to increase branching and fruiting sites and to manipulate flowering.

Rootstock differences to date

The Planting Systems Trial includes trees on the rootstocks Velvick, a vigorous rootstock commonly used in central Queensland orchards, and Ashdot, an Israeli rootstock which has shown smaller canopy sizes and superior yield efficiency in early years in a previous Queensland trial. To date, Ashdot has promoted a smaller tree and a smaller rootstock cross sectional area (scion cross sectional area was not significantly different in 2016) (*Table 2*). The trees on Ashdot performed comparatively well this season, with overall higher yields per tree than Velvick and higher yields per cubic metre of canopy. Average fruit size was also larger on Ashdot than Velvick.

Higher partitioning of resources to flowers and fruit rather than to vegetative growth may be part of the reason for this improved yield. In addition, the different flowering patterns of the rootstocks appears to be important. In 2016/17 Ashdot had a higher proportion of fruit that set on 'determinate' inflorescences, that is, inflorescences which do not produce a vegetative shoot out of the terminal. Fruit set and fruit

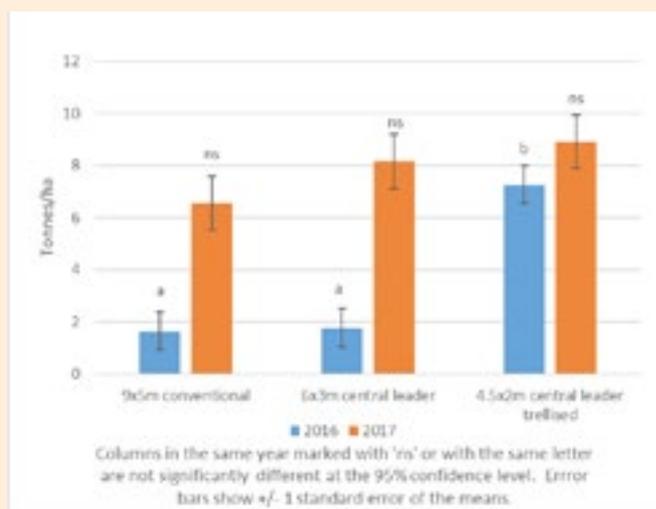


Figure 2 -Yield (tonnes) per hectare 2016 and 2017 in the three density/training systems



**CHANGING THE WAY
AVOCADOS ARE
MARKETED**

JOIN

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

Meeting high density planting challenges continued

weight is higher on this type of inflorescence because there is no competition from the emerging vegetative shoot in early spring. The unusually warm temperatures in early spring 2016 may have exacerbated this effect if it fostered rapid vegetative growth. It will be interesting to see if this advantage continues in years with different weather patterns.

	Velvick	Ashdot
Canopy dimensions:		
Canopy volume ¹ (m ³)	12.1	9.8
Scion cross-sectional area ¹ (cm ²)	158 ns	141 ns
Rootstock cross-sectional area ¹ (cm ²)	165	120
Yield:		
Yield per tree (kg)	14.6	20.2
Yield efficiency ² (kg/m ³)	1.23	2.01
Yield per hectare (kg)	6889	8872
Mean fruit weight (g)	251	300
Flowering and fruit set:		
Flowering terminals per tree	427 ns	440 ns
Fruit set (harvested fruit per flowering terminal)	14% ns	17% ns
% of fruit from determinate inflorescences	45%	69%
Harvested fruit per tree	59 ns	77 ns

ns signifies that means are not significantly different at the 95% confidence level

¹ Canopy measured at harvest 2017 ² Canopy measured in spring 2016

Table 2: Avocado Planting Systems Trial rootstocks compared 2016-17

Acknowledgement

The Small Tree - High Productivity Initiative is an initiative of the Queensland Government. Major partners include the Queensland 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* (AI3004). We are especially grateful to Hort Innovation and the various associated industries and horticultural businesses for their support for this initiative.



Queensland DAF staff Hanna Toegel, Jarrad Griffin and Helen Hofman recording and sampling yield in a high density plot in May 2017.

More information

Growers who are keen to see the trial in Bundaberg and discuss strategies for meeting these challenges are most welcome! Please contact Dr John Wilkie (John.Wilkie@daf.qld.gov.au) or Helen Hofman (Helen.Hofman@daf.qld.gov.au).

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

Black root rot of avocado – what do we know and how can we manage it?

Dr Louisa Parkinson, Dr Elizabeth Dann and Dr Roger Shivas

In this article we provide background information to black root rot disease, report some significant research and project outcomes, and outline some disease management options. The levy-funded project *Investigating tree mortality during early field establishment* (AV14012) is due for completion in the next eight months.

Black root rot

Black root rot is a severe disease of avocado nursery trees and orchard transplants and is caused by fungi in the Nectriaceae family. Rapid decline and death of young trees within a year after planting is typical, with above ground symptoms including tree stunting, leaf wilt, leaf drop, chlorosis and necrosis (Figure 1). Symptoms in the roots include black necrotic lesions along the feeder roots which coalesce to rot the entire root (Figure 2). Often black root rot can be confused with Phytophthora root rot, and when root necrosis is severe the two diseases are indistinguishable to the naked eye. However, infection by *Phytophthora cinnamomi* typically starts from the root tip, while black root rot lesions can form throughout the feeder root. Nectriaceous fungi also cause similar diseases of other crops, such as black foot disease of grapevine, collar rot of papaya and *Cylindrocladium* black rot (CBR) of peanut.



Figure 1 – Black root rot symptoms in young orchard transplants

Collecting and identifying fungi

We visited six nurseries in the eastern states and several orchards across each growing region, and sampled symptomatic roots of sick and healthy trees and young and mature trees. The roots were plated onto agar media in Petri dishes, and fungal colonies (isolates) were examined under the microscope, for preliminary identification. DNA sequencing and detailed analyses were then conducted to confirm identity to at least

“New” names for black root rot fungi of avocado

Prior literature reported some of the nectriaceous fungal genera as *Cylindrocladium* and *Cylindrocarpon*, and these genus names are well-known in the Australian avocado industry as important black root rot pathogens of avocado. With advances in gene sequencing technology and analyses of the lineage, as well as updates to fungal naming rules, genera have been reclassified and renamed.

