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Talking Avocados

DATA DRIVEN CULTURE
FOR EXPORT

HOW OUR GREEN GOLD
IS PERFORMING

EXPORTING TO JAPAN

Talking Avocados

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Avocados Australia Limited ABN 87 105 853 807

Unit 13, Level 1, Fresh Centre, 385 Sherwood Road, Rocklea, Q 4106
PO Box 134, Brisbane Market Q 4106

Ph: +61 7 3846 6566 | **Email:** admin2@avocado.org.au | **Web:** www.avocado.org.au

Chief Executive Officer

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

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

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

Brad Rodgers
Western Australia
0412 912 764
b.rodgers@avocado.org.au

Editor in Chief

John Tyas

Managing Editor

Anna Petrou
Email: TalkingAvocados@avocado.org.au
Ph: +61 7 3846 6566
PO Box 134, Brisbane Market Q 4106

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Avocados Australia Limited
PO Box 134, Brisbane Market Q 4106
Email: TalkingAvocados@avocado.org.au
Ph: +61 7 3846 6566

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Email: production@effigy.com.au
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COVER IMAGE: At the North Queensland Regional Forum John Quadrio, from Rock Ridge Farming's Yungaburra Orchard, spoke about his approaches in the orchard.

CHAIR'S PERSPECTIVE

Jim Kochi, Avocados Australia Limited



Wow, what a year to forget! After the Covid -19 panic of 2020 and the immediate shutdown of the food service sector saw avocado sales languishing but we still managed to make it through the year with reasonable returns. However the continuation of disruption to markets and the added pressure of a record crop from North Queensland saw returns plummet to levels not seen for over 20 years. It is, as it has always been, a relationship between supply and demand. In this case it was definitely over supply.

One positive out of this season is from a recent Australian Avocados marketing update that stated that the recent marketing programme reached 17.6 million Aussies. This marketing effort drove 75,572 users to the Australian Avocados website. The campaign reached an audience of 25-54-year-olds and

the radio campaign reached 3.2 million metro grocery buyers, 9 times on average.

Our marketing activities and the low retail prices have attracted many new buyers who previously thought avocado was out of their price range. These new consumers come from the lower socioeconomic areas and are now as engaged as are our regular avocado lovers. Also, most of the increase in consumption from all consumer groups was for home use because the food service outlets were all disrupted or closed in the major metropolitan cities for most of 2020 and 2021.

This is an opportunity for our industry that must be developed and supported. We need to do everything we can to encourage these new consumers to continue with their first experience with avocado and that places a very heavy

responsibility on us, the growers, and the whole supply chain to provide the market with the best quality fruit we can. There is only one way out of the trauma of increasing production and that is to have more people buying and eating avocados regularly. We have attracted a whole lot of new customers and kept the regular users so now we need to make sure we keep them as loyal consumers. This we can do by ensuring we deliver quality fruit every time at point of retail. We know this because all those avocados that North Queensland and Central Queensland sent to market went somewhere and that was mostly into someone's mouth.

Our focus has to be on quality for the consumer to stay loyal to our avocado, and especially so, to keep our new consumers engaged for the 2022 season.



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CEO'S REPORT

John Tyas, Avocados Australia Limited



A phrase I regularly hear myself and others saying at the moment is 'what a year it has been so far'. With a massive increase in supply, two of our major markets in Covid lock down, export freight constraints and labour shortages, it doesn't get much tougher. Here at Avocados Australia we are doing everything we can to support the industry through this and I am confident that the industry will get through this difficult period and be stronger as a result. We need to keep looking ahead.

As you may be aware, Hort Innovation is developing a new Strategic Investment Plan that will guide the levy investment over the next five years. The levy is the primary mechanism for the industry to collectively fund R&D and marketing programs to support the industry's development. It is a sizeable investment, and it is essential that this plan is well targeted to address the challenges and opportunities ahead. As part of this planning process, I have provided my perspective to Hort Innovation on the key issues that I believe this plan must address. I thought it would be worth sharing this more broadly at this point, so I have included it here for you all.

Supply

Australia's wide distribution of avocado growing areas across various climates provides an opportunity to supply avocados 12 months of the year. The period which has traditionally been the lightest supply period is January and February.

The industry is expected to continue to grow at a rapid rate over the next five years based on the area planted across the nation. About half of all plantings are yet to come into full production with large increases in supply expected in North Queensland, Central Queensland and Western Australia. See figure 1 from the 2020 OrchardInfo

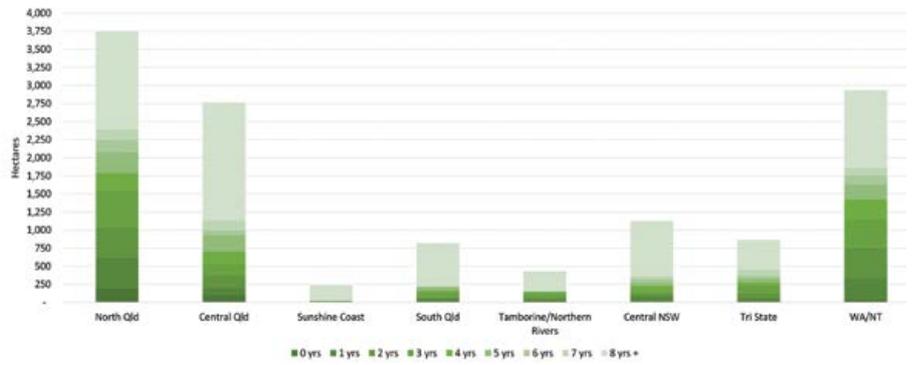


Figure 1. Australian hectares of avocado plantings by maturity at 1/8/2020

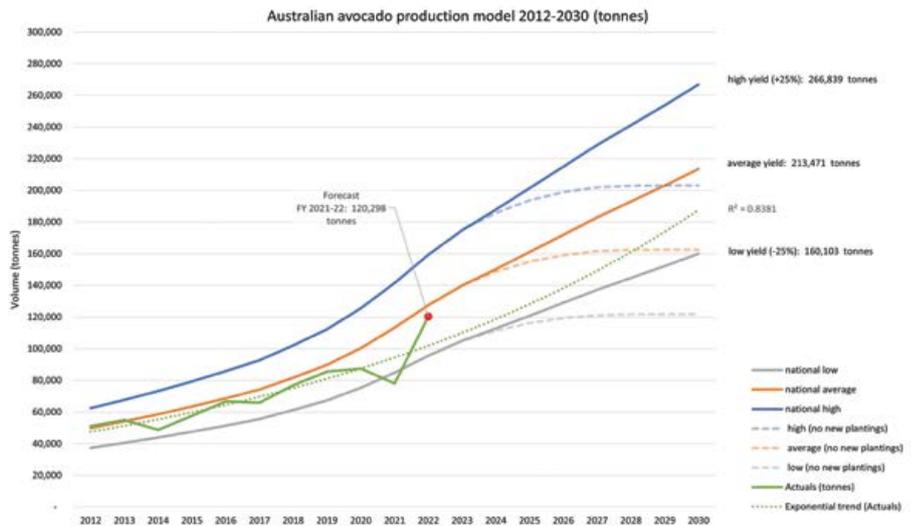


Figure 2. Forecast production to 2026 compared with average actual production to 2021.

report (Avocados Australia Limited, 2020).

Plantings have increased significantly over the past five years. Based on the Avocados Australia Tree Census data, in 2016, the area of the national crop was about 8,000ha. In 2020, this had increased to about 13,000ha. Recent mapping undertaken by UNE shows (in 2021) that about 16,000ha of avocados are planted in Australia (data yet to be fully validated). Based on the area of current plantings and average yields, we have updated our long-term forecast model which shows production is

forecast to increase to around 170,000t by 2026. No doubt there will be fluctuations from year to year due to seasonal conditions.

Further modelling shows that this increased supply is likely to be marketed across the year as shown in Figure 3.

Figure 3 shows the expected monthly supply by region in 2026 (bars) compared with the actual average supply in 2019 and 2020. This modelling shows that there will be periods of very high supply with peak supply expected in Autumn, an average of around 800,000 trays per week.

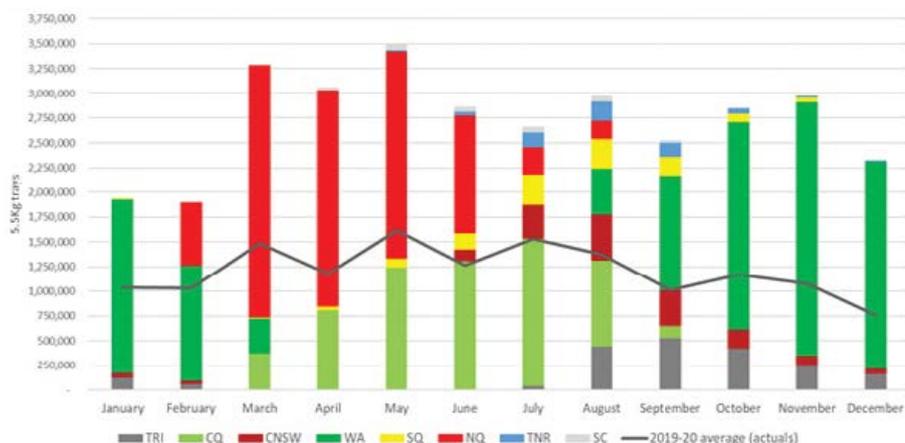


Figure 3. Forecast monthly flow of dispatch in 2026 compared with the actual average for 2019 and 2020.

Autumn and winter months are periods when domestic demand tends to soften in line with cooler conditions in the main Australian domestic markets.

Imports

NZ has long had access to the Australian market and has played an important role in the growth of the avocado market in Australia, extending the supply across all 12 months. Chile gained access to Australia in 2020 and supplied 450,000 trays to supplement the short Australian supply in that year. It is possible that competition in the Australian market will increase in the future as other countries (such as Mexico and Peru) seek market access to Australia. The future role of imports will depend on Australia's ability to compete. This includes its ability to provide reliable supply of high quality fruit at sustainable prices, year on year.

Varieties

While Hass remains the dominant variety, Shepard makes up about 18% (by area) of all plantings and is concentrated in Queensland. Shepard is the dominant variety supplied from February to April. Other varieties are grown in relatively small plantings but more recently new varieties have been introduced and expanded their footprint such as Maluma, Gem and GMax. However, varieties other than Hass and Shepard still only make up about 7% of all plantings. Different varieties require different

management practices throughout the supply chain from growing through to retail handling. Whilst different varieties can have benefits for growers and the market, they also bring their own challenges and these need to be understood and carefully considered.

Productivity

Productivity (or production efficiency) is simply defined as the ratio of output per inputs. Yields vary considerably across Australia and between businesses. A benchmarking study AV13003 determined national average productivity over a four-year period to be 8.2t/Ha. This study also determined that productivity is a key driver of profitability. The sustainability of the Australian avocado industry will require ongoing improvements in productivity. This is particularly important as the industry becomes a more active participant in the global market. Whilst Australia is inherently a high-cost producer, investments must continue to increase productivity, thereby reducing unit cost of production.

From an agronomic perspective, productivity and quality often go hand in hand and need to be considered together. Any intervention that increases yield per hectare may positively or negatively impact on quality and vice versa.

Due to the wide range of growing conditions, management practices

need to be tailored to the specific requirements of each region.

Increased production efficiency can also be achieved by reducing inputs per volume of production. Labour is the largest single input in avocado production and labour efficiency is therefore an obvious target to achieve improved efficiencies.

Demand

Over the next five years, it is estimated that the industry will need to grow both domestic and export markets to consume an additional 90,000t, more than double the production volume in 2021. This level of increase will require substantial growth in both domestic and export markets.

The aim is to grow export markets to 20,000t (a five-fold increase) and the domestic market to 150,000t (a 45% increase in per capita consumption to 5.8kg, assuming NZ imports reduce to negligible levels in five years' time). If NZ imports remain at around 15,000t, domestic consumption will need to increase almost 60% to 6.3kg.

Within each segment (domestic and export), strategies need to be developed to fully exploit the opportunities.

Fruit quality (including internal defects, maturity and ripeness) continues to be a significant barrier to purchase. Work needs to continue to ensure consumers can reliably purchase avocados that meet their quality expectations. This will require ongoing improvements throughout the supply chain from paddock to point of sale.

Domestic

In order to fully exploit the domestic market opportunities, marketing investments need to be regularly informed by high quality consumer insights. Broader market research is also needed to explore opportunities within market segments such as food service, which is estimated to be about 20% of the domestic market. The majority of Australian avocados will continue to be sold at retail, particularly through major retail chains. Therefore,



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collaboration with retailers to drive increased retail sales in store will be paramount.

Export

Given the need to increase exports by 400% over five years, export development needs to target large markets with the capacity to take volume at sustainable prices.

The larger markets that need to be targeted are phytosanitary protocol markets. Sustained efforts are required to continue to progress workable market access protocols based on robust data packages.

Most Australian avocado growers and exporters have no or limited experience in meeting the requirements of international market access protocols. Significant effort will need to be directed to helping businesses adopt market access protocols and incorporate the requirements as part of their business practices.

Due to the small amount of avocado exports to date (less than 5%) there are large sectors of the Australian avocado industry that have limited experience with exporting. This means there is a significant task ahead to increase the capability and capacity of the industry to participate in avocado exporting. Of note, one of the key differences is that export supply chains are much longer than typical domestic supply chains. By necessity, the industry will increasingly utilize sea freight for the majority of its exports as consignment volumes increase. The longer timeframes from harvest to retail shelf in export markets dictate that the fruit must be robust and cool chain management must be precise. A successful exporting program requires excellent quality management practices during growing, postharvest and throughout the entire supply chain.

Global competition in avocado markets is increasing. Based on the OECD-FAO Agricultural Outlook 2021-2030 report (<http://www.fao.org/3/cb5332en/Other.pdf>) global avocado production is expected to reach 12 Mt by 2030 – more than three times its level in 2010. However, the global avocado

market is also increasing at a rapid rate and “avocado is expected to be the most traded major tropical fruit by 2030, reaching 3.9Mt of exports and overtaking both pineapples and mangoes in quantity terms”. The global avocado market is expected to grow at a compound annual growth rate of 5.72% from 2020 to 2025 to reach a total market size of US\$17.905 billion by 2025, increasing from US\$12.824 billion in 2019 (source: <https://www.globenewswire.com/en/news-release/2020/12/02/2138112/28124/en/Global-Avocado-Market-Report-2020-Market-is-Forecast-to-Reach-US-17-905-Billion-by-2025-Increasing-from-US-12-824-Billion-in-2019.html>). The US and EU are expected to remain the top importers, accounting for 40 percent and 31 percent of world imports in 2030, respectively. This is good news for the Australian industry as our focus is primarily on Asian markets closer to home, although many of our global competitors can capably supply these markets as well.

If the Australian avocado industry is to be successful in export markets, it must identify markets with the greatest opportunity for Australian avocados, develop a strong point of difference, invest in marketing and promotion programs that capitalize on this, and deliver on the promise.

Extension and Capability

The success of the industry and its businesses depends largely on the capability of the people that work within it. The goal is that all sectors of the industry adopt best practice in all facets of management and that industry participants have the best quality information available to support good business decisions.

The industry is comprised of a diverse mix of people - some new to the industry, some long established, some with large businesses, some with small. The industry is comprised of various business types which all play an important role. Production is also spread across a wide range of climates from subtropical to temperate. Extension and communication

investments need to address the diverse needs of industry, to support the adoption of best practice and good business decisions for the benefit of all growers.

Business insights

Decisions informed by high quality information and analysis are likely to lead to better outcomes.

All investments to increase demand should be underpinned by robust consumer and market insights. A greater understanding of consumers and markets, enables more targeted and effective investments, providing a greater chance that the market growth targets will be achieved. Given the need to dramatically increase domestic and export markets over the next five years, the quality and frequency of the required insights justifies a substantial investment.

As the industry operates in a global market, it's imperative to understand the dynamics of the global industry and of global markets to identify opportunities and threats for the Australian industry, as they arise.

Good production information is essential to help with both short term and long-term planning at both an industry level and business level. Information about the industry plantings provides important insights to inform long term production forecasts and, therefore, strategies for industry and businesses. Regular monitoring and reporting of product supply volumes provides information to support a balance between supply and demand.

The Strategic Investment Plan will guide a significant investment in avocado R&D and marketing over a five year period (approximately \$40M in levies alone). The impact of the investment must be carefully monitored and evaluated in order to assess and communicate the benefit to levy payers and government.



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AROUND AUSTRALIA



TRISTATE

By Kym Thiel

At time of writing harvest and packing season is in full swing in the Tri-State. Fruit quality from both an eating and cosmetic point of view has been excellent which has helped to maintain high pack out's and give a lift to overall bin return's that are suffering due to

the low tray prices. The only thing in the back of my mind is that things could be worse, like they were in the dark months of May and June.

It may be a painful few months for those growers who have varieties other than Hass in their orchard mix. Varieties like the pollinators such as Fuerte, Ettinger and Edranol or more common mainstream varieties such as Gwen, Reed, Lamb Hass or the newbies Gem and Maluma. I predict a lot of pain. Some growers simply will not care and will still push these onto the market at below cost returns further adding to the already saturated market and glut of Avocados. If you do not have a home for them at a return which is viable to pick and pack then I strongly encourage you to think about what you do with this fruit.

Nobody likes to see fruit fall to the ground and be wasted, and this adds to other issues such as fruit fly management, but it may well be the case this year. I know this is unheard of in recent times compared to what has been achieved in the past few years.

On a more positive note, water issues for the short term are not an issue for growers in the Murray Darling basin as strong inflows have boosted storage levels higher than what they have been for years. For those that annually lease water this is one business cost that will be easier to bear this season.

At this stage it is too early to call what next year's crop/flowering may well be. Tree health is mixed with areas of salt damage showing up and this is leading to what is looking like a very mixed flowering. Some trees have simply cropped so heavy that they will struggle to back up, whilst others that have carried a more average crop are looking ok but this is the exception at the moment.



CENTRAL NEW SOUTH WALES

By Ian Tolson

What a challenging season. It would be nice to blame it all on COVID, but that would be unfair. Yes, the restrictions and lockdowns have severely hampered

sales of the lesser grade fruit, but the harsh reality is that the predicted increase in production has arrived and is probably here to stay. With the abundance of Australian fruit on offer it begs the question as to why imported fruit is sitting on shelves.

A glut of fruit opens the way for panic selling, not an ideal situation. Selling at a reduced price or accepting any price on offer, which shows a minimal return is the preference over disposing of fruit for no return.

Now more than ever, premium fruit with good shelf life is of utmost importance. Cosmetically 'premium' grade fruit will attract store buyers/managers and consumers, however even reasonably priced fruit (this year \$1 per piece) will not encourage repeat buying if, when it's ripe, has internal quality issues. Increasing consumption to keep up with this increased supply is paramount.

For some time now, a focus has been to encourage growers to produce premium grade fruit. Grower field days and the Best Practice Resource (BPR) are available to growers, both have valuable information to assist with orchard health and maintenance.

Previous years the returns on lesser grade fruit have been exceptionally good and obviously that fruit has been a very saleable commodity. However, those times are no longer with us and growers may have to reassess their orchard practices to remain sustainable.

The breakeven figure is another road each grower will need to travel down at some stage. If these prices are going to become the 'norm' then it will be survival of the fittest. Things to consider;

- the cost to grow, pick and freight to a packing facility an X/ Small piece of fruit which may be unsaleable versus a size 16 – 25 piece of fruit which, if a premium, will be within the saleable size range. When fruit is plentiful, the odd bunch and prepacks can suffer due to premium grade fruit's price point.

- Costs to produce premiums versus other grades which may be unsaleable. The dominant fact is premiums will be the best option for manageable returns.
- Tonnes per hectare

There is no room for wishfully thinking this year will be a 'one off' regarding prices and supply.

Less than ideal crop numbers across the region will also contribute to much lesser funds for growers this year, no oversupply from this region. Growers were not rushing to harvest, hoping for the market to clear, however this seemed unlikely and they are having to pick regardless. The region is in various stages of harvest. Some growers have finished whilst others are yet to start.

Some good news though, export demand remains strong.

From too much rain in March to now looking forward to some rain events, isn't that always the case, growers are never satisfied with the weather.