“*Cylindrocladium*” is now more correctly known as *Calonectria*.

Cylindrocarpon now includes fungi in the *Neonectria*, *Ilyonectria*, *Cylindrodendrum* and *Dactylonectria* genera. However, so far we have confirmed that in avocado, only species in the *Dactylonectria* genus are pathogens. It is misleading to use the name “*Cylindrocarpon*”, and it is important that diagnostic labs around Australia are aware of these changes and have the information and tools required for correct diagnoses and identification.

“*Cylindrocarpon*” should no longer be used and laboratory testing is required to confirm presence of *Ilyonectria* or *Dactylonectria* in avocado roots.

genus level. In all, 153 fungal isolates were collected from 93 trees, comprising 74 avocado trees and 19 other hosts (including papaya, peanut, custard apple and blueberry), across all avocado growing regions in Australia.



Figure 2 – Necrotic lesions on feeder roots, characteristic of black root rot (left) caused by *Calonectria*, and black, rotten root population in a young avocado tree caused by *Dactylonectria* (right)

Black root rot of avocado continued

The necrotrophic fungal species associated with black root rot of avocado include *Colonectria ilicicola*, *Dactylonectria macrodyma*, *D. anthuriiicola*, *D. novozelandica*, *D. pauciseptata*, *D. vitis*, *Gliocladiopsis peggii*, *G. forsbergii*, *G. whileyi*, *Cylindrocladiella pseudoinfestans*, *Ilyonectria* sp. and *Mariannaea humicola*.

We have discovered putative new species and species complexes in each genus, and have officially described three new species, *Gliocladiopsis peggii*, *G. whileyi* and *G. forsbergii* (Parkinson et al., 2017a). We named these fungi after prominent avocado industry researchers, Dr Ken Pegg and Dr Tony Whiley. Leif Forsberg ran the DPI Growhelp diagnostic laboratory for several years.

Testing which fungi are pathogenic to avocado

A selection of the fungal isolates from avocado roots and other hosts underwent glasshouse tests to determine if they could cause black root rot disease on avocado cv. Reed seedlings. Each of the test fungi was grown on sterilised bran:sand and incorporated into the potting mix when seedlings were transplanted into bigger pots. This process is called "inoculation". The fungi in the potting mix then infect roots, and causes disease if it is a true pathogen. *Colonectria ilicicola* isolated from avocado, papaya, peanut or custard apple, were found to be

extremely pathogenic causing stunting, significant root rot and death of seedlings within five weeks of inoculation (Figures 3 and 4). The pathogenicity to avocado of *Colonectria* species from other hosts has not previously been demonstrated, and has implications for establishing orchards in ground previously occupied by these other hosts, and for nurseries producing a range of horticultural tree crops.



Figure 3 – Stunting, leaf wilt and death caused by *Colonectria ilicicola* (left and centre) within five weeks of inoculation, compared to non-inoculated controls (right)



SLASHER Weedkiller

Registered Organic

Nothing mows down weeds faster!



SLASHER Weedkiller is a non-selective, fast acting Registered Organic herbicide researched and developed in Australia for use in orchards and plantations where other herbicides may be unsafe to the user, the environment or residues may limit crop yields.

- ✓ COMPLETELY SAFE UNDER TREES & VINE CROPS
- ✓ NO LASTING RESIDUES IN SOIL
- ✓ ACTIVE MADE FROM NATURAL PLANT OILS
- ✓ FAST ACTING & EFFECTIVE AGAINST RESISTANT WEEDS
- ✓ REGISTERED FOR USE IN ORGANIC FARMING SYSTEMS
- ✓ MOSS AND ALGAE KILLER

ORGANIC CROP PROTECTANTS PTY LTD
61 Turrella St, Turrella NSW 2205 Australia
Telephone: 1800 634 204
www.ocp.com.au



* Not approved under USDA-NOP Certification

NSW/WA	James	0408 025 139
SA	Gordon	0488 173 181
VIC/TAS	Jason	0488 717 515
QLD	Jason	0448 016 551

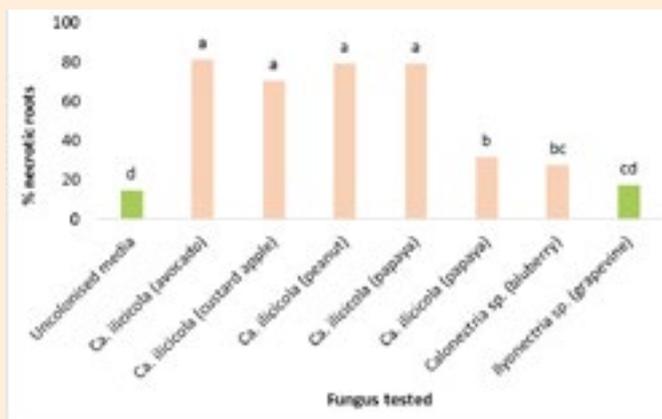


Figure 4 – Percentage of necrotic roots in cv. Reed seedlings inoculated with *Calonectria ilicicola*, *Calonectria* sp. or *Ilyonectria* sp. isolated from avocado and other hosts, compared to seedlings growing in uncolonised media. Bars containing the same letter/s as other bars represent statistical similarity.

Other important pathogens confirmed to cause black root rot within nine weeks of inoculation include *Dactylonectria macrodidyma*, *D. novozelandica*, *D. pauciseptata* and *D. anthuriicola*, however, these pathogens did not cause significant stunting in cv. Reed seedlings (Figure 5). The other fungal isolates tested, *Cylindrocladiella pseudoinfestans*, *G. peggii* and isolates of *Ilyonectria* sp., were not pathogenic, even though they were originally isolated from symptomatic roots.