Flowering is well underway and of course growers will be watching the upcoming fruit set. A good time to revisit spray, fertiliser and irrigation programmes in preparation for the upcoming crop. All programmes should be aimed at producing the best possible product for consumers.

Volume and quality are the key ingredients for growers moving forward.



SUNSHINE COAST

By Robert Price

Weather conditions in the Sunshine Coast region have been dry. We had an okay season however there was some small fruit around. This type of fruit could be sold on the weekend market.

Conditions in some areas of our region were so dry that one organic grower in our area, who has no irrigation, had to pick fruit from his trees in order to save the trees.

Though I had no problem with picking labour this season the fact remains that for most growers sourcing labour is becoming a problem. The Government's primary and growing method for meeting agricultural workforce shortages are the existing Seasonal Worker Programme and Pacific Labour Scheme, and the new Australian Agriculture visa they say will build on these. That is good but it is not a long-term solution. It is therefore critical that our industry invests resources into investigating mechanization in orchards. Mechanical harvesting can bring down the cost of harvesting. Adapting



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our orchards to accommodate mechanical harvesting equipment would have long term advantages. I have seen research of this nature undertaken by other industries and I believe it is worth investing in this type of research in our own industry.



TAMBORINE AND NORTHERN RIVERS

By Tom Silver

The northern rivers Tamborine growing region harvest has wound up for the year. As previously discussed it has been a very tough and

disappointing crop in both price and for many quality, as orchards struggle to get over various environmental factors of drought, fire and flood. Prices were and continue to be hit hard by lock downs and the subsequent closure of hospitality that historically would buy up lower grade fruit, which has instead ended up in the retail market and further dragged down the price back to growers. The price point between premium and lower grade fruit has been stark this year and reinforces the importance of growing as much fruit that fits into the premium category in order for farms to be profitable.

After such a wet first half of the year, conditions have dried off, and though we've benefited from a fairly benign late winter and early spring, we all know how things can change if conditions get hot quickly! Flowering and early fruit set appears to be good at this early stage of the growing season. I've noticed in my orchard adult Fruit Spotting Bug already on the move in late September so it will be important for growers to be onto this.



WESTERN AUSTRALIA

By Brad Rodgers

Spring in Western Australia is like a misfiring V8. What Spring? Our wet winter has continued and flowed into September. Flowering has commenced north of Perth and coastal areas. It is delayed in the South-West though.

Early indications are flowering may be lighter than last year due to the heavy crop we've had this year. On the plus side the fruit crop looks of good quality and supermarkets will soon be stocking better quality fruit than we have seen over winter.

Harvest is flowing full steam in the north of Perth however this will be a drawn-out affair due to labour shortages. As a result, it may take up to a month longer to harvest compared

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to previous years. Many packers and growers have gone through the expense of flying in labour and paying for quarantining and accommodation. It has increased the cost of production to such an extent that many operations won't know if they have broken even until the end of the season.

As you go further south harvest is progressing strongly in the coastal areas. Manjimup and Pemberton are yet to get going at full steam.

Many growers are trying export this year however this has been very challenging due to logistical issues, sea freight issues and the premium expense of air freight not to mention Covid and its restrictions.

I wish all growers the best with this heavy season and the new growers who are bringing their first crops to market.



SOUTH QUEENSLAND

By Daryl Boardman

At the time of writing this article our harvest was finished. This year's harvest was good, yield wise, however finding labour for harvesting and packing was difficult. I know that the Government is currently progressing

the Agriculture Visa and that the primary and growing method for meeting agricultural workforce shortages are the existing Seasonal Worker Program and Pacific Labour Scheme. These schemes are costly once you factor in the cost of airfares, quarantining and accommodation. Despite this I know growers are looking at this for next season.

Our biggest challenge is that many of us are selling well below the cost of production. Pricing of fruit is the worst I've seen in my 20 years in this industry. We have lots of production and you get little for it. Avocado consumption is rising but it is at the cost of growers. According to the recent Marketing Report the "Our Green Gold" campaign has reached 17.6 million Australians. Let's hope we can continue to engage with these consumers and if we reach a more favorable price point let's hope we don't lose them. I think the "Our Green Gold" campaign has gone well. It's won awards and resonated with the public. It is working. We just need to build on it and change our messages going forward as things change and as needed.

We are selling fruit at a cheap price but at least it is "moving". Although we have had to make big changes at the packing sheds and fruit that once could be packed and sent to market now is not worth putting in a box. Some fruit was packed and returned a negative result as the market dropped so quickly before we could make the changes in the packing sheds.

I think the timing of the marketing campaign helped to keep the momentum going. I think Industry have done the best we can with the marketing and consumers have been eating a lot

of extra avocados. We had all seen the forecasts and I guess saw this coming, but never did we see the Covid forecast and the effect that it has had on the industry.

My feeling is that the industry has driven over a big cliff and we have not as yet hit the bottom. Hold on. My hope is that once we do hit the bottom that we all survive and that all our new consumers remain lovers of our great product. Once Covid is past us and our food service outlets can once again reopen that the industry will again bounce back to life and provide consumers with nature's most nutritious food for generations to come.

I would like to add that if you are doing it tough and need to have a chat you can always give me a call or you can call any of the services such as Beyond Blue, 1300 22 4636 if you are feeling a bit down.

And to all our cafes and restaurants all around Australia, but particularly Sydney and Melbourne, I feel for you guys and hope that you can all open soon and that we can all start to go out and enjoy a great meal again.



CENTRAL QUEENSLAND

By John Walsh

This is the last article I will be writing for Talking Avocados magazine as I am retiring off the Board after fifteen years of service. Over the years I have found

the role of Central Queensland Director to be personally very rewarding. Over the years I have seen the amount of hard work that the employees of AAL and my fellow directors have done for the benefit of the industry. It is now time to step down. I believe the Board and its members both past and present have provided stability and effective representation for all growers. I would like to thank my fellow directors and the Chair for their support through the years. I would also like to thank the employees of AAL both past and present in providing a guiding hand to Avocados Australia. My thanks also go to John's team who have helped deliver various programs to assist the industry along with its reporting mechanisms which the industry has come to value so well.

The current situation is not a good result for growers. The contributing factors of a large crop, Covid and labour supply issues make this a difficult season for growers. In our region water is just as much an issue as the other things. Hopefully we will face and manage these challenges as time progresses.

Current crop set for next year looks good so to help with planning I urge all growers to contribute their data to Infocado. The data contributed provides a valuable picture of the industry and assists with crucial planning and forecasting for marketing and associated programs. This information is fed by AAL into the marketing Strategic Investment Advisory

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Panel run by Hort Innovation. AAL also uses this information to communicate crop information to the retailers. Some people will ask why do the retailers need to know what crop is there as they will use it to screw growers? The fact of the matter is that the crop is there so the information provided must be as accurate as possible. Too often in the past retailers have been provided information by individuals for their advantage and not for the advantage of the industry. To the point now that retailers often ignore what individuals tell them even if it is accurate so the information must now come from a reliable and independent source. That source is AAL.

Speaking of Hort Innovation I don't have much to say except that they are the bureaucratic organization that AAL has to deal with. Just remember while Hort Innovation is tasked with managing the levy funds it is AAL that really has growers' interests at heart.

Anyway. Time to go. All the best for those on the board for the future. As I will still be in the industry for a while see you all around.



NORTH QUEENSLAND

By Jim Kochi

2021 turned out to be an "on year" for most growers production wise but unfortunately it was an "off year" return wise. The production increase and the actual final volume was forecast with reasonable accuracy and in a normal year the market may

have worked with the numbers and been better prepared to handle the volume. However Covid-19 restrictions at market and retail end had issues as did the growers trying to balance labour shortages and constant wet weather through harvest.

So following an "on year" is usually an "off year" and it looks like a bout of wet windy weather at flowering in September has disrupted pollination in Hass and the prospects are for a lower

crop on most orchards. How much lower, too early to tell now in early October.

To take your mind of prices I would encourage growers to make use of the Avocados Australia Best Practice (BPR) as much as possible. There is so much content there to help growers with essential information, "How to" videos, recorded webinars with international experts, and really so much more.

If you have not visited the website before, go to avocado.org.au/bpr/ and apply for access. Click that you are a new user and fill in the online registration form.

Since the last issue of Talking Avocados we held the NQ Regional Forum. This event was very well attended as was the Avocados Australia members' breakfast.

The Regional Forum presentations provided the latest industry updates and insights. John Tyas our CEO provided an update on how rapidly avocado production is increasing. John's presentation was very timely as he spoke about ways to relieve downward pressure on the Australian market. John spoke about the critical steps everyone needed to take to improve demand from consumers and therefore market performance. There were other presentations on the day, one on pest management, a new crop calendar for Maluma, a presentation on fruit quality and experiences with plant growth regulators. It was good to see Rock Ridge Farming's Yungaburra Orchard manager, John Quadrio, take the lead during the Field Tour and discuss his approaches with their orchard. Thank you to Rock Ridge Farming for their support on the day. Overall the day was very useful and I encourage growers to attend these type of events.

My lasting point is a message for all avocado growers. Remember, the best place to store an avocado is on the tree, and to pick and pack in pace with the market demand. The best an avocado can get is the time it is picked, and any time after that is a slow decay line, so storing fruit in cold rooms for future sale is risky business and will result in quality issues for the consumer. Lose the consumer confidence and we are all stuffed.

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North Queensland Regional Forum a Success

The Avocado industry development and extension (AV17005) team have been able to continue the schedule of 2021 regional forums this year with Atherton hosting over 100 attendees from North Queensland on 25 August.

Avocados Australia Chair Jim Kochi and CEO John Tyas welcomed everyone to a day full of the latest industry updates and insights. John provided an update on how rapidly avocado production is increasing – with a total supply (Australia and New Zealand) of about 130,000t projected this year.

To relieve downward pressure on the Australian market John spoke about the critical steps everyone needed to take to improve demand from consumers and therefore market performance.

“Fruit quality is paramount to driving demand. A well-informed market is what we need, so that anticipated volumes and quality can be marketed efficiently,” he said.

“Communication is more important than ever. Growers need to communicate up and down the supply chain, make accurate forecasts, and update these regularly.”

“If you are not on Infocado, get involved now.”

John also introduced Hayleigh Dawson (Market Development Manager) and Flora Zhang (Export Development Manager), outlining their roles in driving domestic and export market development, and provided an update



on some of the latest Australian avocado marketing activities launching during the Olympics.

The latest advice in pest management

Ian Newton from the Department of Agriculture and Fisheries (DAF) in Mareeba presented some important advice for pest management in avocados on the Tablelands. A key takeaway was his recommendation to use ‘soft’ option insecticides at the start of the season. Insecticides such as Transform® and Trivor® can extend the

benefit from beneficial insects.

Another new insecticide Sivanto® will be registered soon. Ian explained how these chemicals also reduce the chances of resistance developing in key pests and ensured MRLs were not exceeded.

A new crop calendar for Maluma

Ebony Faichney, also from DAF in Mareeba, reminded growers that timing was everything in her presentation on the phenological cycle she has developed for Maluma in North Queensland. Her studies show that

the variety behaves quite differently to other varieties - with feeder root growth over an extended period, and a very long flowering period which can cause difficulties for harvesting fruit of consistent quality. Ebony reported that whilst growers had experienced varied success in growing the new variety, there was evidence that when managed well the variety could outperform other varieties.

Increasing flower longevity for better fruit set

CSIRO's Dr Harley Smith travelled from Adelaide to present his advice on how shifting the flowering season slightly later when temperatures were warmer, pollen growth would be stronger and be more conducive to fruit set.

Understanding the influences on fruit abscission

Also from Adelaide, CSIRO's Dr Amnon Haberman spoke on the importance of "carbohydrate management" when thinking about tree management. Going beyond canopy management, Dr Amnon expressed carbohydrate management as including both the suppression of vegetative growth at flowering and fruit set, and the promotion of canopy growth at other times of the year to ensure the tree has a big enough 'factory' to photosynthesize and produce sufficient carbohydrates to support a large crop. His project (AV16005) is studying the physiology of fruit abscission, with research showing that limiting carbohydrate levels did stimulate fruit abscission.

Post-season quality workshops

DAF Mareeba's Geoff Dickinson was also able to report on project AV18000 which has been identifying and promoting improvements to practices in supply chains between farms and retail distribution centres. Geoff highlighted some of the particular challenges for North Queensland from

high pest and disease pressure, to a hot and wet harvest period, and having such a long distance to market. Some of the key management considerations determined by the project include the control of fruit spotting bug and anthracnose, making sure your nitrogen to calcium ratio is not too high, ensuring the fruit is at a low enough temperature when leaving the packing shed, keeping transit temperatures consistent, and storage times minimised.

Experiences with PGRs

Growers Andrew Irving and Jim Kochi wrapped up the presentations with their personal experience using plant growth regulators (PGRs). Key tips shared included ensuring PGRs were not applied to unhealthy sections of orchards, ensuring you always leave untreated control sections, planning for the potential of less yield in the second year, using single sided spraying where

rows run east-west, and cancelling planned use when poor weather arrives at the required spray time. Challenges include the effect that the shorter internodes have on canopy darkness, spray coverage and fruit windrub.

Field tour

The day ended with attendees visiting Rock Ridge Farming's Yungaburra Orchard. Manager John Quadrio spoke broadly about his approaches in the orchard. His approach to irrigation management includes three methods of monitoring soil moisture, with managers always carrying an auger with them so that soil moisture in different parts of the orchard can be checked often.

John outlined the key aspects to nutrition in the orchard, including the use of gypsum as a calcium source because of the effects of irrigation water on the soil pH. He also provided



Above left, John Quadrio from Rock Ridge Farming's Yungaburra Orchard, spoke about his approaches in the orchard

perspectives on the use of molybdenum, and the importance of calcium and potassium on reducing fruit bruising.

Other tips shared by John included the use of an app on his phone for measuring light intensity which he uses as a guide when opening up the canopy to encourage flowering and reduce disease. When the value is 200 on the app he considers it too dark. A value of 300 is what he has found to be adequate.

He also described the approach to bee management in the orchard, where they leave an unmown 'mohawk' down the center of the interrow to attract and feed bees and other insect pollinators. This is then mown when avocados start flowering – the theory being that the pollinators will then switch their interest to the avocado flowers.

More information

You can find the presentations in the BPR Library under "Event Proceedings" (<https://avocado.org.au/best-practice-resource/>). Check the fortnightly *Guacamole* newsletter and the events calendar at avocado.org.au for future dates. If you would like more information on the project contact Avocados Australia Industry Development Manager Anne Larard on 0499 854 111 or email idm@avocado.org.au. At DAF contact Simon Newett at simon.newett@daf.qld.gov.au or 07 5381 1326, or Bridie Carr, bridie.carr@daf.qld.gov.au or 07 5381 1327.

Acknowledgement

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



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Long term production forecast

Daniel Martins, Avocados Australia Data Analyst

Our production forecast model is a projection that provides a notion of the domestically produced avocado volumes we can anticipate in the coming years.

The model is built considering two main factors: **Orchard census data and regional yield estimates.**

Orchard Census data provides detail of the number of trees and hectares currently on the ground, their age, where they are, and at what rate they are planted each year.

Regional yield estimates are based on input from growers with deep knowledge of what is produced in each region by trees at different life stages.

Yields curves have different thresholds and reach their productive plateau differently in each region, as soil, radiation, water availability, and other conditions that are specific in every region have an influence on tree development and ultimately yield.

For example, trees in North Queensland are estimated to begin reaching the steeper part of their yield curve earlier than in other regions but yields at their plateau stage are modest. Conversely, Western Australian trees reach their peak later in life but are estimated to yield higher than the national average for mature trees.

All these factors have an influence on each region's production curve. From the estimates we derive possible lower and upper bounds ($\pm 25\%$) for how much fruit can be produced by hectare in each region. The yearly planting rate can be adjusted as well, to display the effect of new planting rates on either 'flattening the curve', or if these rates remain at an average level, what volume of avocados can we expect to see 5, 10, 20 years down the track?

We start modelling from 2012 due to availability of more complete Infocado data to track and check the model against.

Figure 1 below shows the production projection for all regions combined. As we can see, the curve for actual production tracks against the model's average curve quite closely. We can expect with a fair degree of confidence that with average yields, if planting rates remain at the average of the last 5 to 10 years, domestic production of avocados could reach 200-210 thousand tonnes per annum (38 million trays) by 2030; this could mean that about 1 million trays per week would have to move through the market at around peak months.

Even the most conservative estimate, assuming a rate of new plantings of zero after 2020 and average yields, will still see production volumes nearly double current production to 160 thousand tonnes per annum by 2026. What is difficult to estimate is the rate of new plantings each year in each region. It is expected that this will slow as new areas come into production.

Understanding these trends allows industry to better plan for the future, it helps us to understand the rate at which the market must be expanded, both domestic and export.

Let's have a brief in depth look at our 3 major regions: North Queensland, Western Australia, and Central Queensland, to appreciate how their actual numbers compare with the model's output, as these three, by their mere proportion, have the strongest influence in it.

North Queensland

For our largest region in terms of hectares, their actual production figures and trendline follow neatly along the model's average curve. The chance is high that, with every factor reminding consistent in the next few years, that we will see North Queensland's production volumes zigzagging along the region average curve, finally reaching around 60 to 65 thousand tonnes (around 11 million trays), roughly 80% of today's national total production. However, the rate of new plantings is likely to slow, and assuming no new plantings, the

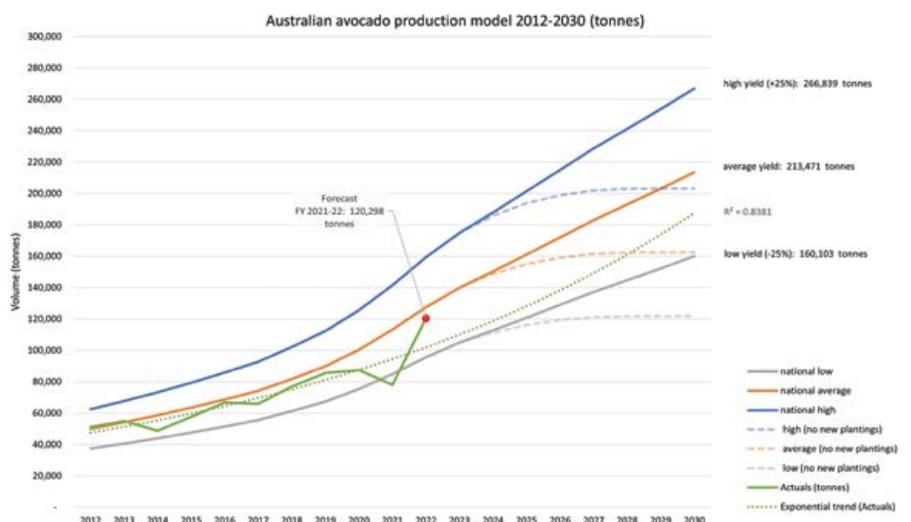


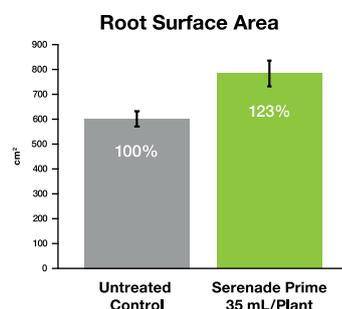
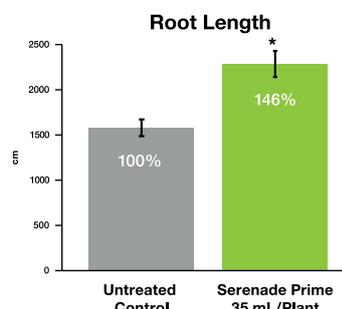
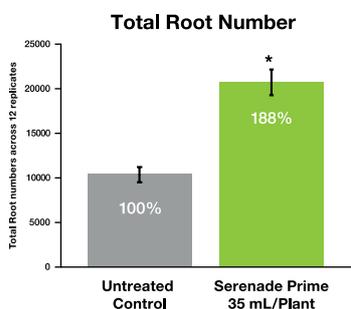
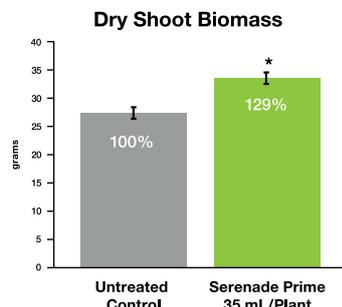
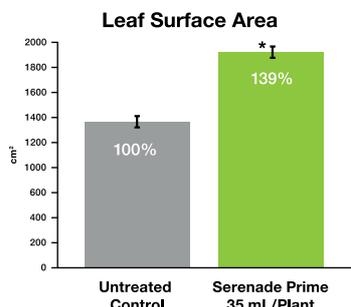
Figure 1.