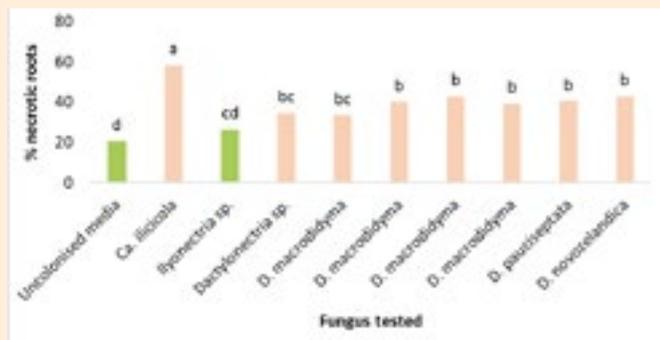


Figure 5 – Percentage of necrotic roots in cv. Reed seedlings inoculated with *Dactylonectria* species, *Calonectria ilicicola* and *Ilyonectria* sp. isolated from avocado, compared to seedlings growing in uncolonised media. Bars containing the same letter/s as other bars represent statistical similarity.

AgriHort
SOLUTIONS

Advanced Nutrition & Irrigation Techniques - Australia Wide

Shane Singh - 0428 674 655

Black root rot of avocado continued

How to manage black root rot

So far, we know that black root rot is typically a problem in young trees (nursery trees and young orchard transplants) and we believe that mature, established orchard trees are able to overcome root infection from nectriaceous fungi. However, there are preventative measures which nursery operators and growers can undertake to reduce the risk of tree deaths from black root rot.

Tips for the nursery:

- pasteurise potting mix
- maintain high nursery hygiene, always use clean planting material, sanitise seed, budwood, grafting tools etc
- have adequate space between plants in the nursery and keep plants off the ground
- don't over irrigate
- remove diseased or sick-looking plants from the nursery, and don't keep old nursery stock.

Tips for the orchard:

- choose planting site carefully, and do not plant in ground where peanuts have previously been affected by *Cylindrocladium* black rot (CBR), or where custard apples or papaya have had crown and/or soil disease problems

- source plants from accredited nurseries
- don't over irrigate or over fertilise
- take extreme care during planting and post-planting establishment
- if possible, off-set replants by 30-50cm from the site where a young tree had died due to suspected black root rot
- watch the *How to plant an avocado tree* video (link available from the Best Practice Resource – www.avocado.org.au/best-practice-resource/)

Further research

Research is well underway into the development of a rapid molecular diagnostic tool for the detection of black root rot pathogens, *Colonectria ilicicola* and *Dactylonectria macrodidyma*, in avocado root tissue. Incorporating the rapid diagnostic test into plant pathology services will be useful to the avocado industry, but also to the nursery and peanut industries.

There were some isolates identified which were not included for glasshouse seedling testing, for example, *Mariannaea humicola*, and this should be undertaken to confirm their pathogenicity status. Several isolates are likely to be new species, and these need to be formally described.

Work is currently being undertaken to identify integrated disease management methods to manage black root rot.

SPREADCO AUSTRALIA

L40 SPREADER \$19500 + GST

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

HERE NOW! ELECTROSTATIC SPRAYERS

HAVE YOU TICKED ALL THE BOXES?

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

VINEYARDS & ORCHARDS

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

litano
 'ITALIAN QUALITY'

Acknowledgement

Investigating tree mortality during early field establishment (AV14012) has been funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government.

Plant pathology colleagues Peter Trevorrow (DAF Mareeba), Andrew Manners (DAF GrowHelp, Brisbane), Len Tesoriero and Rose Daniel (DPI NSW) provided isolates of fungi. Nursery and orchard owners and operators are thanked for allowing us to collect samples, and these people and businesses will remain anonymous.

In September Louisa Parkinson was awarded her PhD. Louisa commenced in October 2013, and was supported by a scholarship for her living expenses from the Australian Government. Project AV14012 provided significant funding and resources for her research as well as a small "top up" to her scholarship. Congratulations Dr Parkinson!

References

- Dann, E., 2015. Investigating black root rot in avocado: A new research project, *Talking Avocados*, 26(3):30-31
- Parkinson, L. E., Shivas R. G., Dann, E. K. 2017a. Pathogenicity of necrotrophic fungi on avocado in Australia, *Phytopathology*, in press. <http://dx.doi.org/10.1094/PHYTO-03-17-0084-R>
- Parkinson, L. E., Shivas R. G., Dann, E. K. 2017b. Novel species of *Gliocladiopsis* (*Nectriaceae*, *Hypocreales*, *Ascomycota*) from avocado roots (*Persea americana*) in Australia, *Mycoscience*, 58:95-102.



SIDEWINDER TREE INJECTORS

Have moved again

Mobile 0409 545 549
Address PO Box 1111
 Noosaville Qld 4566
sales@treeinjectors.com
www.treeinjectors.com

Northern avocado flower trends

*Geoff Dickinson, Pat O'Farrell and Simon Newett,
Queensland Department of Agriculture
and Fisheries*

Flowering timing, biology and the effects of climatic conditions have been monitored at more than 10 North Queensland sites during the past three seasons, including Shepard, Hass, Turner Hass and Maluma varieties.

These activities have been conducted under the Hort Innovation project *Achieving more consistent yields of quality fruit in the Australian avocado industry* (AV14000) by the Queensland Department of Agriculture and Fisheries (DAF).

Once this season's data has been compiled, flowering trends and the impacts of temperature and seasonal variability in North Queensland during the past three years will be summarised and presented to the avocado industry.

Pat O'Farrell, Senior Horticulture Experimentalist at DAF Mareeba, said Shepard and Hass had both flowered heavily at our main monitoring sites this year.

"This season the Shepard flowering was a single major peak, unlike 2015 and 2016 which featured multiple peaks over a longer period. In all three seasons Hass has exhibited only the one major peak, which occurred over a shorter period," he said.

This season the timing of the Shepard peak was consistent at Mareeba, Walkamin and Tolga (mid-August), about one to two weeks earlier than peak Hass flowering at these sites.

"In general, flowering of both varieties this year appears to be a couple of weeks later than last year, with considerable flowering overlap occurring between both varieties at these sites," Mr O'Farrell said.

"Small fruitlets have developed on both varieties at all sites, however, it is still too early to judge how much of this will progress through to maturity."

Project results from the first two monitoring seasons have been presented to attendees at the North Queensland avocado industry at workshops in 2016 and 2017. (You can read more about the Avocado Study Group Workshops on Pages 18 and 19.)

Valuable data has been collected on the key roles that variety and climate have for influencing variability of avocado crop yields, and this will facilitate better management of insect pollinators and the use of 'polliniser' avocado varieties to improve productivity.

Acknowledgement

The *Achieving more consistent yields of quality fruit in the Australian avocado industry* (AV14000) project is a strategic levy investment under the Hort Innovation Avocado Fund. The project is funded by Hort Innovation using the avocado industry research and development levy, co-investment from the Queensland Department of Agriculture and Fisheries (DAF), and contributions from the Australian Government.

More information

Geoff Dickinson (geoff.dickinson@daf.qld.gov.au) or Simon Newett (simon.newett@daf.qld.gov.au)



Pat O'Farrell found Shepard and Hass have both flowered heavily at North Queensland monitoring sites this year.



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 Airds 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

Snapshots

International Avocado Research Update

This series of research snapshots is compiled from abstracts of published scientific papers accessed through CAB Direct and AGRIS (FAO, UN) databases as well as Google Scholar searches. Dates provided reflect the date research was published.

Production

Modelling pre-harvest conditions and their impact on post-harvest quality

Chile (2017): The objective of this work was the development of a model to predict the post-harvest life of the fruit as the response to specific climate and agricultural practices (irrigation and nutrition). For three years (2010-2012) pre-harvest factors were characterised for 42 sites and the consequential post-harvest performance of fruit storability (25, 35 and 45 days at 4-5°C) was evaluated. It was shown that the post-harvest condition of the fruit was affected by Ca and N in the pulp, spring irrigation, and oil content of the fruit and water deficit above 40 percent of irrigation requirements affected the shelf-life of the fruit.

Inoculation of avocado plantlets with fungi found to improve plant performance

Columbia (2017): This study evaluated the individual and combined effects of treatment with the phosphate solubilising fungus *Mortierella* sp. and the arbuscular mycorrhizal fungus *Rhizoglyphus fasciculatum* on the plant growth and phosphate uptake on plantlets of Hass avocado grown in a nursery. The results showed that where plants were inoculated with both fungi the plant height, shoot dry mass, and shoot phosphate uptake were significantly higher than in plants inoculated with either fungus individually, or in the uninoculated control plants.

Measurement of avocado sunblotch viroid in Mexico

Mexico (2017): Seventy Mexican race avocado trees, *Persea americana* var. *drymifolia*, located in two different states and 35 Hass avocado trees from the state of Michoacán were sampled and analysed to detect the avocado sunblotch viroid (ASBVd) by RT-PCR and Dot-Blot hybridisation. Additionally, statistics from 1999 to 2015 of land area planted with avocado in México were analysed and the species distribution model Maxent applied. This modelling covered 88 percent (149,294 ha) of avocado cultivated in México and considered risk indicators to the dispersion and establishment of ASBVd. The results indicated that the 70 Mexican race avocado trees from the different states were free of the ASBVd, but 14 percent incidence of plants infected with ASBVd was detected by RT-PCR and 8 percent by Dot-Blot hybridization in Hass avocado trees from Michoacán.

Modelling of Mexican regulated pests

Mexico (2017): Mexican avocado producers face phytosanitary barriers that limit the ability to ship avocados to foreign markets. The principal regulated pests are the big avocado seed weevil, two small avocado seed weevils, the branch borer weevil and the avocado seed moth. This study was conducted to determine the potential distribution of these five insect pests in Mexican avocado-growing areas. Distributional data of these insects were obtained from scientific literature, databases, and field collection, and incorporated into the Maxent model using 19 global climatic variables and elevation data. Distributional models for Mexico, and geographic interaction with avocado-growing areas of the country, were calculated. These data provide the opportunity to support the development of management strategies throughout the country, and to help focus surveys and control tactics.

New Zealand (Bay of Plenty) avocado pollination dominated by honey bees

NZ (2017): In New Zealand, there has been little research into which insect species visit avocado flowers. Research undertaken in the Bay of Plenty showed that honey bees were the dominant flower visitors in the four orchards surveyed, representing 92.9 percent of all insects recorded, but there was high variation in numbers among sites. Other common insects observed included the beetle, *Zorion guttigerum* (3.4 percent), and bumblebees *Bombus* spp. (1.6 percent). A better understanding of the interaction between honey bee stocking rates and flower visitor abundances within orchards could assist in improving pollination recommendations.

Postharvest

Edible nanoparticles showing promise in reducing effect of anthracnose

Mexico (2017): In this study, nanostructured edible coatings based on chitosan nanoparticles (CSNPs) and chitosan-thyme essential oil nanoparticles (CSTEO-NPs) were evaluated on in vitro growth of anthracnose (*Colletotrichum gloeosporioides*) and on inoculated Hass avocado fruit, to evaluate their fungicidal activity and the effect on fruit quality. There was a synergistic effect between the chitosan and thyme essential oil. In the in vitro evaluation, the incorporation of the essential oil to CSNPs improved the control of anthracnose. The coating formulation with the added thyme essential oil reduced the incidence of anthracnose on avocado fruit by up to 60 percent. Additionally, at the end of an eight-day storage period, CSTEO-NPs incorporation into the coating did not affect the quality of avocado; moreover, fruit firmness was better maintained than untreated fruit.