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model suggests production might peak at around 45 to 50 thousand tonnes.

Western Australia

For our highest-yielding region, Western Australia, we can appreciate how its' more abrupt regular peaks and troughs in production, cause the trendline derived to have a comparatively worse fit. Nevertheless, it is rather unsurprising that the modelled curves tend towards the model's upper edge since yields in that region are often reported to be higher than average. With yield and planting rates consistent, the model suggests that the regions' output could reach 70 thousand tonnes, or 90% of today's total production. However, planting rates are likely to slow and therefore not reach these levels, more likely reaching about 50 to 60 thousand tonnes.

Central Queensland

As we can appreciate from Central Queensland's actual production curve, the region tracks against the model's lower boundary, indicating that the region may still be recovering from the damage that occurred during floods of 2011 and 2013, and then the more recent drought. Nevertheless, the chance remains that the region could slowly regain ground lost and move closer towards average production per hectare, and seeing production levels reach 30-40 thousand tonnes per annum.

There's a caveat that should be noted, which is the exclusion of tree senescence as a model factor, we are assuming that all existing and future planted trees will reach and remain at their productivity peak. Attrition, on the other hand, is accounted for in the yearly average planting rate, as new census data becomes available, and the model is updated.

Given the high volumes of production currently being experienced, and predicted for future years, additional on-going effort needs to be directed toward increasing domestic consumption year on year. Coupled with this, the need to achieve success in increasing export to existing

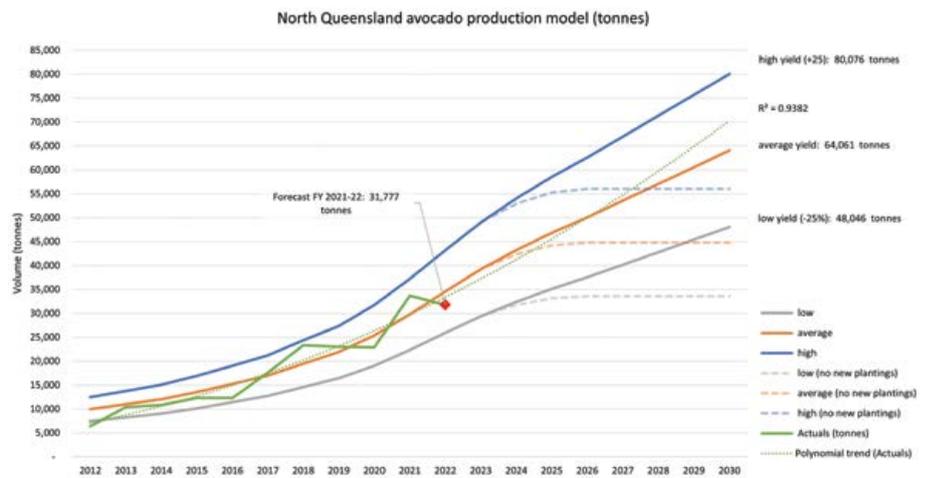


Figure 2.

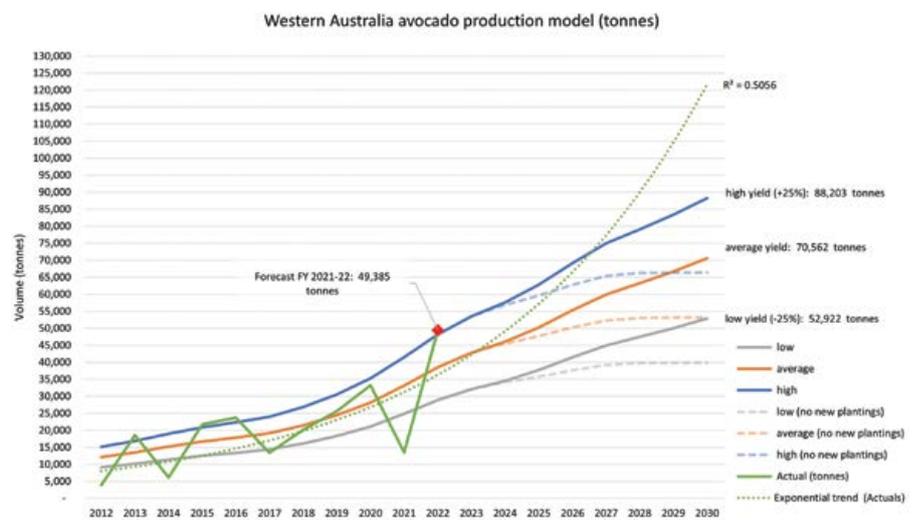


Figure 3.

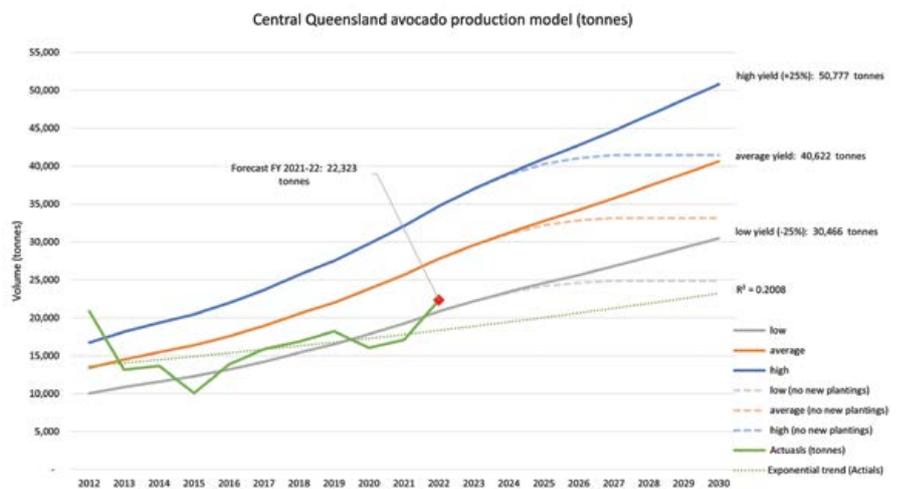


Figure 4.

markets, and in opening up new export markets, has never been more critical. The *Avocado market access and trade development* project (AV20004) and the national marketing activity managed by Hort Innovation along with Avocados Australia’s planned communications activity will be working together to drive increased demand.

Based on the projected numbers, we could see production double its current monthly volume, and increasing by an even higher factor for those months of the year when supply is predominantly out of Western Australia and North Queensland, where we expect a stark increase following the maturity for trees that have been recently planted in the regions. We estimate that supply could reach 800 thousand trays per week, for the 13 weeks between March and May of 2026. This is a period when demand often weakens as the weather becomes cooler in our major domestic markets.

Growers should consider these models and think about what challenges and opportunities these projected production levels will present for the industry.

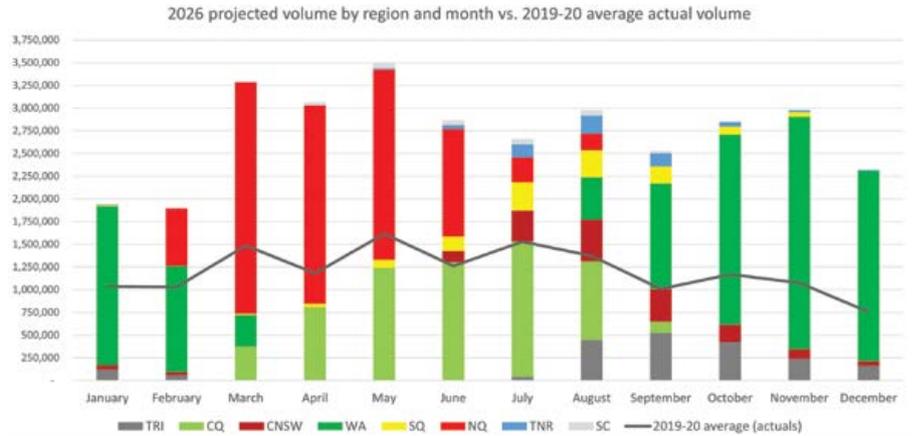


Figure 5

We are only able to develop these models if we have the base data, which is why we need everyone to contribute to our Infocado and OrchardInfo data systems. If you currently don’t contribute and you would like to learn more about our data systems, please contact Daniel Martins, Avocados Australia Data Analyst at data@avocado.org.au or 07 3846 6566.

Acknowledgement

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



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Building a data driven culture for avocado export

Flora Zhang, Avocados Australia Export Development Manager

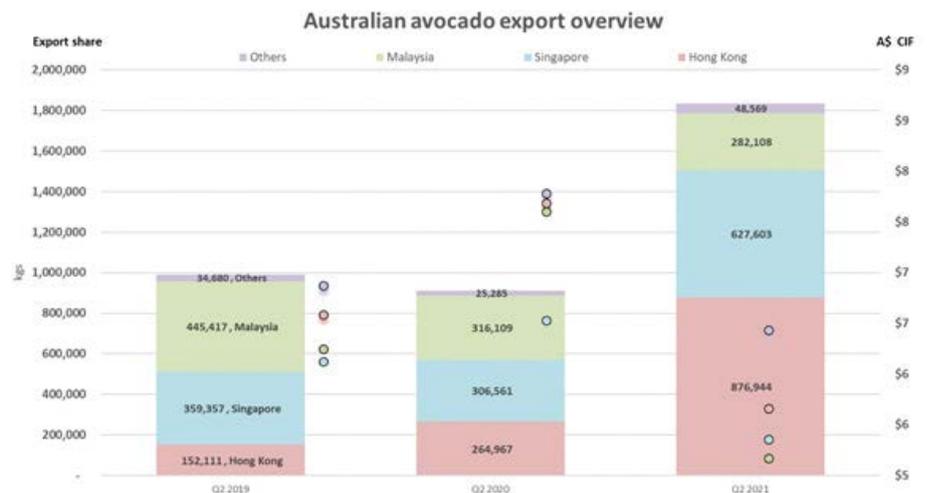
Data provides the steering wheels for avocado export while also providing much-needed guidance in formulating our strategies going forward. Australian avocado exports are evolving rapidly with record crops this season and exports bounding back to pre-COVID-19 levels with additional volume to Japan from Queensland fruit fly free regions (mainly Western Australian). In addition, this is probably the very first time we will see an even or better financial return by exporting Australian avocados to the world.

The team at Avocados Australia is trialling different ways to provide the industry with a snapshot that captures the correlations between export volume by key destinations, CIF (Cost, Insurance, Freight) pricing and market share against competitors at destination countries. The aim is to provide a simple visual representation to assist industry with understanding the price impact on export volume for each key export destination. The data is sourced from the Australian Bureau of Statistics and powered by global trade data platform © 2021 IHS Markit.

Please feel free to drop your feedback and comments to Flora Zhang, export development manager on export@avocado.org.au or call 0499 600 613.

Overview

The Australian avocado export overview graph provides a snapshot of the top three destinations (Hong Kong, Singapore, Malaysia) and a sum of the other destinations. The dots on the graph (in corresponding colours) indicate the CIF price landed for each destination. When the prices (represented by the dots) dropped to A\$5-7 CIF for Q2 2021, the volume was



up significantly to all the key export destinations.

For Q2 2021, there were 876.94 tonnes to Hong Kong which is a 330% increase

from Q2 2020. With a large volume coming from Western Australia, the industry is confident that Japan will be shown on the Q3 update as a new key export destination.

Country snapshot - Singapore

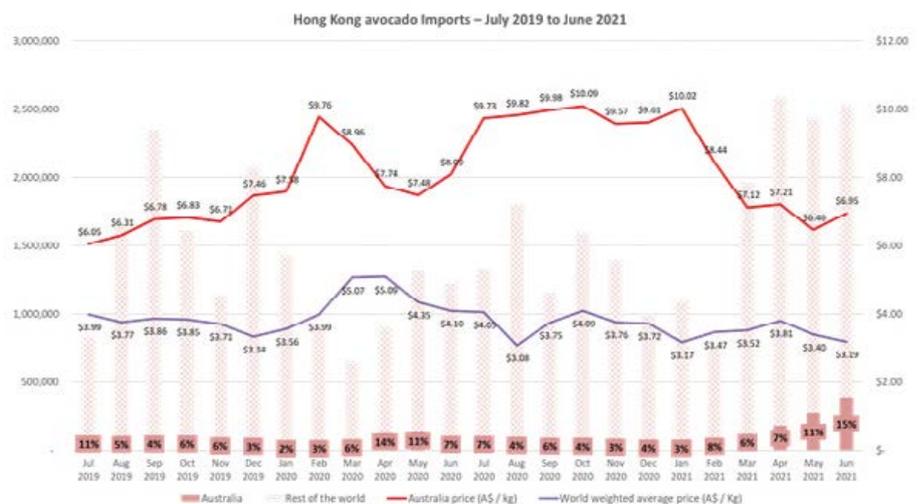
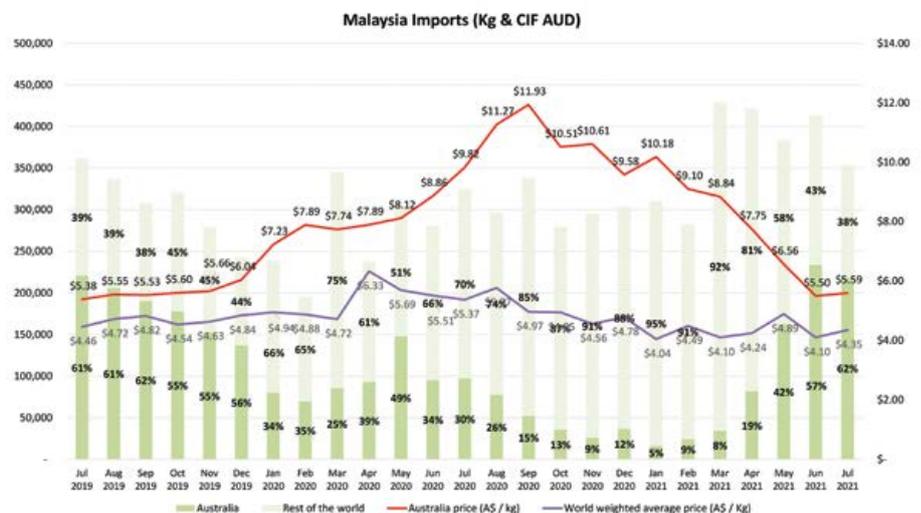
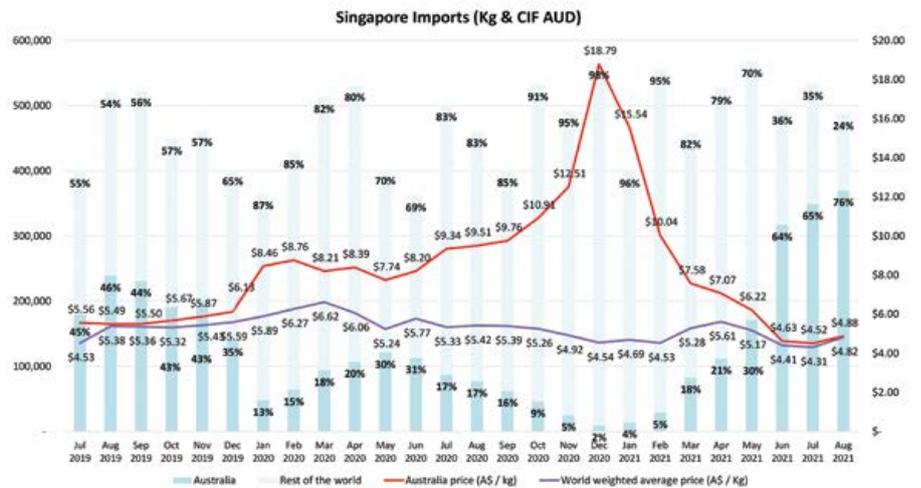
The graph below demonstrates the volume exported to Singapore, Australian avocado's market share in Singapore by month, and Australian avocado's CIF price against competitors weighted average price. The correlation is very strong between price point and volume as volume picks up when price drops. When the price gap between Australian avocado and competitors is less than 10%, Australian avocado may have the potential to secure 40-60% of the market share in Singapore which equates to 2200 – 3300 tonnes per annum. With the abundant supply from Western Australia between October and February, Australia can supply 12 months to Singapore.

Country snapshot - Malaysia

The overall trend for avocado volume to Malaysia is going up despite the COVID-19 impact, with significant increases since March 2021. The green bars are the volume from Australia to Malaysia with its market share by month. The red line shows the CIF price from Australia to Malaysia. The combined solid green and shaded green bars provide the total import volume per month by Malaysia. Avocado in Malaysia on average can be more price sensitive compared to Singapore. The CIF price for Australian avocados is 20-50% higher compared to competitors (red line). Australia lost market share during the Covid period but was back to 57% market share by June 2021. The data shows that Australia can achieve a majority of market share in Malaysia at a CIF price point around A\$6.00. If Australian avocados can maintain 60% market share in Malaysia, it equates to about 3,000t per annum.

Country snapshot - Hong Kong

Hong Kong (potentially some volume went to mainland China) traditionally is a large import region, growing rapidly this year and became the largest export destination in Q2 2021. The total market size is 4-5 fold larger than Singapore/ Malaysia. Hence,



the competition is intense in the Hong Kong market. The market price is maintained at a relatively lower level when compared to Singapore and Malaysia since it is driven by

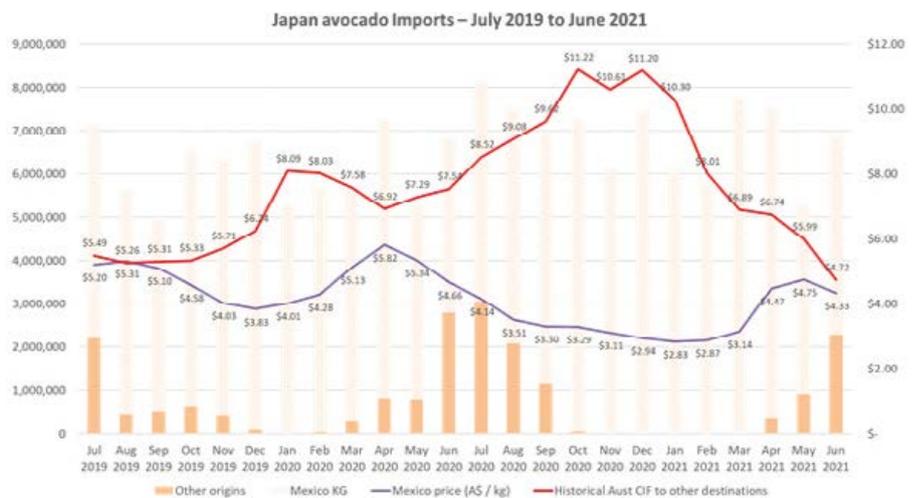
competition from many supply origins. Australian avocado is gaining market share in Hong Kong and increased to 15% in June 2021 which is a record high for the last 24 months.

Australian avocado holds a premium price point in Hong Kong, and during 2020 Australian avocado price was up to 300% higher than weighted competitors' price point in Hong Kong, although market share was low. There are valid reasons to believe that Australian avocados has a premium segment in this market and there are potential opportunities to expand. The data from Q2 2021 suggests Australian avocado may be able to hold a premium market at 10-15% at 250 tonnes per month (3,000 tonnes per annum).

Country snapshot – Japan

Japan is a new export destination for Australian avocados as market access was granted in late 2018. Japan is the largest import country for avocados in Asia. In the past 10 years, both total import volume and value for avocados have almost doubled from 44,552 tons in 2010 to 79,559.5 tonnes in 2020, making avocados one of the most popular fruits in Japan. In fact, in 2020 more than 79 000 metric tonnes were imported by Japan. The graph below shows Mexican avocados have a near monopoly in the Japanese market for most of the year, which could mean consumers are often unaware of the different origins.

As Australian avocado is new to Japan, no significant market share was recorded up to June 2021. The shaded orange colour represents the market share from Mexico and solid orange represents the market share of all other avocado origins. The red line illustrates the historical AUD CIF price



to other destinations compared with the purple line which is the Mexico CIF price to Japan. The price gap between Australian avocado and Mexican avocado diminished to less than 10% in June 2021. The data suggests that Australian avocado can be competitive in Japan, particularly from April to September, but we will need to clearly differentiate our product.

AAL is working closely with HIA to design a marketing and promotion campaign in Japan with A\$200,000 budget and in-kind support from DPIRD, WA. The campaign is planned to be in market with a series of online and offline activities between October

and January 2022 aiming to drive awareness and consideration for Australian Avocados.

More information

Contact Flora Zhang by email at export@avocado.org.au or call 0499 600 613.

Acknowledgement

The Avocado market access and trade development project (AV20004) has been funded by Hort Innovation, using the avocado research and development levy, and contributions from the Australian Government.



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2021 Export Market Analysis

Wayne Prowse, *Fresh Intelligence Consulting*

Global Avocado Production and Trade

Global avocado production now exceeds **7.2 million** tonnes according to FAOSTAT data and is increasing at over 6 per cent per year. Of this, some 2.8 million tonnes were traded across international borders in 2020, being almost **40 per cent** of the global production and lifting 9 per cent year on year.

In the northern hemisphere Mexico accounts for 43 per cent of global export trade (Figure 1) and exports 1.0 million tonnes into the United States and Canada, 83 thousand tonnes to Asia, mostly Japan, and 48 thousand tonnes to Europe. The Middle East and North Africa regions are also ramping up trade to Europe mainly from Israel and Morocco.

Southern hemisphere trade is dominated by the 525 thousand tonnes exported from South America, mainly Peru and Chile and increasingly Colombia account for 21 per cent of global export trade. Peru and Colombia are recording strong export growth while Chile dropped 45 per cent to 74,000 tonnes as they face difficult drought conditions. Overall, the South American suppliers moved over 400 thousand tonnes to Europe, 87 thousand tonnes to the United States, and 38 thousand tonnes to Asia, mostly to China, Japan and South Korea.

South Africa exported 44 thousand tonnes of avocados to Europe while Kenya, which straddles the equator and becoming a larger player, moved 54 thousand tonnes to Europe, 22 thousand tonnes to Middle East markets and about 2 thousand tonnes to Southeast Asia. The increasing volumes moved to Asian markets are of significant interest to Australia.

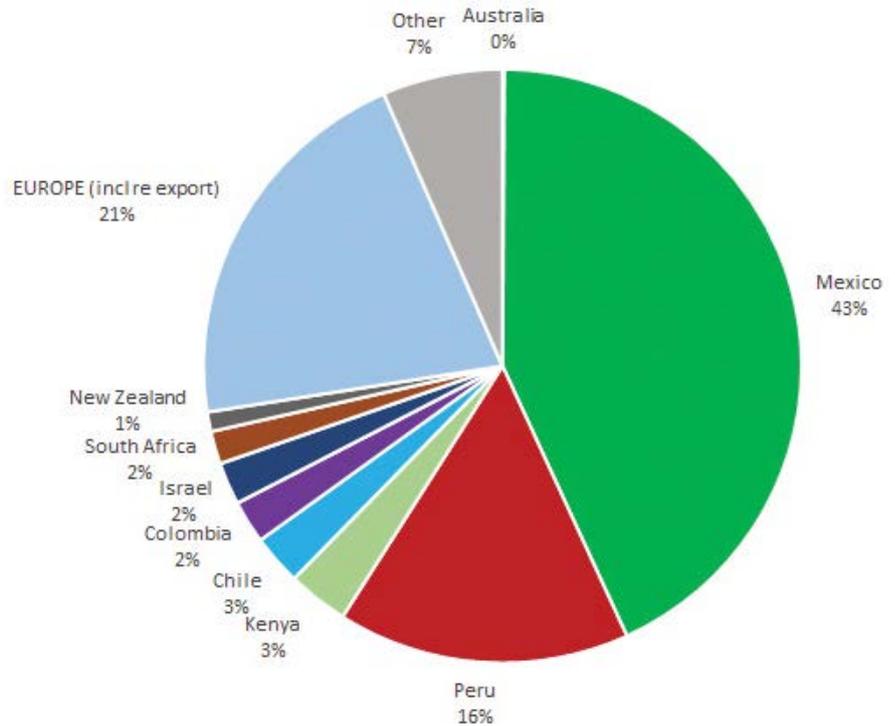


Figure 1. Global Avocado Export Shares 2020

Per Capita Consumption

The United States and Europe are the two largest import markets in the world and continue to drive the global demand for avocados from Mexico and other Latin American suppliers. Per capita consumption in United States is around 3.7 kg per person and 1.7 kg per person in Europe albeit with variations by country.

In context Australia's production was just under 80,000 tonnes last year, falling 10 per cent from the year earlier (though projecting a strong rebound in 2021) and exports were 3,155 tonnes to June 2021. Imports on the other hand reached 28,027 tonnes mostly from New Zealand and included 2,500 tonnes from Chile for the first time. This meant that Australians consumed 103,000 tonnes or approximately 4.0 kg of avocados per person, one of the highest levels of consumption outside of central America.

Contrast this level of consumption to the Asian markets where the consumption of avocados is around 0.21 kg per person across the 3.6 billion population, albeit higher in some areas including Japan and Indonesia.

Indonesia produces some 400,000 tonnes of avocados and consumes almost all within the country, though with 220 million population the consumption is 1.7 kg per person and the highest in Asia. Japan is not an avocado producer and therefore imports all their avocados for consumption by 125 million consumers, equivalent to 0.66 kg per person. Hong Kong and Singapore also import all their avocados for an average per capita consumption of around 0.85 kg per person across their 6 – 7 million consumers in each market, much smaller than for Australia.

Asia's monthly trade patterns

Asian markets imported 148,000 tonnes of avocados in 2020/21, which was 3 per cent more than the previous year and 5 per cent increase per year over 5 years. Japan and China and South Korea are the main importers.

China had been the growth driver from zero to 44,000 tonnes by 2018 though eased to 27,000 tonnes in 2020. South Korea has emerged as a key importer lifting 61 per cent to over 13,000 tonnes with growth driven by Peru. Australia has a significant share of the Malaysian and Singapore markets, which combined have a 6 per cent share of all avocado imports by the Asian region.

Japan is the largest importer in Asia, importing 82,000 tonnes in 2020/21, almost all from Mexico topped up from Peru and United States (California) from April to September. Throughout the year Japan imports around 6,000 – 7000 tonnes per month with the prices influenced by Mexico (Figure 2). In early 2021 the average import price

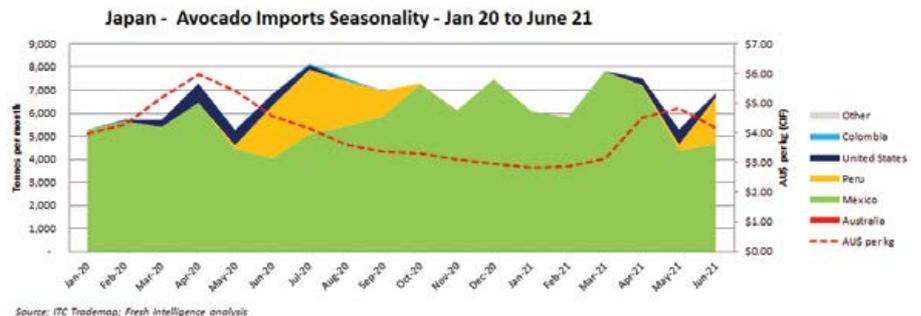


Figure 2.

dipped below AU\$3.00 per kg although is normally around AU\$4.50 in other years and highest in the March to June periods when the Mexican supply is lighter.

While Australia has access to Japan, from Western Australia only, there has been no trade since February 2020 and understandably with a price trend heading below AU\$4.00 per kg while Australia's domestic prices were north of AU\$10.00 per kg driven by a supply shortage. The Western Australian season allows supply from around

August to February coinciding with the peak of the Mexican supply and lowest prices.

Fast forward to July 2021 and the supply shortage in Australia has turned to a surplus with domestic prices falling to unsustainable levels. The closure of food service outlets during COVID lockdowns is adding to the slow demand. This has created opportunities to ramp up exports with high levels of high-quality fruit and very competitive prices compared to other suppliers.

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The impact of prices on trade into Singapore is particularly evident. Singapore is Australia's largest export market and even though trade from Australia fell over 50 per cent in 2020 the overall demand in Singapore did not change, and they shifted to other suppliers. Singapore continued to import 400 – 500 tonnes per month and Mexico, United States and Kenya picked up more volume that could have been supplied from Australia. For much of 2020 Mexico was the lead supplier and drove prices lower, as they did in Japan. Australian supply kicked in from around March 2021 and the last 3 months have seen record levels of exports from Australia albeit at much lower prices as exporters have aggressively regained market share (Figure 3). It will likely be more difficult to retain the strong market leadership now that Mexico has a much stronger foothold in the market demonstrating the importance of maintaining a strong reliable supply that is not restrained by the movements in the domestic market.

Australian Export 2020/21

After a record export level in 2019/20 Australian avocado exports eased in 2020/21 influenced by the supply shortage, strong domestic demand and impacts on airfreight due to COVID19. The export volumes were 3,191 tonnes, which was 21 per cent lower compared to 2019/20 valued at AU\$22.21 million. Unit prices were 12.7 per cent higher at AU\$6.96 per kg and reached above AU\$10 per kg from October to January, roughly following the domestic market trends, resulting in volumes less than 100 tonnes per month.

Hong Kong became the largest export destination for Australia lifting 78 per cent to 1,438 tonnes while Singapore and Malaysia both declined in volumes from Australia (Figure 4). These markets account for 97 per cent of Australian avocado export trade.

The exports by month were lower than the previous year for each month until March 2021. From April volumes increased rapidly with lower prices influencing the year ending June result, that was trending more than 50 per cent

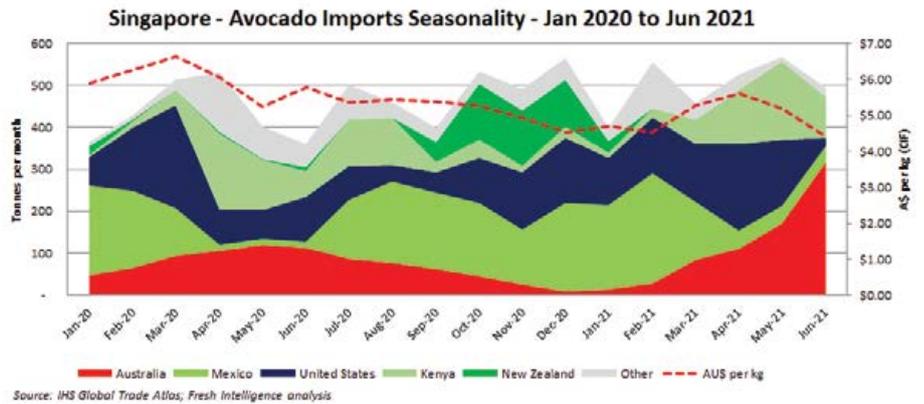


Figure 3.

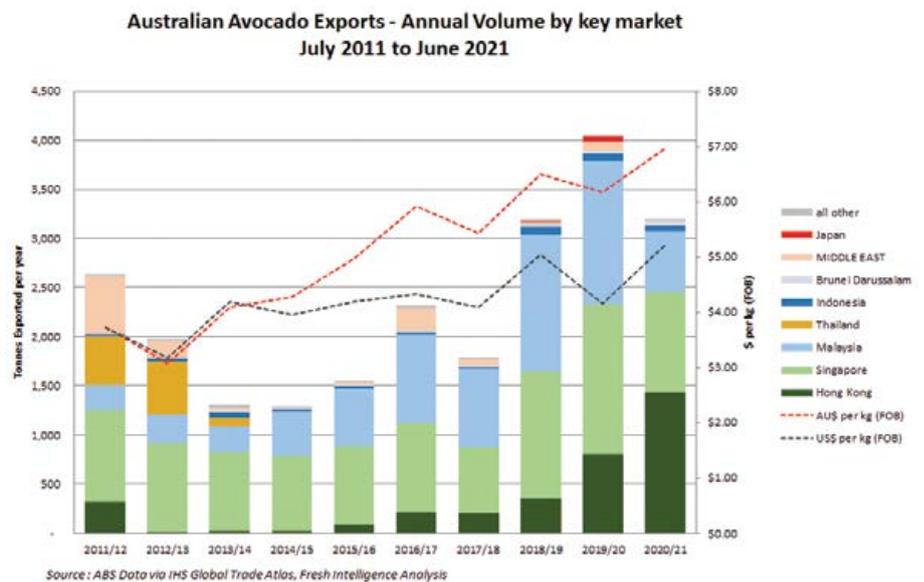


Figure 4.

lower until February before recording some of the highest ever monthly export volumes for Australian avocado exports.

In July 2021 Australia recorded 810 tonnes of avocados exported for the month compared to 246 tonnes exported in the same month last year. However, this came at a cost where prices were recorded below AU\$5.00 per kg, though necessary to win back some market share from Mexico and Kenya that had taken a strong share of the market away from Australia in Singapore and Malaysia.

More information

Monthly import and export updates are regularly uploaded to the industry's Best Practice Resource Library: avocado.org.au/bpr/.

Acknowledgement

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



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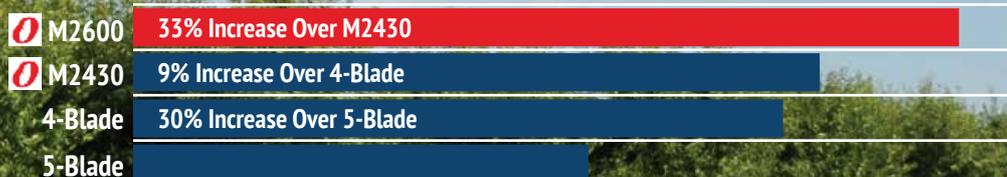
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2021 Bendotti Avocado – exporting avocados to Japan

As Australian avocado volumes continue to grow over the next 5-10 years the development of export markets will become increasingly important to maintain profitability in the industry. It is expected that production will reach about 170,000 tonnes by 2026, more than double the production from last year. Fortunately, there is a growing demand for avocados internationally. This is especially so in Asia, particularly in Japan.

Only Hass avocados from officially recognised areas free of Queensland fruit fly – Western Australia, the Riverland region in South Australia (excluding the Renmark West suspension area) and Tasmania – can be exported to Japan. And for those growers/packers who go through the process of seeking accreditation and adopting the Japan protocol the rewards can mean a foot in the door to a new market.

An ‘export to Japan workshop’ held in Manjimup, in Western Australia in June 2021, attracted a great deal of interest and a number of applications for accreditation were received from both growers and packhouses.

In 2018 Western Australia gained market access to Japan. One Western Australian avocado grower and packer that has taken the initiative and achieved accreditation to export to Japan is Bendotti Avocado. Bendotti Avocado has been accredited since 2019 and they are early adopters of the export to Japan protocol program.

Bendotti Avocado are avocado growers and packers, their packing shed is run by Joe Bendotti with help from his sons Trevor and Shane. They pack their own avocados and for local growers around the South-West region and sell to buyers all over Australia. They chose to undertake the accreditation



process because they decided that they would strive to combat the forthcoming increase in domestic supply by exploring export markets.

“We decided that it was better to get established as an exporter now so we can have the option to export significant amounts of fruit into the future,” said Trevor Bendotti.

“In our first real year of exporting we were sending a container every 10 days. Though it was not a huge quantity of fruit we realised if they took a liking to our fruit it will help increase future demand.”

“Initially we had no volume figure in mind, we just wanted to establish the process and procedures and we have been learning through trial and error.”

Trevor Bendotti says it has been a learning process. They are establishing a good relationship with their buyer. In turn their buyer is building confidence with their product and as confidence

grows Bendotti Avocado will then begin to send more significant volumes of fruit.

“This is our third year of being accredited to export to Japan.”

Exporters can now utilize a new online registration tool as part of the certification process.

“In adopting the protocol, the most important thing is attention to detail, labelling has to be perfect in order to avoid rejection.”

“We wanted to get into the position of being confident with the process, and we are slowly achieving this through some hard lessons, but it has all been worth it.”

Bendotti Avocado’s first shipment left in August 2021.

“We have sent half a dozen consignments now and we use our own custom pallets.”

“Our planning started back in February and was in great detail however one thing we didn’t plan for was the Corona virus still to be having such a significant effect on the world’s transportation availability.”

Trevor Bendotti said they had all the sizes and prices sorted before they sent a piece of fruit. As any corrective actions popped-up they dealt with it and learned valuable lessons in the process.

The process for adopting the protocol for a grower is straight forward according to Trevor. Importance is placed on record keeping, traceability and orchard hygiene. The fruit must be in a hard green condition.

“The fruit going to Japan needs to have lower than normal dry matter so therefore is harvested before the domestic supply is harvested.”

For the packer the emphasis is on

keeping the fruit (destined for Japan) separate from all other fruit.

“We are fortunate to have additional storage onsite, so we have enough storage to cater for this.”

The controlled atmosphere containers are monitored throughout the export process. Care is taken to ensure that the netting stays in gaps, that the correct seals are used and the correct labelling.

“Our controlled atmosphere containers get tested every time they are used.”

At the time of writing this article Bendotti Avocados was waiting for their consignments to arrive. They currently have three controlled atmosphere containers “on the water” the second container is to arrive by the end of October.

So what does Trevor think of the overall process so far?

“We are feeling positive.”

“We are fortunate to have negotiated a good price for the fruit, a price that is currently better than the domestic price,” adds Trevor Bendotti.

Avocado growers and packers interested in exporting fruit to Japan for 2022 are welcome to get in touch with Avocados Australia’s Export Development Manager, Flora Zhang, email export@avocado.org.au or call 07 3846 6566.

Acknowledgement

The Avocado market access and trade development project (AV20004) has been funded by Hort Innovation, using the avocado research and development levy, and contributions from the Australian Government.

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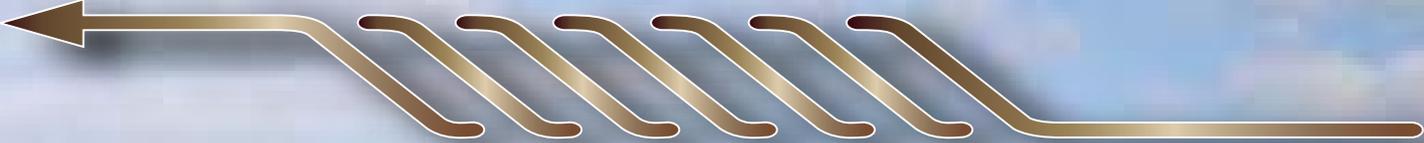
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‘Avo-cargo’ set for Asian markets in win for first-time exporters

Australian avocado producers are exporting via sea freight for the first time ahead of a bumper season, with national production forecast to increase by 60%.

Exporters in Western Australia and Queensland are trialling shipping refrigerated containers of avocados to South East Asia and Japan, using controlled atmosphere technology to ensure the fruit arrives in pristine condition after a 20-30 day journey.

The trials will open the door for many first-time growers to reach international consumers and avoid crowding the Australian market.

“The sea freighting trials are a huge boost for the Australian avocado industry,” Flora Zhang, Export Development Manager for Avocados Australia, said.

“Traditionally, more than 95 per cent of the avocados grown in Australia are consumed in Australia, but export is an important and developing sector for the industry.

“New orchards being established means production will continue to rise over the next five years, further increasing the pressure on the domestic market, so exporting is essential.”

Avocados Australia expects more than 50% of avocado shipments out of Western Australia this year will be from first-time exporters.

Minister for Trade, Tourism and Investment Dan Tehan said avocado exporters were able to stay connected with their existing international customers last season thanks in part to the Government’s International Freight Assistance Mechanism (IFAM).

The program is helping maintain essential airfreight supply lines impacted by COVID-19 disruptions, while giving Australian businesses time to align their operating models to ‘new look’ supply chains.

“Our Government is supporting jobs and businesses by ensuring local producers can continue to reach their international customers,” Minister Tehan said.

“Since April 2020, IFAM has reconnected nine Australian ports to 58 international destinations and helped the movement of high-value perishable Australian products to global markets, while also facilitating critical National Interest imports.