New edible postharvest treatment to suppress disease and prolong shelf life

South Africa (2017): This study investigated the potential of edible carboxyl methylcellulose (CMC) containing moringa leaf and seed extracts* as a novel post-harvest treatment for maintaining storage quality and controlling diseases in Hass and Gem avocado fruit. The findings demonstrated that CMC containing moringa extract suppresses diseases, prolongs the shelf-life and maintains the overall quality of avocados during the postharvest supply chain. The CMC blended with moringa extracts could potentially be commercialised as a new organic edible coating for avocado fruit industry. *Moringa is a fast-growing deciduous tree grown for its fruit and leaves. It is native to north west India.

Product

Properties of avocado oil vary depending on country of origin

Malaysia (2017): This study compared the physicochemical properties of Hass avocado oil from different geographical locations (Mexico, Australia, United States and New Zealand). Among Hass avocados of different origins examined, avocado oil of New Zealand origin was the lightest in colour and contained more natural pigments and unsaturated compounds than fruit from other countries.

Health

Avocados potential role in managing food intake

US (2017): Avocado fruit contains a unique combination of monounsaturated fat and dietary fibres. Previous studies have tested the effects of fat or fibre on satiety/appetite control; however, data are limited on the interaction of fat and fibre to enhance satiety. The aim of the study was to characterise the effect of avocados on indicators of satiety. It indicated that increasing the fat and fibre content of a breakfast meal with avocados compared to an iso-energetic low fat meal increased feelings of fullness and reduced the amount of food subjects wanted to eat over six hours. It suggests that avocados may have an important role in helping individuals manage the amount they want to eat between meals and possibly at the next meal.

More information

If you would like more details on any of the snapshots, please contact Jenny Margetts, P2P Business Solutions, at jmargetts@bigpond.com or 0418 215 276.

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

Research and Development

See your levy at work in the new HORTLINK!

Don't miss the latest edition of Hort Innovation's Hortlink, which provides an update on all new, current and recently completed levy-funded activity in each levy industry. Check out the avocado section at www.horticulture.com.au/hortlink-2017-edition-3/avocado.

Hortlink includes easy-to-read project updates, results and resources you can use in your business, plus case studies, industry contacts and more. You can choose to browse the whole avocado snapshot or use the interactive project list to

jump straight to the information you want. Also look out for new the 'ACT NOW' tags to easily identify project resources and information you can make use of straight away.

Stay in the loop with your levy by becoming a member of Hort Innovation, the grower-owned, not-for-profit research and development corporation for Australian horticulture. Paying a levy doesn't automatically make you a member, but signing up is free at www.horticulture.com.au/membership.



ADVANCE

PACKING & MARKETING SERVICES
'Working to your advantage'

We have 50 years of combined packing & marketing knowledge

State of the art facilities, located in the Southwest of Western Australia

Creative, new & innovative marketing programs - we work with our customers to deliver the best products

We're always working harder for growers to get the best ROI

Very competitive rates!

We have both Woolworths & Coles Vendor numbers

An established pre-pack line, under the Gotta Luv Em brand. Pre-packing facilities available

Avocado Export Company (AEC) has an established export markets to Singapore, United Arab Emirates, Malaysia and Indonesia

Contact us!

Jennie Franceschi +61 417 988 246
Wayne Franceschi +61 427 988 246
Joshua Franceschi +61 409 680 670
Sophie Cremasco +61 431 273 876
Email: info@westfresh.net.au
www.westfresh.net.au



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 Aerial 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

Grab the chance for a free workplace relations review

By Jane Muller, Growcom Policy and Projects Officer

With the treatment of farm workers in the national media spotlight and recent changes to Fair Work laws focused on protecting vulnerable employees, now is the time to make sure your employment practices are up to scratch.

Maximum penalties for record-keeping and pay slip breaches have been doubled and the Fair Work Ombudsman's evidence-gathering powers have been significantly increased.

The workplace relations module in Growcom's Hort360 program takes growers step-by-step through a comprehensive review of their employment practices to identify any adjustments that need to be made in the business to meet all legal requirements under the Fair Work Act and the National Employment Standards.

Through the Fair Farms Initiative, growers can access a free session with the Growcom team to work through the Hort360 workplace relations module. Once complete, the business receives a detailed report outlining any identified risks or areas of non-compliance and specific actions to take to resolve them.

Up to 12 businesses can register for a farm visit before the end of December.

So, seize the moment! If you have any concerns about your employment procedures and record-keeping systems, email annabel.hutch@growcom.com.au or phone 07 3620 3844 to register your interest in a fully subsidised Hort360 workplace relations review.

Freshcare Fair Employment certification

Fair Farms Initiative partner, Freshcare, is currently finalising a new standard for fair employment based on Growcom's Hort360 workplace relations module.

The process for training, auditing and certification will be trialled with at least four production horticulture businesses during the coming months. The new certification option will be available to industry members by mid-2018.

The Freshcare Fair Employment certification will enable industry to negotiate with retailers and large food services companies sound alternatives to SEDEX and SMETA audits for smaller-scale suppliers.

Acknowledgement

The Fair Farms Initiative is supported by the Fair Work Ombudsman through the Community Engagement Grants Program.

More information

www.growcom.com.au/FairFarmsInitiative

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
ASNZ51418-10 2011.

FREEPHONE 1800 124 352

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

When low confidence can cost lives

Andrew Hobbs, Portner Press

A lack of confidence in first aid skills could mean the difference between life and death, a recent survey has found, with businesses urged to take another look at their training and first aid kits.

The nation-wide survey, conducted by St John Ambulance last month, found that while 78.5 percent of the more than 1000 people surveyed would be willing to give a colleague first aid, only 20.7 percent said they would be confident to do so. Of the people surveyed, 43.5 percent had never completed first aid training, with only around 10 percent undertaking it in the last 12 months.

Speaking with *Portner Press*, St John Ambulance Victoria spokesman John Kazanas said it was important that workplaces met their requirements for the right number of trained first aid personnel on site, as well as having an adequately stocked first-aid kit.

"Most workplaces have got a long way to go in terms of compliance level," he said.

"People are lacking the skills, because they haven't done the training, or they haven't done it recently enough... The essence of a first aider is someone who is very comfortable with first aid."

"Anyone can provide first aid within reason, but when it comes to having those lifesaving skills and actually doing a first aid course, we still have a long way to go."

Both St John Ambulance and Safe Work Australia recommend that first aiders refresh their knowledge of cardio-pulmonary resuscitation (CPR) annually and renew their first aid qualifications every three years. Some first aiders should also carry out additional first aid training to respond to specific situations at their workplace – for example, to respond to anaphylaxis where coworkers have severe allergies.

Avocado WHS resources

Preventing injury and keeping those people that work for you safe is important for your business.

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

Avocado Growing and Packing – A Practical Safety Guide – this provides practical safety information for avocado growers and packers and focuses on the main hazards and ways you can control risks

WHS Implementation checklist – this outlines the steps to implement WHS and Injury Management in your business.

WHS Policy and Plan – this document outlines all of the elements that need to be included in a sound WHS system. It is a downloadable template that when customised by the employer and developed in conjunction with workers, demonstrates your commitment to WHS.

These resources can all be found in the Best Practice Resource, in the WHS module: www.avocado.org.au/best-practice-resource/whs/.



Mr Kazanas said knowledge of how to stop bleeding, manage fractures and lacerations were all important first aid skills for people to learn in the workplace.

He was also seeing increasing awareness about the importance of having a defibrillator in the workplace to help treat victims of a sudden cardiac arrest. Defibrillators are used after the steps leading up to CPR, including calling 000 for assistance and checking the person's airway and breathing activity.

Mr Kazanas said that while they were not required by law in Australian workplaces, many companies saw the appeal of investing in one for the purposes of first aid. That said, further awareness training about their use was often needed.

"If something happened in your workplace right now, and you needed a defibrillator, would you know where one was? Because your chances of survival will reduce by 10 percent for every minute that passes," he said.



More information

This article was written by Andrew Hobbs, Business Editor at Portner Press, Australia. It was first published in the Health & Safety Bulletin ©2017 (www.healthandsafetyhandbook.com.au) and has been reproduced with the permission of Portner Press (www.portnerpress.com.au).

New export legislation in the works

Exporters in new and emerging industries and those in established ones may benefit from simplified agricultural export legislation, released for public consultation in August.

The feedback period closed on 24 October 2017. Avocados Australia CEO John Tyas attended an information session on the legislation in September.

Deputy Prime Minister and Minister for Agriculture and Water Resources, Barnaby Joyce, said while the existing legislation had worked well for 35 years, input to a review undertaken by the Australian Government showed there was scope for it to be modernised to enable exporters to seize future opportunities.

“The new export legislation will consolidate the existing web of regulation into a single Export Control Bill and supporting delegated legislation,” Mr Joyce said.

“We’re aiming to make the rules for exporting easier to understand, use and comply with, while maintaining the level of regulatory oversight expected by our trading partners.”

The amended legislation will be implemented around 1 April 2020, when much of the existing framework is due to expire.

Why are changes being made to the current legislation?

With many of the legislative instruments that give effect to the existing framework due to sunset (or cease to be law) on 1 April 2020, there is an opportunity to make improvements. A review held in 2015 found the current legislative framework has served exporters well for about 35 years. However, it is large and complex and made up of more than 17 Acts and more than 40 legislative instruments.

What are the changes?

The Exposure Draft Export Control Bill 2017 (draft Bill) will consolidate export-related provisions into one Act and one set of Rules – Export Control Rules (the Rules). The new legislative framework will be streamlined, easier to understand and use and more responsive to changes in market access requirements.

What are the benefits of change?

The improvements aim to help safeguard Australia’s reputation as a reliable, high-quality source of exports for our trading partners, which is likely to benefit Australians operating across the supply chain.

Benefits may include: support for exporters and farmers to innovate, providing them with the confidence to pursue export opportunities; providing swifter government responses to changes in market conditions; making the requirements easier to understand, administer and use; provide a broader range of compliance and enforcement powers that give a further level of assurance of the integrity of the export system.

What is the next step?

Consultation on the draft Bill will help determine if there are any changes necessary before its introduction into Parliament. Once the draft Bill has successfully passed through Parliament, it will be known as the Export Control Act.

More information

www.agriculture.gov.au/market-access-trade/export-regulation-review/consultation



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



ACCC urges Hort Code compliance

The Australian Competition and Consumer Commission is putting growers and traders in the horticulture industry on notice that they need to take steps to comply with the 2017 Horticulture Code of Conduct, or face penalties and fines.

Addressing the 2017 NSW Farmers Horticulture Forum in July, ACCC Commissioner Mick Keogh called on growers and traders to familiarise themselves with the Code and to ensure their businesses were compliant.

Since the revised Horticulture Code was introduced on 1 April 2017, the ACCC has worked with industry associations to educate growers and traders about their rights and obligations. The next stage of the ACCC's work in relation to the Code will be to begin compliance audits.

"Later this year the ACCC plans to use its investigative powers to check the industry's level of compliance with the Horticulture Code. If Code breaches are detected, the ACCC may take enforcement action," Mr Keogh said.

He said Courts could impose penalties of up to \$63,000 for serious breaches of certain sections of the Code. For other smaller breaches, the ACCC can issue infringement notices to the value of \$10,500 for body corporates and \$2,100 for individuals.

"The revised Code aims to address much of the commercial uncertainty that has existed for many years in these markets, and which numerous inquiries and reports have identified," Mr Keogh said.

"While the ACCC will continue to educate the industry about the revised Code, businesses are now on notice that ensuring compliance with industry codes, including the Horticulture Code, is a priority for the ACCC."

There is a 12-month transition period to allow the industry time to adapt their existing arrangements to the new Code. By 1 April 2018, all existing agreements between farmers and agents/wholesalers must be compliant with the new Code. However, any agreement made or renewed after 1 April 2017 must be compliant with the Code immediately.

The obligation to act in good faith, along with record keeping and dispute resolution obligations, will also apply immediately from 1 April 2017. The transition period does not apply to these sections of the Code.