“It is exciting the avocado industry is exploring ways to adjust to ‘new look’ supply chains and are able to deliver their product to global destinations. Australia is a trading nation and trade creates jobs, drives innovation and underpins our economic growth.”

More information

For more information, contact Flora Zhang on 07 3846 6566, or email export@avocado.org.au.

Agriculture gaining community trust

A recent report shows trust in, and acceptance of, Australia's rural industries is strong and increasing. The majority of Australians see fishers, farmers and foresters as responsible stewards of the land and sea.

The report, *Community Trust in Rural Industries (Year Two)*, is the result of a collaboration of Australia's rural industries since 2019 to collectively and proactively address community trust in the sector. The Program's aim is to develop an aligned approach to long-term engagement with the community via a three-year research and engagement program.

The program is an Australian first – a partnership involving eleven Rural Research and Development Corporations, as well as the National Farmers' Federation and the NSW Department of Primary Industries.

According to Avocados Australia's Chief Executive Officer John Tyas, collaboration has given the sector access to a clear understanding of what leads to community trust in rural industries.

"The research is telling us that the community sees rural industries as a unified entity – not a collection of separate industries with unique challenges," he said.

The report also showed most Australians see fishers, farmers and foresters as responsible stewards of the land and sea.

To date more than 14,000 Australians have been engaged in this program of work and shared their views on a wide range of topics and issues related to rural industries, through national surveys by research agency Voconiq.

The research revealed trust in rural industries is dependent on four drivers: environmental responsibility, responsiveness to community concerns, the importance of products produced by rural industries and (new in Year

Two) – distributional fairness (that the benefits of rural industries are shared fairly – especially with regional communities).

According to lead researcher and CEO/ Founder of Voconiq, Dr Kieren Moffat, the more community members feel a connection to the land themselves, the greater their level of trust in rural industries.

"Currently, Australians find this connection via the rural industry food and fibre products they purchase and use," Dr Moffat said.

"This may be the most important advancement in the Year Two data, a clearer understanding of why industry products drive trust.

"Feeling connected to farmers, fishers and foresters through this exchange speaks to the power of a natural product; a transactional exchange that leads to a relational outcome," he said.

The important role Australia's farmers, fishers and foresters play in Australian society has been highlighted through the COVID-19 pandemic – it has increased community focus on, and confidence in, the work of rural industries in ensuring a safe and reliable source of food and natural products.

However, increased support for – and positive sentiment toward – rural industries brings with it great responsibility. The community expects fishers, farmers and foresters not to compromise environmental responsibility for economic sustainability.

Year Two research analysis revealed that taking action based on community concerns is fundamental to building trust with Australians.

"Acknowledging when things go wrong and actively responding, rather than remaining silent on challenging

issues, received strong endorsement from community members. Industry responsiveness via listening and responding to community concerns remained a strong driver of trust in the Year Two research," Dr Moffat said.

In Years Two and Three, the Program will inform and then examine industry activities designed to consolidate and build community trust through a series of industry-specific focal studies, as well as a sector-wide initiative to address a shared issue.

In a first for the sector, individual rural industries have volunteered to examine critical issues that also present community trust challenges. They will uncover the community's concerns around a specific issue, respond to those concerns and share the results back to the sector. This will create a unique opportunity for the whole sector to learn from the process.

Hort Innovation Chief Executive Officer Matt Brand said the aim of these focal studies was to describe tangible steps to build community trust by building confidence through considered research.

"In 2022, the program will also facilitate a sector-wide initiative to understand and address a shared community trust issue across all rural industries.

"Looking ahead, the program is evolving to consider how we can work together in the long-term and present a unified response to critical shared issues, in response to community concerns," Mr Brand said.

More information

For more information on the program, visit: <https://bit.ly/3oyVmMr>.

Agriculture Visa coming into focus

The Australian Agriculture Visa has now been signed by the Governor General and is now in legislation, which means the Visa is closer to becoming a reality.

The end of September also marked the release of a new Australian Agriculture Visa factsheet, highlighting key details around the visas structure and delivery. The Department of Foreign Affairs and Trade has continued to flesh out the details of the visa with extensive industry consultation.

The Agriculture Visa will be demand driven and will help to supplement the Pacific Australia Labour Mobility (PALM) scheme, not replace it. Pacific programs will remain the primary vehicle to address workforce shortages, especially for the upcoming summer harvest season.

The first trial stream of workers will enter Australia in late 2021, subject to partner country agreements and quarantine capacities. The trial phase one will only be available to approved employers that are accredited and experienced with the PALM scheme, to ensure the utmost worker safety and protection. Following this, a second phase will kick off in April 2022 and will see an increase in the number of participating employers, workers and countries.

The Australian Government has been working to prioritise worker safety and protection, with the following measures in place for the Agriculture Visa:

- The program will have strong governance and oversight, with minimum standards and safeguards built into the compliance and assurance framework and accommodation guidelines.
- The employer-sponsored visa will hold the employer responsible for obligations to workers.
- There will be minimum English requirements to ensure worker welfare and safety.

- The standards will be in line with the already successful Pacific worker programs, helping to eliminate the risk of exploitation.
- Worker rights and protection move with the worker as they move between employers.
- Workers have the same rights as all Australians regardless of citizenship.
- The Australian Border force and the Fair Work Ombudsman will be actively monitoring visa compliance and workplace laws respectively.
- The Australian Government is working with states and territories to establish a national harmonised approach to labour hire regulation.

The program will be overseen by the Department of Foreign Affairs and Trade, utilising its experience with the PALM scheme. The Department of Home Affairs will be responsible for processing all visa and sponsorship applications, in addition to providing operational support to Australian Border Force. The Department of Agriculture, Water and Environment is working with industry to ensure their needs are being met.

Quarantine pathways are also being established in line with the National Plan to transition Australia's National COVID-19 Response. With quarantine arrangements being developed by industry, state and territory governments and Chief Health Officers.

The established details of the Visa are available on the DFAT website (<https://www.dfat.gov.au/>). The Department of Foreign Affairs will provide updates on their website outlining how to participate in the program so visit their website regularly.

Woolworths helps Red Plateau recover after bushfire

A \$500,000 grant from the Woolworths Organic Growth Fund was recently awarded to Red Plateau Organic Produce. The grant will go toward the business rebuilding and recovering from a bushfire, ensure water security and invest in increased avocado production with a new cool room and 2 cherry pickers for harvesting.

Sandra Fishwick has been an organic farmer for thirty-two years, operating Red Plateau Organic Produce with her two sons, Joey and Carl Hanly on the NSW mid north coast. Crippling drought followed by a fire storm in 2019 destroyed many of the organic fruit trees on their farm.

“The fire storm in 2019 burnt over 40 percent of our original farm and we lost all our macadamia trees, some citrus and avocados. It was devastating,” said Sandra Fishwick.

“We want to restore our farm to its former glory and will replant and expand with more avocados. Thanks to the grant from Woolworths we will be able to move forward at a faster pace to re-build.”

Another significant part of the Woolworths Organic Growth Fund is ensuring that Red Plateau Organic Produce has a secure pipeline to sell their product. Which are on the shelves in Woolworths Stores now.

The fund will enable Red Plateau Organic to plant more avocado trees, with the objective of planting a number of varieties to have produce across twelve months.

Source: Manning River Times.



Above from left, Jessica Loader from Woolworths and David Gillespie MP Minister for trade and Investment handing over the 500K cheque to Sandra Fishwick and her sons, Joey and Carl Hanly. Photograph courtesy of a Woolworths Photographer.



Sandra is now replanting parts of her orchard. Photograph by Shane Chalker.

Coles ranked most sustainable food retailer in Australia

Coles has ranked as the most sustainable food retailer in Australia, and second in the world, in the 2021 Food and Agriculture Benchmark.

The ranking, which is organised by the World Benchmarking Alliance and investigates 350 companies around the globe, found that Coles showed leadership among all countries with consumer products in their portfolios. The supermarket was also ranked 10th in the world in the food and beverage manufacturers/processors category.

“Coles’ Together to Zero and Better Together ambitions, as outlined in our sustainability strategy, underpin the steps we are taking to drive generational sustainability,” said Coles’ chief sustainability, property and export officer Thinus Keevé.

“We recognise the role we have to play but know that we cannot do this alone, and that we need to work together with our many stakeholders to drive positive change. We know that we are Better Together when we work together with our team members, farmers, suppliers, customers and the communities we serve.”

Supermarket rival Woolworths ranked at number 7 in the Food and Agriculture Benchmark, and 24 in the food and beverage manufacturers/processors category.

The World Benchmarking Alliance was founded in 2018 in an effort to push businesses to make changes toward a sustainable future and said that this year’s report found “worrying gaps” in the food industry’s adaption to climate change, progress on human rights and contribution to healthy diets.

WBA found that 123 of 350 of the largest food and agriculture companies have not set targets for reducing their greenhouse gas emissions, and that only 26 are working to reduce emissions from their direct activities through science-based targets.

“The world is becoming ever-more conscious of the environmental destruction our food system is causing. Yet, many companies are not feeling the need to adapt, and smallholder farmers are hit hardest by the climate crisis,” said WBA lead food and agriculture transformation Viktoria de Bourbon de Parme.

“Changing temperatures, unreliable rainfall and land degradation are reinforcing poverty and devastating the natural landscape. For the sake of people and our planet, food companies’ denial must end now.”

New ANVAS nursery

A fourth nursery is now part of the Avocado Nursery Voluntary Accreditation Scheme (ANVAS). Victorian Citrus Farms joins Anderson Horticulture, Fleming’s Nurseries and Turkinje Nursery in the program. The aim of ANVAS is to provide assurance that avocado nursery stock purchased meets an industry standard, is true to type, and that appropriate steps have been taken to reduce the chance of introduction of serious pathogens into the production environment.

ANVAS accredited nurseries are required to adhere to specific production practices, undertake pathogen testing of plant material, undertake monitoring of stock

throughout its growth stages and be independently audited each year to confirm their adherence to ANVAS requirements.

John Tyas CEO of Avocados Australia welcomed the new ANVAS member.

“We’re very pleased to announce that Victorian Citrus Farms has received accreditation via the Avocado Nursery Voluntary Accreditation Scheme,” Avocados Australia CEO John Tyas says.

“There are now four nurseries involved in the system, a scheme designed to provide the industry with superior nursery stock.”



Improved crop insurance options for climate risk management

A major research collaboration between the University of Southern Queensland (USQ), Willis Towers Watson and the Queensland Farmers' Federation stands to transform how Australia's agricultural sector insures against weather and climate risks.

Led by USQ's Professor Shahbaz Mushtaq, experts from the Centre for Applied Climate Sciences (CACs) have undertaken research to inform the development of index insurance products and industry initiatives to allow farmers to better manage climate-related risk.

"Not all risk is manageable, and at some point, there is a limit to adaptation," Professor Mushtaq said.

"The main insurance product available to Australian producers has been multi-peril crop insurance, and under this kind of policy, crops are covered under a single policy against damage from a range of perils such as drought, excessive rainfall, wind, hail, and fire," he said.

"However, this isn't affordable for the vast majority of farmers, so we worked with Willis Towers Watson and the wider insurance industry to develop cheaper and more suitable ways to insure against the major risks to the sector."

Professor Mushtaq's research found no multi-peril crop insurance was taken out in Australia in 2020.

"It is expensive, and it requires a visit from an assessor if a claim is made. The loss adjustment process can be a very protracted and unpleasant process and claims can take months to finalise," he said.

"In comparison, index insurance responds to objective and independent measurements of weather variables such as rainfall, temperature or soil moisture, and the farmer can select the element that is most critical to the farm operation and the index level at which protection is provided by the insurance.

"The payout mechanism is pre-agreed so there is no ambiguity or argument regarding the claim amount should the event occur. If the policy trigger is breached, the payout is immediate, with no need for any expensive on-farm assessment and this can reduce the cost of the policy by up to 40%."

Under an index insurance product, Professor Mushtaq said the farmer could, for example, set an index threshold of 50mm of total rainfall during January and February.

"If their nearest Bureau of Meteorology weather station only recorded 35mm for those months the payout would be immediately triggered, no questions asked," he said.

"The flexibility of index insurance means that a grower who mitigates against weather and climate risk by adapting their on-farm practices can take more calculated risks knowing the index insurance will be their safety net."

Professor Mushtaq said while the availability of new insurance products was a positive step for Australian farmers, it is critical that primary producers feel confident in utilising the new offerings.

"There will need to be a culture shift in the industry because the higher the uptake, the cheaper it will be for everyone," he said.

Queensland Farmers' Federation Project Manager Kerry Battersby said the collaboration with USQ and Willis Towers Watson addressed a critical need to look at insurance differently after recurring natural disasters in Queensland.

"Insurance can be unattractive, and many farmers have had really bad experiences with insurance agents, so it's important to hear these experiences and also show farmers a new and improved way of managing financial risk," he said.

The research project is funded by the Queensland Government's Drought and Climate Adaptation Program (DCAP) that aims to improve drought preparedness and resilience for Queensland producers.



Farm safety and WHS updates

Agriculture is one of Australia's most dangerous sectors. According to Safe Work Australia data, farming represents only 2.6% of the workforce but 21% of fatalities. The highest fatality rate of any Australian industry. Tragically, fatalities on farming properties also occur at too high a rate for children under the age of 15.

SafeWork SA Executive Director Martyn Campbell said for many farmers, the workplace and home life can merge seamlessly together.

“Open communication about hazards and risks can save lives and should become part of the daily routine of every farming business,” Mr Campbell said.

Farmsafe Australia dispels myths

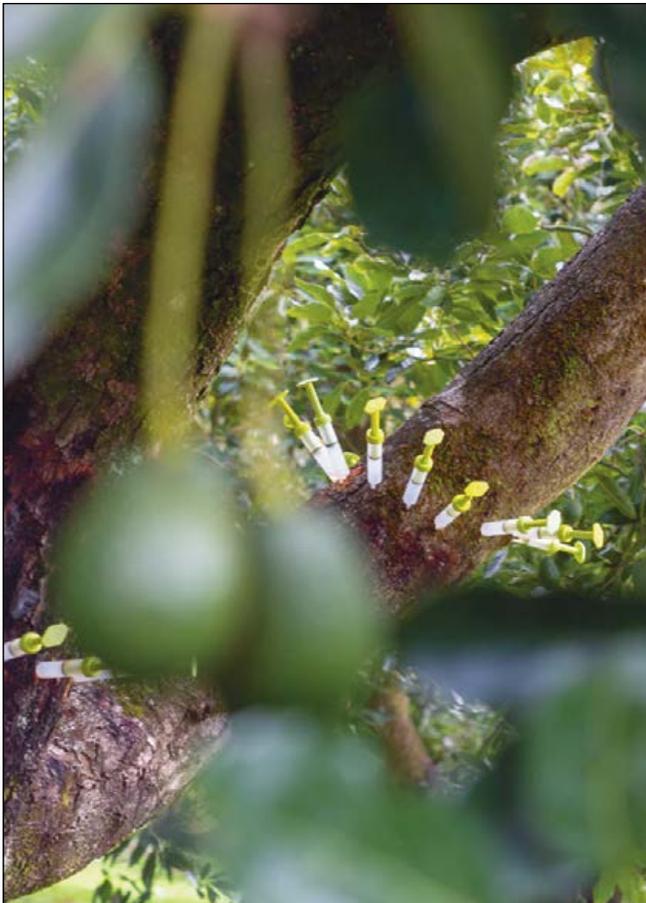
The generation most well-known for ambitious confidence, risk-taking behaviour and lack of experience are 19 to 30-year olds, or so the perception goes.

This stereotype, however, fails to stand up when the facts are peeled back. The evidence is clear, in the last decade, it is actually the farmers aged 50 years or older that have accounted for 50% of all Australian farming fatalities. This is in contrast to an average 12.1% of fatalities being those aged 15-29.

As part of National Farm Safety Week (18-24 July), Farmsafe Australia unpacked the facts on farm safety, advocating for greater adoption of effective risk mitigation and safer farming practices to protect all farmers, from the next generation of energetic custodians through to the most experienced. For more information on farm safe practices visit farmsafe.org.au.

Powerline death on Queensland pineapple farm

The ABC reports one person is dead and several others were hospitalised after pineapple harvesting machinery came into contact with overhead powerlines on a farm at Yeppoon.



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Check with your state's WHS authority (we've got a list in the BPR, in the WHS module) for guidelines/checklists on operating farm equipment under and around powerlines.

Fatal dismount from moving tractor leads to \$150,000 fine

A North Queensland produce company was fined \$150,000 in the Bowen Magistrates Court in May over the death of a 37-year-old worker who was crushed when he dismounted from a moving tractor.

Records indicated that the deceased had signed a document confirming he took part in the safety induction only a month earlier but continued to dismount and was reprimanded for it three times before his death before the fatal incident in March 2019.

Upon sentencing, Magistrate James Morton took into account the defendant's plea of guilty, that policies and procedures for the safety of workers were in place, but also that in this instance, they were clearly aware that this particular policy was not being followed.

The company was fined \$150,000 plus court costs. No conviction was recorded.

NSW: compliance visits increased

The NSW Government has announced there will be an increased presence of compliance offers across Sydney and regional areas looking at a range of COVID-19 related issues, including the use of QR codes. You can find out more about the requirements in the BPR's WHS Module.

Victorian inspectors issue notices at Robinvale

A three-day inspection program was carried out by WorkSafe in the Robinvale area in June, to ensure growers were complying with occupational health and safety regulations, staying COVID-safe and supporting vulnerable workers.

WorkSafe inspectors issued 28 improvement notices to duty holders at eight of the 27 properties they inspected.

WorkSafe Regional Operations Director Western Region Trevor Butler said among the most common safety issues were improper guarding on tractor power take-offs and other machinery, a lack of rollover protection and maintenance on quad bikes, and inadequate labelling and storage of chemicals.

Labour Hire Licensing Commissioner Steve Dargavel said the Authority visited 21 properties with a focus on education, checking providers had COVIDSafe plans and looking at their licence status and conditions for labour hire workers.

New WA farm safety checklist

The Department of Mines, Industry Regulation and Safety has released a new farm safety checklist to help identify OSH requirements and will provide users with information on how to comply with the requirements of the Occupational Safety and Health Act 1984 and regulations. Download it here: commerce.wa.gov.au/publications/farm-safety-checklist.

More information

The avocado WHS module in the Best Practice Resource features avocado industry-specific material to assist avocado businesses to develop and implement Work Health and Safety Plans. It includes practical, easy to use guides and templates. Visit avocado.org.au/bpr/.

Pollination services



Australian owned and operated family beekeeping business offers pollination services in South East Queensland and New South Wales Northern Rivers region.

For more information please contact owner Ugis Lauberts
mobile phone 0408239329
email bitis@live.com

Research to manage a mitey avocado pest

A research project is helping Western Australia's growing avocado industry to minimise the impact of a tiny pest on fruit quality and orchard production.

The Western Australian Department of Primary Industries and Regional Development (DPIRD) is in the final year of the three year project to examine how best to manage six-spotted mite, funded by Hort Innovation.

The findings so far were shared with South West growers at a workshop at Manjimup in late August.

Six-spotted mite, which is also a pest of grapevines, is only considered a pest of avocados in the lower south-west of WA and New Zealand.

The pest feeds on the foliage of avocado trees and, in higher numbers, causes the plant to shed its leaves and expose the fruit to sunburn – compromising quality, value and growers' returns.

Department research scientist Alison Mathews said the research had already produced some useful insights that would assist the development of an Integrated Pest Management program.

“Very little is known about how six-spotted mite performs in avocados so some fundamental research is required to get a better understanding of this pest,” she said.

“This includes when and how to monitor for them and best management practices for different times of year.

“We know that they are most active in spring, when defoliation is most likely to occur, making it a critical time for growers to be out in their orchards monitoring for mites.”

A key focus of the project has been developing suitable crop monitoring practices to help develop guidelines for treatment.

Ms Mathews told the workshop one of the key learnings from the research was the variability in the distribution of the pest, not only between properties but also within orchards.

“Mites are very small and this makes the way you monitor them very important,” she said.

“It's critical to manage different blocks within an orchard as separate units, if possible.

“It is advised to get a collection of leaves from multiple trees in a block, picking those that are recently matured.

“Mites are very adept at developing resistance and we've also seen that they

peak in different orchards at different times – if at all – so it's important to regularly monitor and only manage them if the numbers justify it.”