More information

On the Avocados Australia website, there are two articles about how Horticulture Produce Agreements relate to growers (<https://goo.gl/m6Pcz9>) and traders (<https://goo.gl/Tlykub>). You can also visit www.accc.gov.au/business/industry-codes/horticulture-code-of-conduct.



Taking care of your marketing

Sunfresh

Leaders in innovative, future focussed R&D • Experienced, friendly and reliable customer service
 Grower owned Cooperative working for Growers • Dedicated direct exporter of Australian avocados
 Reputation for outstanding quality control • Modern packing facilities available • Consistent fees
www.sunfresh.com.au • sunfresh@sunfresh.com.au • +61 7 5446 3783

Investigating off-sized fruit – how big a problem?

By Garry Goucher, Garry Goucher & Associates and Sue Plunkett-Cole, Avocados Australia

The major supermarkets prefer to sell a medium sized avocado. Growers, on the other hand, deliver a wide range of avocado sizes. This presents challenges for the avocado industry but may also offer opportunities. The supply of off-sized fruit (larger than 20s and smaller than 28s), pricing and retailer reaction to different fruit sizes all impact on the profitability of the avocado category.

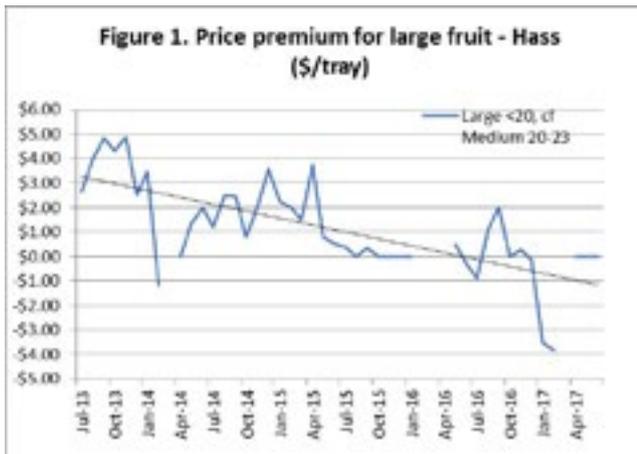


Figure 1 - shows the price premium in the Sydney wholesale market for large (size 20 and larger) avocados over the period from July 2013 to June 2017. Source: Ausmarket



Figure 2 - shows the price discount in the Sydney wholesale market for small (size 23 and smaller) avocados over the period from July 2013 to June 2017. Source: Ausmarket

The Avocado industry and market data capture and analysis project (AV16006) is in the process of examining the supply of small and large avocados in Australia, to understand the market dynamics around fruit size and the implications for future market opportunities. Unfortunately, there is limited data on wholesale prices for different sizes and we have had to use the only data available.




j-tech systems
Creating value around fresh produce

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



The initial results from this investigation are indicating that larger avocados no longer attract the same price premium at wholesale markets they achieved a few years ago, and equally, smaller fruit is no longer being discounted as heavily. See the trends identified in figures 1 and 2.

Figure 1 indicates that the price premium for large avocados of \$3-4 per tray that existed a few years ago has declined and large fruit now often attract a discount. Conversely, the discount for small fruit of \$6-7 per tray that existed a few years ago has declined to close to zero in 2016/17, as seen in Figure 2.

It is not yet clear what has driven the decline of price differentials for off-sized fruit over the past few years. It could be due to strong demand (in which case the differentials may return if the industry reaches a point where growth in supply of avocados exceeds the growth in demand). Alternatively, it could be that the prices reflect a retailer and/or consumer demand for smaller fruit. We will be looking further at the causes of the decline in price differentials, but we also want to have a good understanding of how much of this 'off-size' fruit will need a home and we will want to have identified well-priced market opportunities for this fruit.

Keep an eye out for further updates to this investigation in future editions of Talking Avocados. These and other analysis are made possible through the various data sets that are captured through project AV16006.

Acknowledgement

This is part of the strategic levy investment project Avocado industry market data capture and analysis (AV16006), part of the Hort Innovation Avocado Fund. It is funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government.



GROWING AVOCADOS?

Protect from winter chill.







AUSTRALIAN
frost fans

Ben: +61 4 4811 1384
Office: 1800 797 629
info@aussiefrostfans.com.au

www.aussiefrostfans.com.au

News from Around the World

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

China FVF in November

2017 China International Fruit and Vegetable Fair (ChinaFVF) will be held in the China National Convention Center in Beijing on November 3-5. Avocados Australia will be represented at the event, as part of the Hort Innovation presence. For more information, <http://en.chinafvf.com/>.

Avocado Summit 2018

Planning is underway to hold an international Avocado Summit 2018, in Guadalajara, Jalisco, Mexico on 15 February 2018. The event will feature lectures, commercial relations meetings, panels, discussion tables and workshops on the agricultural, industrial and commercial sectors of the avocado. For more information, visit www.avocadosummit.com.

International expert on optimising avocado yields

Techniques to optimise yield and quality in avocados were demonstrated in recent addresses to Australian growers by Israeli scientist, Dr Avner Silber.

Dr Silber was invited to Australia by irrigation company Netafim and nutrition company Haifa, and addressed growers in Kilcoy, Childers and Mareeba in Queensland and Renmark in South Australia.

He has conducted trials across multiple years to determine the true optimisation of the avocado by comparing a variety of different irrigation and fertiliser treatments. The trials were conducted by transplanting fully grown avocado trees into large pots and then measuring water and nutrient uptake.

“We have the water uptake measured daily so we can apply to the soil grown trees,” Dr Silber said.

“We learned the most sensitive period for avocado growth is before flowering. If you have any nutrient stress or water stress it will have a major effect on yield.”

He said fruit growth was another critical period and a lack of carbohydrates at this time also led to lower fruit yield.



TOTAL GROWER SERVICES
Specialists in Plant and Soil Health

Lifting Productivity in Avocados with Advanced Nutrition Methods and Excellence in Integrated Pest and Crop Management

INDEPENDENT ADVICE

- ✔ Reliable, local and committed providing long-term support.
- ✔ Highly experienced in biological and mineral balancing.
- ✔ Working with large scale producers nationally, across diverse systems.