While there are treatment options registered to control six spotted mite, beneficial predatory mites were also assessed as part of the project.

“We have undertaken case studies to assess when, where and how to treat most effectively,” Ms Mathews said.

At the end of the project next year, a management package for six-spotted mite in avocados will be formulated to assist avocado growers to protect their orchards from the pest and optimise production margins.

Six-spotted mite can be distinguished from other mites found on avocado leaves using a hand held magnifying lens.



South West avocado growers got some hands on experience using a number of monitoring tools to identify the pest six-spotted mite at a recent DPIRD workshop at Manjimup.

The pest can be found on the underside of leaves, measures about 0.3 millimetres in length are pale yellow to greenish in colour and – despite the name – do not always have six spots but feature dark markings that vary considerably between individuals.

More information

You can find more on the six-spotted mites under Insects, in the Growing module of the Best Practice Resource: www.avocado.org.au/bpr/.

Acknowledgement

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



DPIRD research scientist Alison Mathews discussed sampling and monitoring techniques with avocado growers at a recent six-spotted mite management workshop at Manjimup.

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Avocados Australia's communications hit their mark

Avocados Australia's industry communications underpin almost everything the organization does in one way or another. Our communications activities are supported by the Hort Innovation project *National avocado industry communications program* (AV18003). This article provides an overview of how well some of our communications activities are performing.

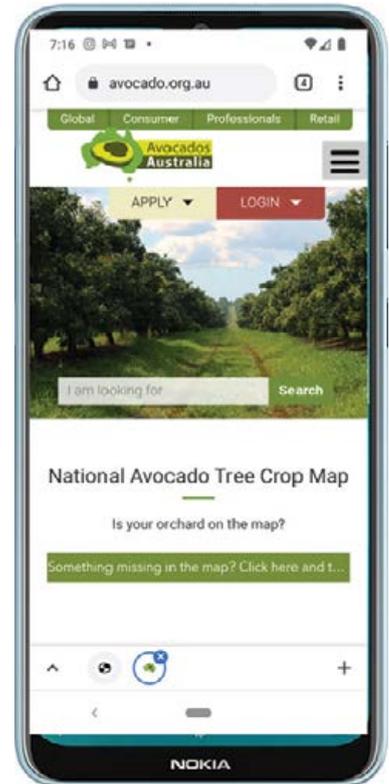
Avocados Australia's website (avocado.org.au) provides content to Australian avocado growers and also to a range of other industry stakeholders. It serves public content as well as Best Practice Resource (BPR) content for registered users, and private members-only content. Over the years the website has become an essential tool for members of the supply chain and it is not surprising that website visits are up year on year, with total page views increasing 5.93%. The homepage and BPR remain the top most visited two pages.

On the website, the COVID materials curated by Avocados Australia (from the resources pages to news items) are incorporated into the Best Practice Resource and are added to as needed. In the last 12 months the Covid-19 national resources webpage on the AAL website was accessed 1,474 times (sessions). In that same period the Best Practice Resource was accessed 5,601 times (sessions). The average session duration is 2 minutes and 5 seconds. In the case of the Best Practice Resource there are some pages and documents that attract longer session times. Such as the content within the Packhouse and Growing sections of the BPR.

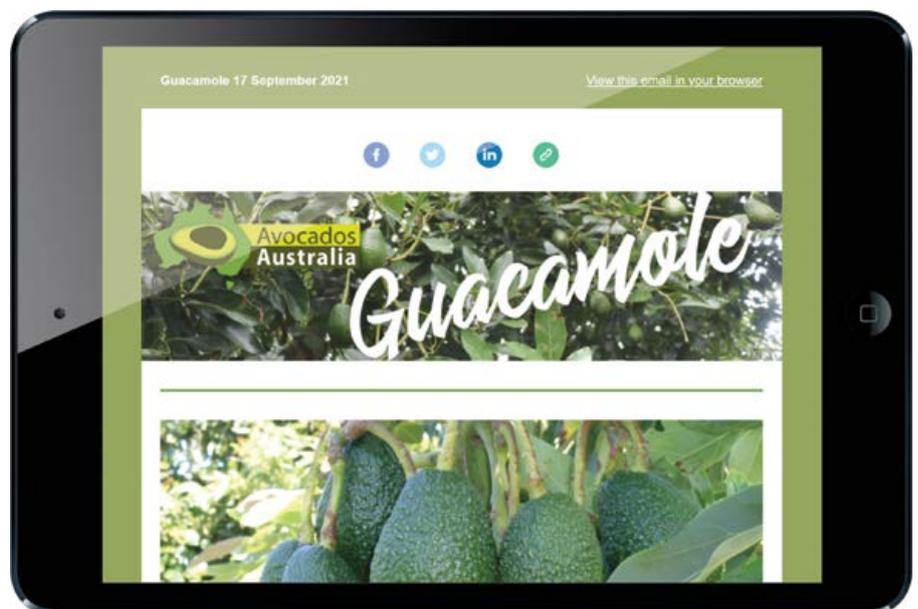
The fortnightly *Guacamole* e-newsletter continues to provide a direct link to Covid Resources on the AAL website for ease of access. It also provides the latest avocado national and international news as well as the latest

export news. If you would like to subscribe to *Guacamole* please email admin2@avocado.org.au.

Avocados Australia has been in the media 245 times in 2021 so far. Coverage started with the North Queensland season and labour, moved into the supporting media for the Australian Avocados Shepard promotion, and then on to the topic of supply. Recent media coverage generated between 5th and 15th of October achieved overall reach of more than 109 million, although this includes international coverage. Specifically, Australian media coverage achieved a reach of more than 25.7 million. Media outlets that covered Avocados Australia's stories include Bloomberg, the Australian Financial Review, Sydney Morning Herald, Queensland Country Life ABC Rural, 7News.com.au, FreshPlaza, ABC Radio Adelaide, Perth's Radio 6PR882 News Talk.



32% of web users are viewing the website on mobile.



Guacamole, Avocados Australia's official e-newsletter.

Avocados Australia continues to support Hort Innovation's marketing efforts to drive consumption and the marketing public relations push on the high availability of avocados this season. The most recent AAL media release distributed on 5 October was concerned with supply and encouraged Australians to buy Australian avocados as they are in abundant supply. It also encouraged consumers to ask for Australian avocados at their local retailer.

On Facebook and Twitter, Avocados Australia is resonating with consumers, growers and other members of the supply chain. Avocados Australia now

has a combined 3,274 followers across Facebook, Twitter and LinkedIn and is working to grow that audience. Content about industry trends, consumer trends and avocado news related content attracted the most engagement. The main messages have been to promote consumption of avocados and reinforce to consumers that they should buy Australian avocados.

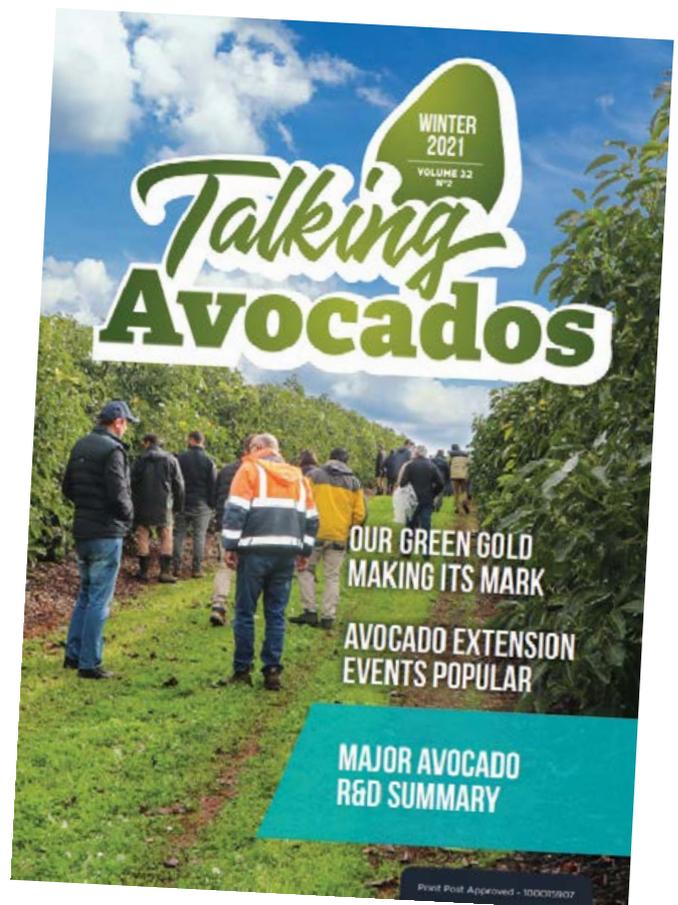
Talking Avocados magazine continues to provide a great snapshot of Australia's avocado industry activities. It is our hard copy quarterly magazine covering a wide range of relevant content from local industry news, trends and current affairs, to research

and development and international news. It promotes best practice and encourages continual learning and improvement across the whole of the supply chain. Avocados Australia has published *Talking Avocados* for more than 25 years and it continues to be a highly valued communication tool among our industry stakeholders.

If you would like to provide feedback to Avocados Australia about any of its communications channels please feel free to email the Communications Manager at co@avocado.org.au or call 07 3846 6566.



A recent Avocados Australia Facebook post share news about consumption.



The Australian avocado industry's magazine.



GROWING YOUR FUTURE

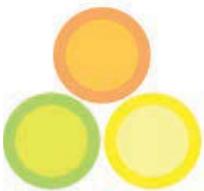
Avocado and Citrus Nursery

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With our origins dating back to the early 1970's and now spanning three generations, the family's industry knowledge and experience of fibre recovery, recycling and moulded fibre manufacturing has seen Hawk become an industry leader in their field. Hawk currently supplies more than 80% of NZ's apple and avocado trays and has also had a successful presence in the Australian market through the supply of apple trays since 2016.

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

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

Please contact us or view our website for full product specifications at www.hawk.net.nz.

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

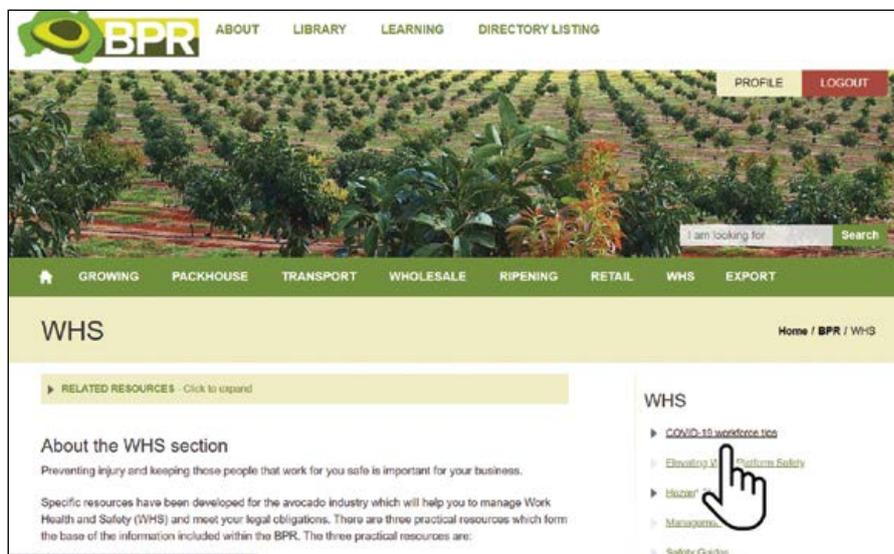
Craig is happy to meet personally with you and discuss in more detail how Hawk can benefit your business.



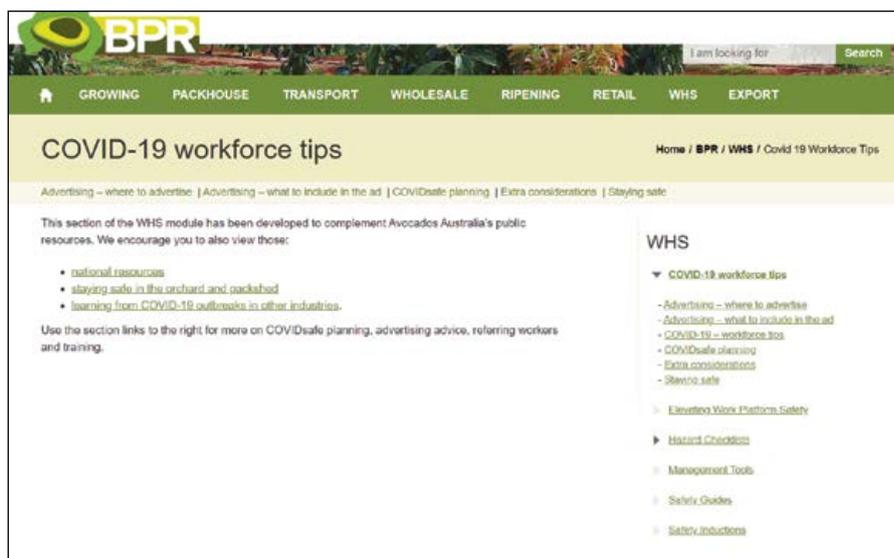
AAL's AvoWorker Project assists employers

Now more than ever avocado growers need assistance with sourcing workers for harvesting and working in the packing shed. As a result of COVID, the usual source of labour (overseas backpackers) is not entering the country and the need to quarantine overseas workers is another added complication and expense. Avocados Australia's AvoWorker project was developed to address the need for Avocados Australia to provide industry assistance to employers needing to source labour. As part of this project content has been added to the Best Practice Resource (BPR) dedicated to workforce best practice under the heading "COVID-19 workforce tips". A central resource for employers has been created that provides tips on advertising, COVID safe planning, steps you can take to attract workers, and other points for helping workers stay safe in the orchard and packshed. As a result of the AvoWorker project a dedicated location has been setup on the AAL website that provides job seekers with easy access to information about available opportunities and available government support. In 2020/21 the project will also run a promotion targeting job seekers and will leverage Avocados Australia's social media channels and the media. This activity is aimed at assisting employers during this difficult time.

So let's take a look at these initiatives. Under the Work Health Safety section of the BPR you will find the "COVID-19 workforce tips". Just login to the BPR and click on "WHS" on the green menu bar. Then click on the top item in the right-hand side menu.



The "COVID-19 workforce tips" can be accessed by logging in to the BPR and clicking on "WHS" on the green menu bar after that just click on the top item in the right-hand side menu.



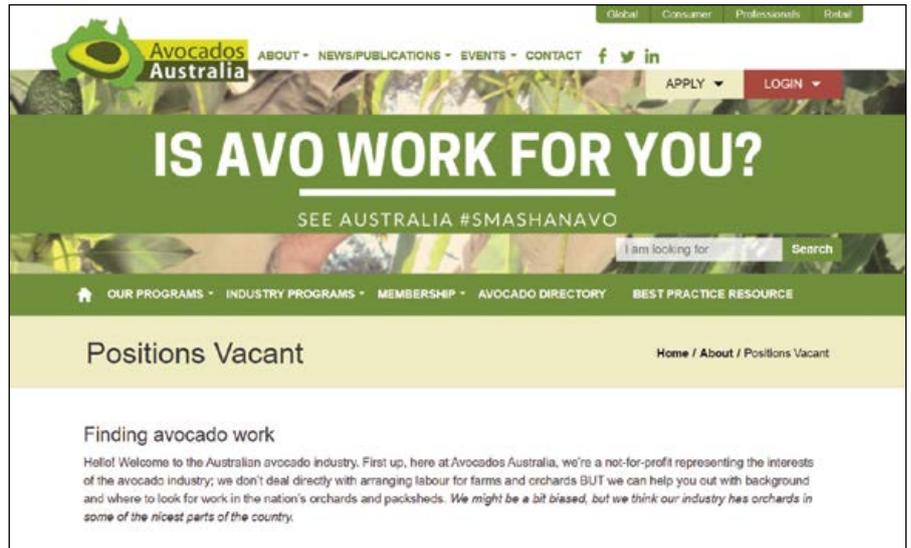
The "COVID-19 workforce tips" section is a dedicated site on the Best Practice Resource that is a central resource for employers.

The “COVID-19 workforce tips” section is a dedicated site on the Best Practice Resource set up to provide supporting materials, templates and tips that can be used by employers to recruit, guide and direct staff to work safely. The actual website address for this site is <https://avocado.org.au/best-practice-resource/whs/covid-19-workforce-tips/>.

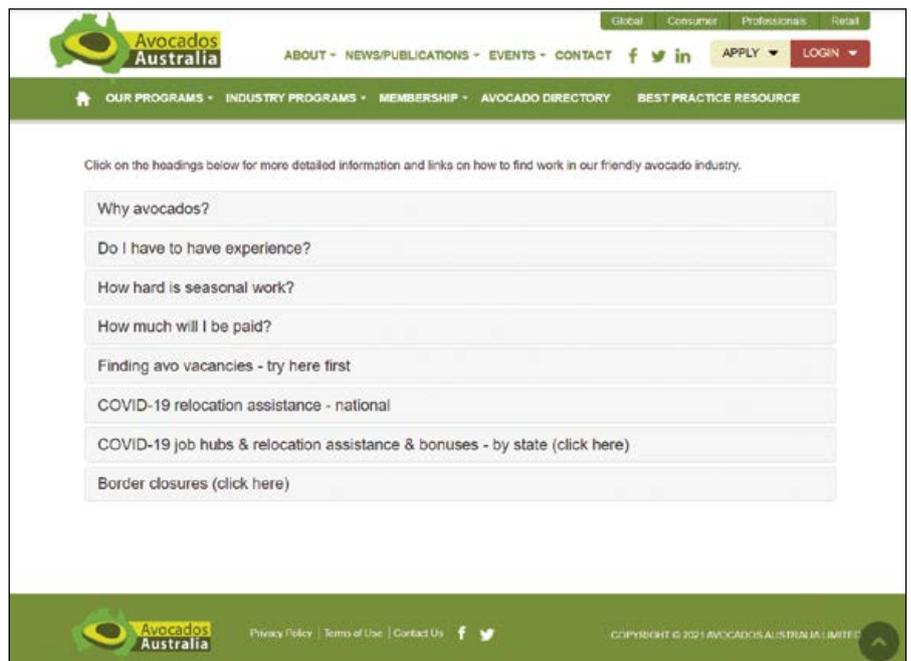
Another feature on the Avocados Australia website that is open to the public is the “Positions Vacant” page. The webpage address is <https://avocado.org.au/about/positions-vacant/> and it has been up and running providing information for job seekers about working in the avocado industry. This webpage promotes the avocado industry to potential job seekers and provides potential employees with easy access to information about available avocado opportunities, and available government support. The AvoWorker project has segmented job seekers into three segments, 17-19 year olds (those seeking a gap year), 18-55 year olds (unemployed), and 50+ (grey nomads). Over the last 12 months there have been 1,215 visits to the Positions Vacant webpage.

The Positions Vacant webpage provides information about vacancies in the industry, what it is like to do seasonal work, what skills are involved, what the pay is like, what COVID-19 assistance is available and links to any border closure directions.

To direct traffic to the Positions Vacant webpage the Avocados Australia website has a graphic on the homepage that provides a direct link to the Positions Vacant page. This is to provide easy access for job seekers to navigate to the webpage of most relevance to them.



The Positions Vacant webpage promotes the avocado industry to potential job seekers and provides potential employees with easy access to information about available avocado opportunities.

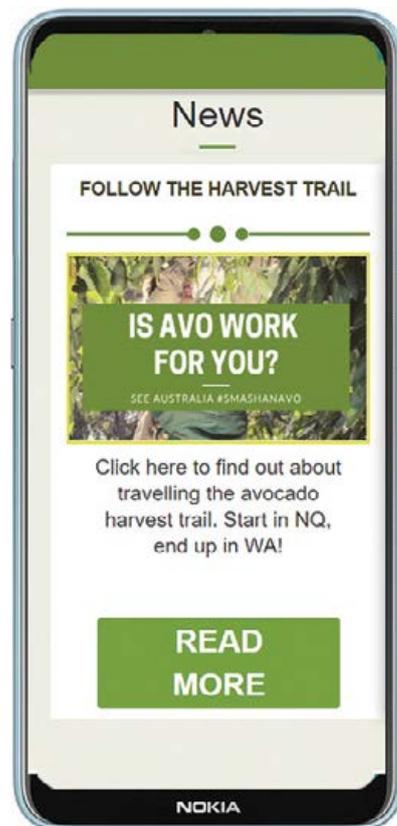


The Positions vacant webpage on the Avocados Australia website provides all that a job seeker needs to know about working in the avocado industry.

Another initiative of the AvoWorker project that will be running in the coming months is a Job Seeker Promotion targeting job seekers with the aim of attracting them to the avocado industry. The Job Seeker Promotion aims to utilize video clips (to be generated by growers and packers) that we will post on our social media platforms and use Boosted Facebook posts as well as social organic content. The video clips will contain three messages, they are: 1) Follow the avocado harvest trail, 2) Work and play in some of the most beautiful parts of Australia, and 3) Earn money, travel, meet great people. Look out for our content across our social media channels in the coming months. You can find us on Facebook at @AvocadosAustralia and on Twitter at @AvocadosAu.

As part of the AvoWorker project Avocados Australia also participates in engagement directly with the National Farmers Federation's Hort Council, State-based COVID groups (such as Queensland Agriculture, Queensland Agriculture Communications, New South Wales Agriculture, Victoria Agriculture) and National COVID groups that can impact on the current working conditions of seasonal workers and their employers. When Avocados Australia engages with these organisations it acts in the interests of Australian avocado growers. These connections are important to maintain, in order to keep up-to-date with new developments as they happen particularly arising as a result of COVID restrictions.

If you would like to find out more about the AvoWorker project, or have any feedback, please contact the AAL Communications Manager by email at co@avocado.org.au or call 07 3846 6566.



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The Avocado Directory – List your avocado related-business online

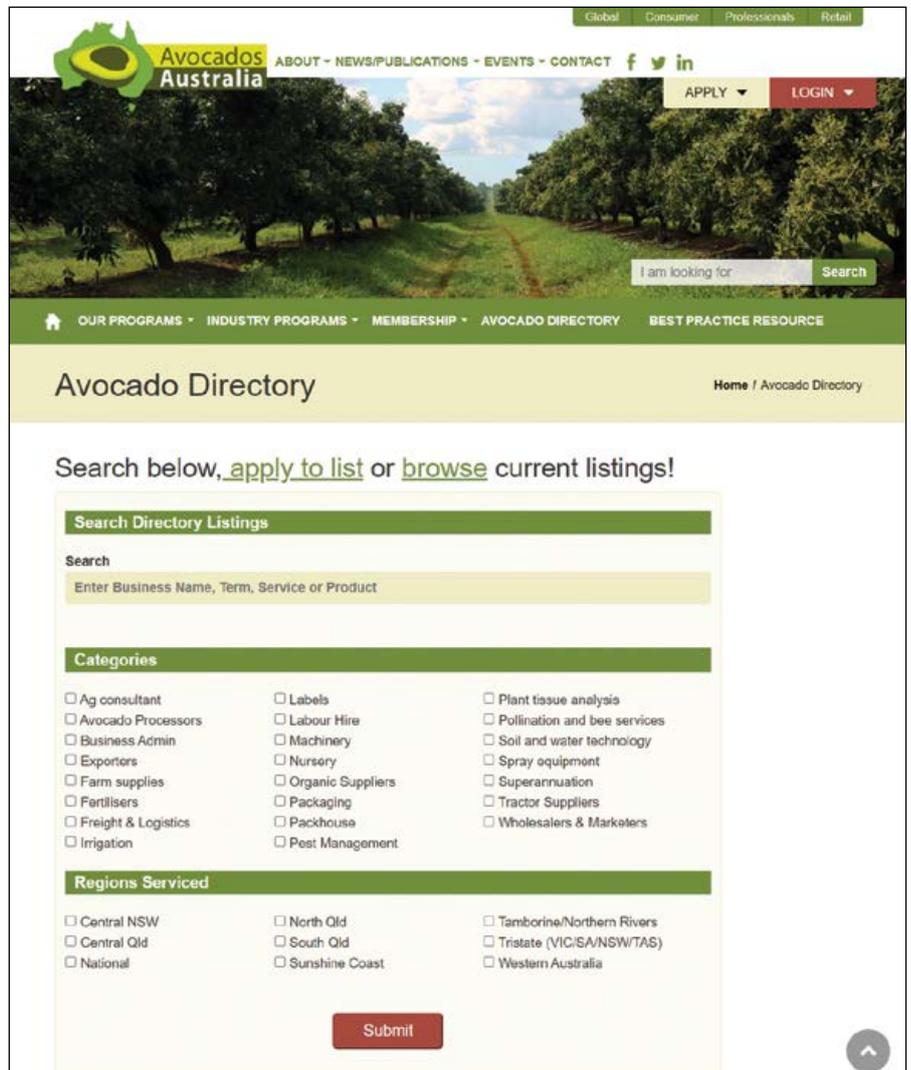
Did you know that Avocados Australia provides an “Avocado Directory” on its website? You can access the directory from our home page at avocado.org.au/avocado-directory/.

The Avocado Directory is specifically designed for the avocado industry and allows easy access to all sorts of businesses that provide products and services for the avocado industry. Anyone interested in finding a business related to the avocado industry can search for it in the directory. Businesses such as nurseries, crop consultants, fertiliser suppliers, avocado processors, exporters, farm suppliers to pollination and bee services. Overall there are 23 categories of businesses listed in the directory in which to browse. Because this directory is specifically designed for the avocado industry, listed companies can tailor their messages for this audience.

A business that places a listing in the directory can detail the range of products and services that they deliver for the avocado industry and indicate which regions they service. If a business has multiple branches or businesses you can have more than one listing, whilst easily editing and managing the listings in one location.

If you want to list your business, apply at avocado.org.au/avocado-directory/apply/ or send an email to admin2@avocado.org.au.

The Avocado Directory author interface is being refreshed in the coming month and all of the businesses listed will be kept in the loop about the changes. If you are a business that would like to renew your listing please email admin2@avocado.org.au and let us know you want to remain a part of this valuable resource.



The Avocado Directory is specifically designed for the avocado industry and allows easy access to all sorts of businesses that play a role in the avocado industry.

Whenever Avocados Australia staff receive enquiries for businesses or services we direct those people to the Avocado Directory. That includes international enquiries from overseas markets trying to locate suppliers of Australian avocados. So exporters listed in the Avocado Directory have high visibility.

New food safety culture fact sheet

The Fresh Produce Safety Centre Australia & New Zealand (FPSC) has developed a new Food Safety Culture fact sheet for use in businesses of all sizes.

It provides helpful tips and practical actions that can be taken to improve and measure food safety culture.

The FPSC Board identified food safety culture as a key area for the improvement of fresh produce food safety across the supply chain.

The factsheet was prepared by food safety consultant, and part of the team at the ARC Training Centre for Food Safety in the Fresh Produce Industry at the University of Sydney, Elizabeth Frankish.

Key topics covered include:

- what is food safety culture?
- planting the seed of food safety culture from the top
- measuring food safety culture
- pathways to best practice.

This fact sheet is part of a series on food safety topics being developed by the FPSC to translate relevant published research for the Australia and New Zealand fresh produce industries.

FPSC Chairman Michael Worthington said the Food Safety Culture fact sheet was developed with produce businesses, both large and small, in mind.

“We wanted to build a convenient resource to help guide best practice at every level of operation,” Mr Worthington said.

“The FPSC believes that implementing a robust food safety culture is of paramount importance to the continued wellbeing of our industry and the community. The actions individuals and businesses take has a crucial impact on improving food safety culture and raising awareness through educational resources is a key step in achieving this improvement.”

More information

Read the fact sheet, in full, here: <https://bit.ly/3a4xJ5S>.



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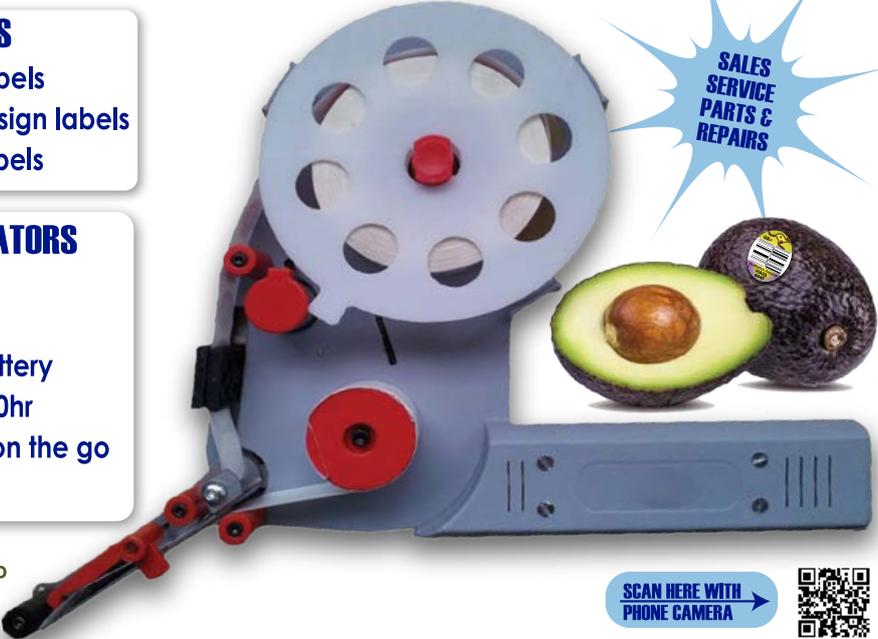
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Australia regains freedom from bee pest

Australia has been declared officially free from the bee parasite, *Varroa jacobsoni*, following its successful eradication from Townsville, Queensland.

Minister for Agriculture and Northern Australia David Littleproud thanked Queensland for leading the national response.

“*Varroa jacobsoni* was detected in recently arrived feral Asian honey bee nests at the Port of Townsville in May 2019 and April 2020,” Minister Littleproud said.

“*Varroa jacobsoni* is related to *Varroa destructor*, which is responsible for a collapse in European honey bee colonies around the world.

“While not as destructive, *Varroa jacobsoni* has the potential to jump from Asian honey bee to European honey bees and impact our industries that rely on bees.”

Mr Littleproud said the Australian, state and territory

governments, the Australian Honeybee Bee Industry Council, and affected pollination-reliant plant industries shared the cost of the response.

“Thanks to the hard work of Queensland and collaboration between governments and industry, Australia remains one of the few countries in the world that remains free of both species of varroa mite,” he said.

“Australia depends on everyone playing their part to protect our biosecurity and safeguard our vital agriculture industries and environment.”

Asian honey bee is established in Cairns region but this population does not carry varroa mites.

More information

If you suspect exotic bees or bee swarm, or see any unusual pest, you can report them to the national Exotic Plant Pest Hotline on 1800 084 881.



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MARKETING UPDATE

Our Green Gold Campaign Performance results

The Australian Avocados Marketing Update from 27 September showed that the *Our Green Gold* campaign was performing well in the marketplace. According to the update, as of 27 September, the campaign has reached 17.6 million Australians. The campaign successfully drove 77,240 users to the Australian Avocados website.

Our Green Gold over the Airwaves

The use of radio in the campaign proved effective with radio advertising reaching 3.27 million Metro grocery buyers 11 times on average. The campaign included advertising with Nova and Kate Richie sponsorship provided Nova airchecks that reinforced the campaign message promoting Australian avocados by way of recipe ideas.

Our Green Gold Socials

Through Facebook and Instagram platforms, Avocados have served over 29 million impressions which is 220% more than planned. The *Our Green Gold* campaign has seen over 1.7 million engagements with the various post types such as sponsorship, recipe, story polls and quizzes. The campaign also shared celebratory content related to Australian Avocados winning 'Best Ad of the Tokyo Olympics' and the winner of the National Avocado Day Competition. The Australian Avocados Facebook fan base has grown to 170K loyal followers.



Kate Richie has extensive radio experience and is no stranger to Nova listeners.

Social also expanded to Pinterest which targeted those looking for new recipes. The role of Pinterest will be to increase frequency of purchase by driving people to the site encouraging them to consume additional recipe content. The effort reached 1.9million people and saw close to 15,000 interactions on their recipe inspired posts. The inclusion of

this platform means that Australian Avocados are reaching additional audiences beyond just the scope of Facebook and Instagram.

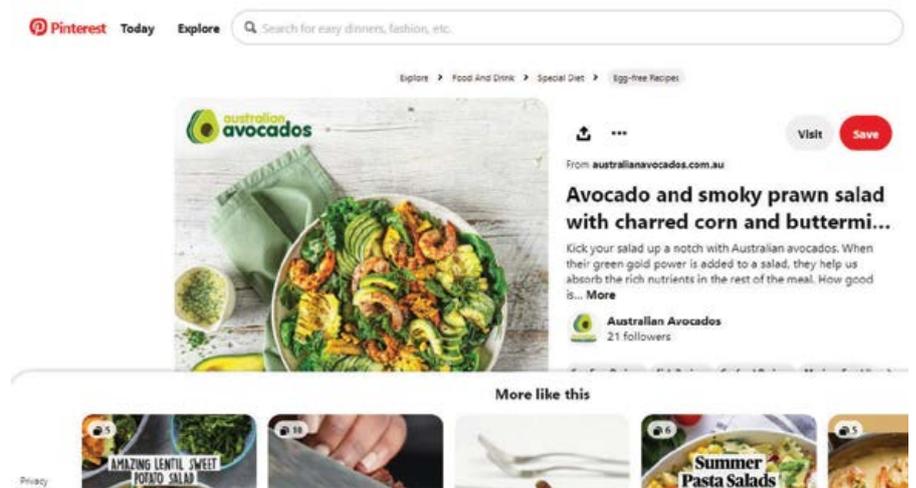
Acknowledgement

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

levy. You can find links to a range of the online content via our industry marketing blog at bit.ly/AusAvos2021, including the *Our Green Gold* ad featuring popular Australian comedian Nazeem Hussain.



Examples of Instagram posts in use by Australian Avocados.



Australian Avocados expand their socials to include Pinterest.



Our Green Gold featured on the Woolworths website.

Digital Traceability platform in use by Costa



Avocado grower and marketer Costa Group have teamed up with trace technology leaders iTrazo TraceTech to develop a Digital Traceability platform for their Lovacado avocados.

Launched across major and independent retailers nationally earlier this year, Costa's Lovacado Shepard avocados, grown in Central Queensland, had a QR code integrated into the fruit stickers to enhance business supply chain traceability and increase consumer engagement.

Costa Avocado's Marketing Manager Kylie McKnight said the business was excited to partner with iTrazo to integrate this technology into Costa's Lovacado fruit.

"This technology will allow us to better understand our farm to plate journey and engage with our consumers in a different way. Once the QR code is scanned by consumers the platform provides us with real-time geolocation data so we can see where the avocado has been purchased or consumed, and how far it has travelled from farm," Ms McKnight said.

In addition to its traceability capabilities, the iTrazo technology provides a platform for Lovacado consumers to rate their avocado, providing Costa with instant feedback on quality, ripeness, appearance and brand awareness.

The platform also provides consumers with information on the avocado's provenance, as well as recipe inspiration, avocado health benefits and all-important selecting and storage tips and tricks.

iTrazo's COO Paul Whybird said his company was committed to building trust and accountability for Costa's avocado consumers.

"The direct consumer communication will enable both the consumer and Costa to exchange information openly. Trace technologies increase consumer confidence and gives brands the peace of mind that comes from knowing their products arrived at their destination safely, on time, and without interference.

"Costa will further tap into existing farm and process data to provide 'Farm to Fork' transparency while linking marketing and distribution data to enhance and innovate its operations," Mr Whybird said.

Costa has also rolled out the iTrazo ADI platform across its FNQ grown Lovacado Hass avocados.

Source: costagroup.com.au.

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RESEARCH AND DEVELOPMENT

Avocados change belly fat distribution in women, controlled study finds

By Liz Ahlberg Touchstone, University of Illinois

An avocado a day could help redistribute belly fat in women toward a healthier profile, according to a new study from the University of Illinois Urbana-Champaign and collaborators.

One hundred and five adults who were overweight and obese participated in a randomised controlled trial that provided one meal a day for 12 weeks. Women who consumed avocado as part of their daily meal had a reduction in deeper visceral abdominal fat.

Led by Naiman Khan, an Illinois professor of kinesiology and community health, the researchers published their study, funded by the Hass Avocado Board, in the *Journal of Nutrition*.

“The goal wasn’t weight loss; we were interested in understanding what eating an avocado does to the way individuals store their body fat. The location of fat in the body plays an important role in health,” Khan said.

“In the abdomen, there are two kinds of fat: fat that accumulates right underneath the skin, called subcutaneous fat, and fat that accumulates deeper in the abdomen, known as visceral fat, that surrounds the internal organs. Individuals with a higher proportion of that deeper visceral fat tend to be at a higher risk of developing diabetes. So, we were interested in determining whether the ratio of subcutaneous to visceral fat changed with avocado consumption,” he said.

The participants were divided into two groups. One group received meals that incorporated a fresh avocado, while the other group received a meal that had nearly identical ingredients and similar calories but did not contain avocado.

At the beginning and end of the 12 weeks, the researchers measured participants’ abdominal fat and their glucose tolerance, a measure of metabolism and a marker of diabetes.

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Female participants who consumed an avocado a day as part of their meal had a reduction in visceral abdominal fat – the hard-to-target fat associated with higher risk – and experienced a reduction in the ratio of visceral fat to subcutaneous fat, indicating a redistribution of fat away from the organs. However, fat distribution in males did not change, and neither males nor females had improvements in glucose tolerance.

“While daily consumption of avocados did not change glucose tolerance, what we learned is that a dietary pattern that includes an avocado every day impacted the way individuals store body fat in a beneficial manner for their health, but the benefits were primarily in females,” Khan said.

“It’s important to demonstrate that dietary interventions can modulate fat distribution. Learning that the benefits were only evident in females tells us a little bit about the potential for sex playing a role in dietary intervention responses.”

The researchers said they hope to conduct a follow-up study that would provide participants with all their daily meals and look at additional markers of gut health and physical health to get a more complete picture of the metabolic effects of avocado consumption and determine whether the difference remains between the two sexes.

“Our research not only sheds a valuable light on benefits of daily avocado consumption on the different types of fat distribution across genders, it also provides us with a foundation to conduct further work to understand the full impact avocados have on body fat and health,” said study coauthor Richard Mackenzie, a professor of human metabolism at the University of Roehampton in London.

“By taking our research further, we will be able to gain a clearer picture into which types of people would benefit most from incorporating avocados into their diets and deliver valuable data for health care advisers to provide patients with guidance on how to reduce fat storage and the potential dangers of diabetes,” Mackenzie said.

Researchers at the University of Florida and Eastern Illinois University also collaborated on this work.

More information

The paper Avocado consumption, abdominal adiposity, and oral glucose tolerance among persons with overweight and obesity, is available online: <https://academic.oup.com/jn/advance-article/doi/10.1093/jn/nxab187/6311819>.

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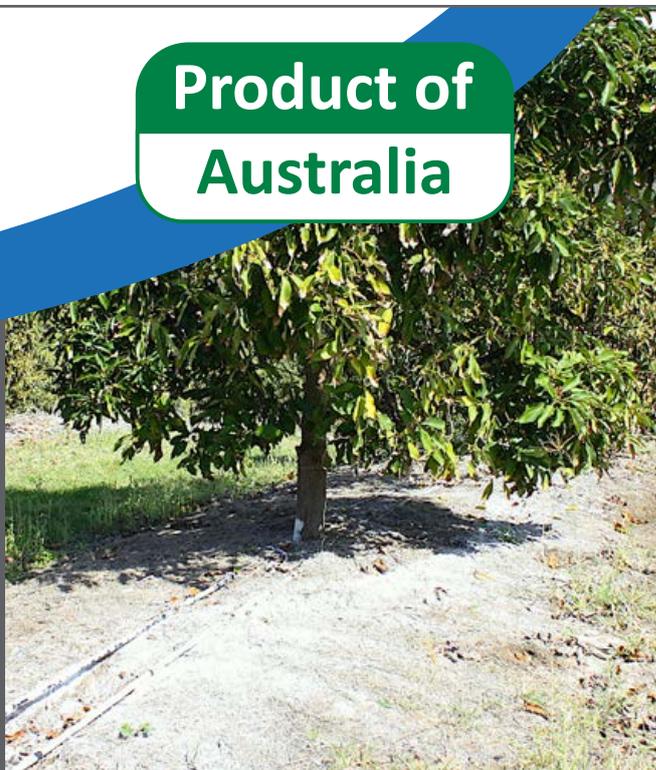
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Snapshots – International Avocado Research Update

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

PRODUCTIVITY

Hormonal and carbohydrate control of fruit set in avocado ‘Lamb Hass’. A question of the type of inflorescence?