Agronomy Services for Growers

- ✔ Advanced Nutrition Programs
- ✔ Soil Testing and Soil Health Expertise
- ✔ Leaf Tissue Testing
- ✔ Soil Moisture Monitoring
- ✔ Pest Monitoring Beneficial Insects and Integrated Pest Management



Soil health expertise brings productivity gains across diverse systems.

Tablelands Region

Roop Sandhu — 0448 020 932
Nathan Pianeda — 0458 346 421

Burnett Region

Anthony Dove — 0474 124 117
Eddy Dunn — 0475 735 731



Dr Avner Silber discussing research into optimising avocado yields with Costa staff at Renmark in South Australia

A key was to ensure the avocado plant received the right amount of irrigation and nutrients at the different stages of its development.

"You need to provide all the nutrients the plant needs: nitrogen, potassium, phosphorous and micronutrients such as zinc, iron, manganese and boron are very important," Dr Silber said.

He said in Israel elements such as calcium and magnesium were available in the local water but this was not necessarily the case in Australia.

"If you don't have it, I believe you need to add it because they are required for the plant. The requirement of a nutrient is not constant during the growth period," Dr Silber said.

He said different nutrients were required at different times. For example, Dr Silber said potassium was mainly needed during the second period of fruit growth.

Dr Silber said he believed the most efficient way to deliver nutrients to the crop was through drip irrigation.

Drip irrigation also provided the opportunity to deliver nutrients to the plant at times where large amounts of irrigation water were not needed or desired.

"Mistakes made in the winter time cannot be made up during the year," Dr Silber said.

"The root system of the avocado is being developed in early spring," Dr Silber said. "Understanding the phenology process of avocado is necessary for an optimum fertigation regime."

Dr Silber said humans and plants needed continuous nutrition and irrigation.

Netafim Queensland Manager Jeremy Evans said avocados were a growth crop in the state and Dr Silber's visit was a good opportunity for new and existing growers to look at ways to optimise fruit yield and quality.

"Every time you irrigate there should be some fertiliser included," he said. "There is an opportunity to target elements to different crop stages."



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

Avocado husk potential

The least appreciated part of an avocado could soon undergo a trash-to-treasure transformation. In a first-of-its-kind study, scientists report that avocado seed husks, which are usually discarded along with the seed, are hidden gold mines packed with a previously unrecognised plethora of chemical compounds.

The researchers, reporting at a national meeting of the American Chemical Society in August, say these compounds could eventually be used to treat a host of debilitating diseases, as well as to enhance the allure of cosmetics, perfumes and other consumer goods.

“It could very well be that avocado seed husks, which most people consider as the waste of wastes, are actually the gem of gems because the medicinal compounds within them could eventually be used to treat cancer, heart disease and other conditions,” Debasish Bandyopadhyay, PhD, said.

“Our results also suggest that the seed husks are a potential source of chemicals used in plastics and other industrial products.”

In all, nearly five million tons of avocados are produced worldwide annually. In most cases, the “meat,” or flesh, is eaten and the seed is tossed. Some edible oil manufacturers extract avocado oil from the seeds, but they remove the husk surrounding the seed and discard it before processing. Bandyopadhyay and his students Valerie Cano, Orlando Castillo, Daniel Villicana and Thomas Eubanks at the University of Texas Rio Grande Valley sought to find out more about what manufacturers are really throwing away when they discard these seed husks.

The researchers ground about 300 dried avocado seed husks into 21 ounces of powder. After additional processing, the powder yielded about three teaspoons of seed husk oil and slightly more than an ounce of seed husk wax. Using gas chromatography-mass spectrometry analysis, the research team found 116 compounds in the oil and 16 in the wax. Many of these compounds do not appear to be found in the seeds themselves.

Among the constituents in the oil was behenyl alcohol (also known as docosanol), an important ingredient used in anti-viral medications; heptacosane, which might inhibit the growth of tumor cells; and dodecanoic acid, which increases high density lipoprotein (known as HDL) and, as a result, could reduce the risk of atherosclerosis.

In the wax, the researchers detected benzyl butyl phthalate, a plasticiser used to promote flexibility in numerous synthetic products from shower





Image from the ACS

curtains to medical devices; bis(2-butoxyethyl) phthalate, which is used in cosmetics; and butylated hydroxytoluene (BHT), which is a food additive.

Moving forward, Bandyopadhyay says his team will modify several of these natural compounds so that they can be used to create better medications with fewer side effects.

Acknowledgement

Bandyopadhyay acknowledges funding from the Center of Excellence in STEM Education (College of Sciences) at The University of Texas Rio Grande Valley. The American Chemical Society, the world's largest scientific society, is a not-for-profit organisation chartered by the US Congress. ACS does not conduct research, but publishes and publicises peer-reviewed scientific studies.

**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?

Meet increased demand from the roots up!

Avocado is the fruit of the moment and in high demand. Meet that demand by improving yields and gross returns* using Seasol® Commercial Seaweed Concentrate.



International research has demonstrated seaweed extracts contain major and minor nutrients, amino acids, vitamins, cytokinins, auxin and abscisic acid-like growth promoting substances, reported to stimulate the growth and yield of plants, develop tolerance to environment stress, and increase nutrient uptake from soil.

The beneficial effect of seaweed extract application is said to result from many components working synergistically at different concentrations. Extracts derived from seaweeds are also biodegradable, non-toxic, non-polluting and non-hazardous to humans, animals and birds.

Seasol is already a long established category leader in the nursery and garden sector; commercial fruit and vegetable growers are now seeing its potential in their industries.

TALK TO YOUR SEASOL REPRESENTATIVE TODAY!



**Scientifically structured preliminary trial in Shepard avocados, Mareeba, Queensland, Australia. Results on file: Following seven monthly applications at 10 L/ha, Seasol treated avocado trees, yielded > 50% more fruit by weight, and > 40% more dollars gross return per hectare, compared with the untreated Control.*