Netherlands (2021): The avocado tree (*Persea americana* Mill.) has two types of shoots, indeterminate, which maintain vegetative development from an apical bud, and determinate, which do not have vegetative growth. Indeterminate shoots set fewer fruits than determinate ones, and significantly hasten physiological fruitlet abscission. The competition between vegetative and flower development is accepted as the most reasonable hypothesis to explain the differences. However, our results show that from anthesis until fruit set flowers of indeterminate inflorescences, both those remaining on the tree and those abscised, had a higher sucrose and C6 carbohydrate content than flowers of determinate ones and no differences between them were found for C7 carbohydrates, which disagrees with this hypothesis, and indicates that factors other than carbohydrate content are responsible for fruit set in avocado. At anthesis and fruit set stage, gibberellin and cytokinin concentrations (mainly GA and tZ, respectively) were significantly higher in flowers of determinate inflorescences than in those of indeterminate ones, indicating their higher ability to set. We conclude that fruit set is hormonally regulated in avocado, irrespective of vegetative growth. The lower fruit set of the indeterminate inflorescences does not depend on the competition for photosynthates due to the apical vegetative growth, since C6 and C7 carbohydrate availability is enough to ensure fruit set, but on their lower content of GA and tZ. Read the paper here: <https://bit.ly/3FnjiZa>.

Effect of NAA and CPPU on fruit drop, yield and quality of avocado trees

Egypt (2020): This work conducted to investigate the effect of NAA and CPPU on fruit set and retained/panicle, accumulative and relative fruit drop %, fruit quality and yield, changes in total soluble sugars on Bacon avocado (*Persea Americana* Mill.) trees. The selected trees were foliar sprayed twice, at full bloom and beginning of fruit set, with one of the following treatments, water (control), NAA at 15 or 30 ppm, CPPU at 5 or 10 ppm, and their combinations. Avocado trees treated with 30 ppm NAA + 5 ppm CPPU resulted in the highest fruit set/panicle,

fruit retained/panicle and significantly reduced the peak of fruit drop happen 2 weeks after fruit set. Also, 30 ppm NAA + 5 ppm CPPU and 5 ppm CPPU produced the highest fruit weight, fruit dimension and yield. All the treatments with NAA or CPPU significantly decreased the content of total soluble sugars in the leaves from the 3rd to 8th weeks after fruit set and starch from the 1st to 3rd week after fruit set. Based on this study, NAA and CPPU promoted the mobilization of carbohydrate from the leaves to the fruitlet. Hence, NAA or CPPU suppressed fruit drop in avocado by increasing the availability of carbohydrate in fruitlet and thus improved fruit retention. Read the paper here: <https://bit.ly/302fxIn>.

FRUIT QUALITY & TECHNOLOGY

Determination of ‘Hass’ avocado ripeness during storage by a smartphone camera using artificial neural network and support vector regression

United States (2021): Avocado undergoes quality transformation during storage, which needs to be managed in order to prevent quantity losses. A machine vision system devised with a smartphone camera was used to capture ‘Hass’ avocado images. Colour features in L*a*b* and YUV (YUV colour space is defined in terms of one luminance (Y) and two chrominance components (U and Y)) were extracted from the RGB images. Artificial Neural Network (ANN) and Support Vector Regression (SVR) were used compared for firmness estimation using the L*a*b* and YUV colour features. The results indicated the ANN model is more accurate and robust than the SVR model for estimating ‘Hass’ avocado firmness with R², RMSE, and RPD of 0.94, 0.38, 4.03 respectively for the model testing data set. It was concluded that the machine vision system devised with a smartphone camera and ANN model could be a low-cost tool for the determination of ripeness of ‘Hass’ avocado during harvest, storage, and distribution. Read the paper here: <https://bit.ly/3DcgL23>.

PESTS & DISEASES

New oomycota fungicides with activity against *Phytophthora cinnamomi* and their potential use for managing avocado root rot in California

United States (2019): *Phytophthora* root rot (PRR), caused by *Phytophthora cinnamomi*, is the most destructive disease of avocado worldwide. In the United States, mefenoxam

and phosphonate products are currently the only registered fungicides for managing avocado PRR. Four new Oomycota-specific and two registered fungicides, all with different modes of action, were evaluated. Seventy-one isolates of *P. cinnamomi* from avocado in California, most of them collected between 2009 to 2017, were tested for their in vitro sensitivity to the six fungicides. Baseline sensitivity ranges and mean values (in parentheses) of effective concentrations to inhibit mycelial growth by 50% (EC₅₀) for the new fungicides ethaboxam, fluopicolide, mandipropamid, and oxathiapiprolin were 0.017 to 0.069 µg/ml (0.035), 0.046 to 0.330 µg/ml (0.133), 0.003 to 0.011 µg/ml (0.005), and 0.0002 to 0.0007 µg/ml (0.0004), respectively. In comparison, the EC₅₀ value range (mean) was 0.023 to 0.138 µg/ml (0.061) for mefenoxam and 12.9 to 361.2 µg/ml (81.5) for potassium phosphite. Greenhouse soil inoculation trials with 8-month-old Zutano seedlings and 10-month-old Dusa and PS.54 clonal rootstocks were conducted to assess the efficacy of these fungicides for managing PRR. Mefenoxam and potassium phosphite were effective treatments; however, oxathiapiprolin, fluopicolide, and mandipropamid were more effective. Ethaboxam was effective in reducing PRR on the rootstocks evaluated. Oxathiapiprolin reduced PRR incidence and pathogen population size in the soil by >90%, and plant shoot growth and root dry weight were significantly increased compared with the control; thus, oxathiapiprolin was one of the best treatments overall. The high activity and performance of these new fungicides supports their registrations on avocado for use in rotation and mixture programs, including with previously registered compounds, to reduce the risk of development and spread of resistance in pathogen populations. Read the paper here: <https://bit.ly/3AcrEyR>.

More information

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

Acknowledgement

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



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Watch this netted space...

Bridie Carr (DAF), David Rowe and Dario Stefanelli (WA DPIRD)

Alan Blight hosted forty-two growers and industry stakeholders recently on a tour of a new trial located at his property 'Avowest' in Carabooda, Western Australia. The tour was part of the recent Western Australian Wanneroo Regional Forum (AV17005) held in June earlier this year.

The Western Australian Department of Primary Industries and Regional Development (DPIRD) are working alongside Avowest as part of the *National Tree Crop Intensification Program* (AS18000) to assess the impact of using shade netting on low density planting systems (408 trees/ha), and to compare low and high-density planting systems (1,108 trees/ha) under netting.

Avowest have erected 3.5 hectares of 10% shade netting and planted 1200 high density, and 1000 low density Hass on various rootstocks including Hass, Lamb Hass and Ettinger trees. There are 720 low density Hass on Hass trees planted outside the net which are being used for comparison in the trial. Trees are one to two years old. DPIRD will be collecting plant growth and environmental data over the five year project which will provide production and quality comparisons between netted and unnetted growing environments, as well the effects of high and low density plantings under netting. The analysis will help to inform the economic viability of erecting shade netting, especially if higher yields also result from higher density plantings.

This trial along with the broader avocado research project, part of *The National Tree Crop Intensification Program* (AS18000), aims to advance understanding of rootstock and scion combinations, plant density, tree structure, training and pruning options in high and medium density plantings to increase the industry's potential to broadly adopt more intensive orchard systems.



Figure 2. Low density (408 trees/ha) one year old Hass trees settling into their shaded environment at Avowest.



Figure 1. Alan Blight of Avowest hosting the Wanneroo regional forum participants at his shade netting trial site.



Figure 3. One of the weather stations inside the netted environment which measures rain, wind, solar radiation and evaporation.

Why use shade netting?

There are multiple reasons Avowest have installed the shade netting and DPIRD are researching the benefits of it, these include:

- There are proposed water allocation reductions of 10% in the local area and by manipulating the growing environment and installing drip irrigation there are potential water savings to be made.
- The netting may reduce fruit drop by protecting the trees from the hot drying winds that the area experiences.
- Improvements in fruit quality may be made with the reduction in sunburn and wind rub from the protected environment.
- An increase in humidity and reduction in wind under the netted area may provide better growing conditions and more productive trees.
- Prolonging the growing period during the day may be possible under the netted environment with longer transpiration periods. Previous work on the property showed that on very hot days trees were not photosynthesising after 10 -11 am.
- Productivity benefits that the netted environment may provide coupled with the expected higher yields from the high density planting system may help inform the economic viability of erecting the shade netting.

Trial design

The trial is planted under 5 metre high, 12% shade cloth, with 50% shade cloth ‘walls’ on all but the southern aspect. Given the height of the structure Avowest plan to limit the tree height to 4 metres with the assistance of strict canopy management strategies, maintaining a vase structure to the tree, and using plant growth regulators.

The standard planting configuration is 7 x 3.5 metres, whereas with the high density each row is doubled up.

It was Avo West’s preference to have used Nabal rootstock for its salt tolerance characteristics, however, this was unable to occur due to seed unavailability. Ettinger and Edranol pollinisers have previously been included in new Avowest plantings, but they are not convinced of their benefit so have chosen to not include them in this trial.

A dual drip-sprinkler system for irrigation has been set up (2 driplines per row with emitters spaced at 0.3m and delivering 2L/h/dripper). The system has two purposes, the drip irrigation providing water to the avocado crop, and the sprinkler system delivering irrigation to the cover crop and for microclimate control.

At this early stage, trees appear to be growing faster under the net than in the open with the observation of internodes being further apart on the branches. All nutrition, except a foliar boron spray at flowering and gypsum that is broadcast, is applied as fertigation.

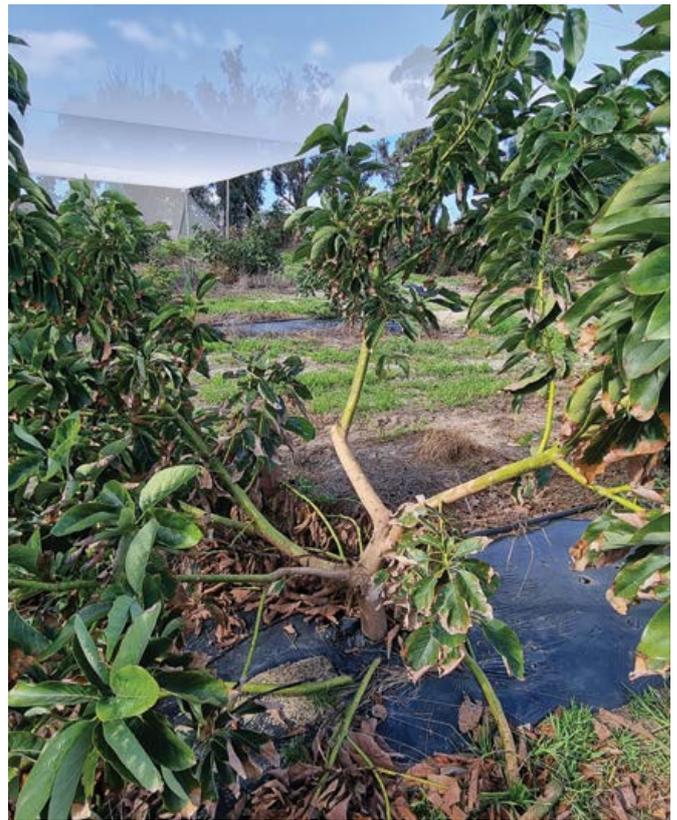


Figure 4. Alan Blight is adopting a vase structure to the tree to help assist with maintaining tree height under the 5 metre netting. Trees have been planted into plastic mulch to help with weed suppression.

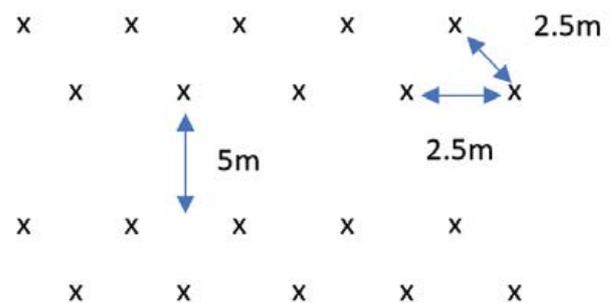


Figure 5: High density planting configuration.

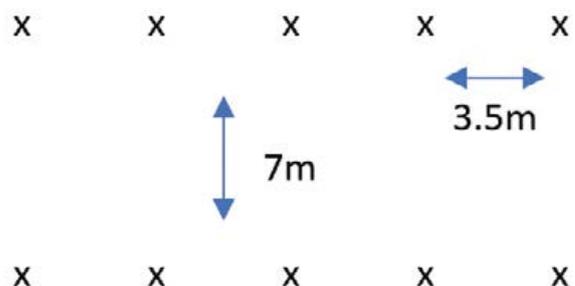


Figure 6: Low density planting configuration.

Some of the other early results under the netted area, include:

- A 20% reduction in maximum southerly windspeed;
- 15% reduction in solar radiation in May;
- Vapour pressure deficit reduced by 7% during the day with daytime temperature reduced by 1.5 ° C with no difference in humidity; and
- ETo (evapotranspiration) reduced by 15%.

As more work across the AS18000 avocado project unfolds, including the Avowest netting trial, growers can keep in touch by attending on location orchard walks, hearing directly from the researchers at future industry events and, of course, reading more in ‘Talking Avocados’.

For more information:

On this trial please contact: David Rowe (WA DPIRD) on david.rowe@dpiird.wa.gov.au.

On the avocado project within the ‘AS18000 National Tree Intensification Program’ please contact: Bridie Carr (DAF) on bridie.carr@daf.qld.gov.au.

On the ‘AS18000 National Tree Intensification Program’ please contact: Adrian Hunt (Hort Innovation) on adrian.hunt@hortculture.com.au.



Figure 5. Elliot Howse and Jesse Bowman installing one of the lysimeters at the trial site]



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This is a project of the *National Tree Crop Intensification in Horticulture Program*, funded by the Hort Frontiers Advanced Production Systems Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with co-investment from Queensland’s Department of Agriculture and Fisheries, Queensland Alliance for Agriculture and Food Innovation - The University of Queensland and the Western Australian Department of Primary Industries and Regional Development, and contributions from the Australian Government.

Predicting the ripening time of Hass and Shepard avocado fruit using machine vision technology

*Shahla Hosseini Bai, Wiebke Kämper, Helen Wallace, Stephen Trueman (Griffith University),
Kourosh Khoshelham, Yifei Han (University of Melbourne)*

Imagine if an image of an avocado fruit could tell you how many days were left until the fruit was ready to eat – without touching it! Predicting the ripening time or ripeness stage of avocados is a major challenge throughout the value chain.

Traditionally, the only methods to predict ripening time of avocado required cutting, squeezing, or otherwise damaging the fruit, or making estimates based on fruit age and history. Ripening time can be guess-timated based on daily visual inspection if the fruit age and history are known but is even harder for cultivars that do not change colour over time. A tool that reliably predicts ripening time accurately would help growers, wholesalers, exporters and retailers to make informed decisions about fruit storage, transport and retail display. This tool would reduce fruit loss and increase consumer acceptance.

Hyperspectral imaging is a ground-breaking technology that uses advanced camera systems to “see” the chemical bonds in a sample before the naked eye can detect changes. Hyperspectral imaging technologies are being used to measure meat quality, food contamination, grain protein concentration, mango ripening, and avocado dry matter.

This proof-of-concept study aimed to use hyperspectral imaging to predict the ripening time of avocado fruit.

Method

- We harvested 316 Hass and 160 Shepard fruit from a commercial orchard near Childers, Queensland.
- We stored fruit in a cold room for 8 days for Hass or 7 days for Shepard.
- We imaged the fruit using a hyperspectral imager (Figure 1a) and placed the fruit at room temperature (21°C) to allow the onset of ripening.
- We inspected each fruit daily and confirmed ripeness by measuring skin firmness with a handheld sclerometer (8 mm head; Lutron Electronic Model: FR-5120).
- We recorded the number of days for each fruit to become fully ripe.
- We extracted information from each fruit image (Figure 1b,c)
- We then applied machine learning techniques like deep convolutional neural network (DCCN) models to predict ripening time for both cultivars.

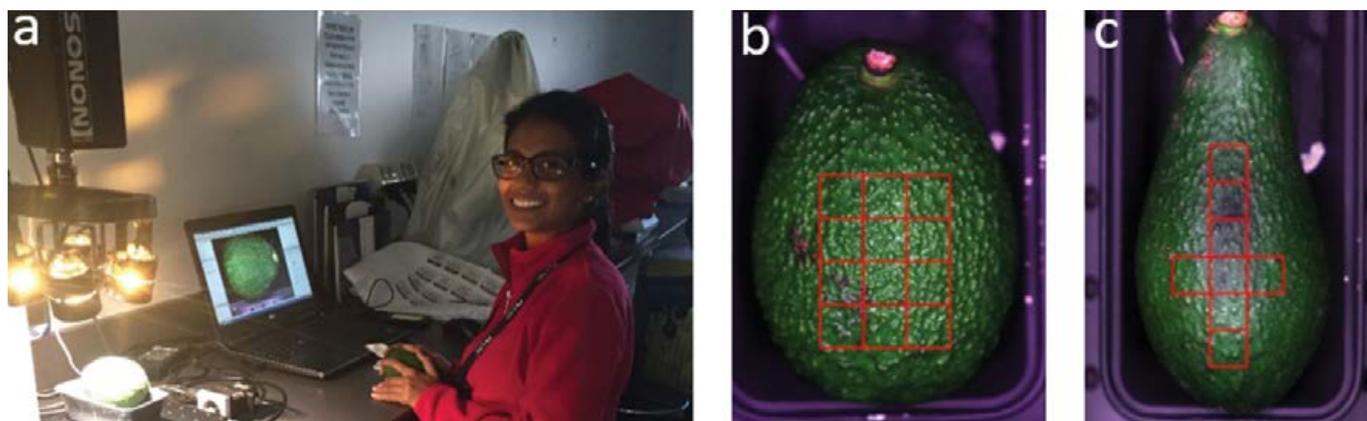


Figure 1. (a) Imaging avocado fruit using a bench top hyperspectral imager, and extracting information from (b) Hass and (c) Shepard images.

Results and Discussion

We were able to predict, with an accuracy of ± 1 day, when a fruit would be ripe. This, we felt, would be acceptable given that avocados ripened over 7-15 days when held at room temperature.

Using this hyperspectral technique, we could distinguish at an early stage between fruit that are ready for retail display as ripe fruit, those that will soon be ripe, and those that would require a longer ripening time.

Using this knowledge, growers, wholesalers, exporters and retailers will be able to confidently segregate fruit based on their time-to-ripeness. The consistent delivery of high-quality fruit is essential for ensuring consumer satisfaction and strengthening the Green Gold reputation of Australian avocados.

What next?

We have shown hyperspectral imaging can predict the time to ripeness of avocado fruit and this will have large benefits throughout the supply chain. We need to collect more information from more locations and more cultivars. We will also need to examine whether hyperspectral imaging can identify fruit defects such as bruising at an early stage or predict factors that help determine fruit quality such as nitrogen and calcium concentrations in the fruit.

Acknowledgements

Increasing yield and quality in tropical horticulture with better pollination, fruit retention and nutrient distribution (PH16001) is funded by the Hort Frontiers Pollination Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with co-investment from Griffith University, University of the Sunshine Coast, Plant & Food Research Ltd and contributions from the Australian Government.

We thank Costa Avocado for assistance and access to their orchards. We thank Chris Searle and Clayton Lynch for advice and assistance.



The advertisement is a vertical red banner. At the top, the word 'NORDOX' is written in large, bold, black capital letters. Below it is a white inverted triangle containing a red female symbol. The main text 'THE Red Copper Fungicide' is written in large, white, bold letters, with 'Red' in a smaller font size than 'THE' and 'Copper Fungicide'. At the bottom of the banner is a photograph of several green avocados on a branch with dark green leaves. Below the photo, the contact information is listed in white text: 'Telephone 07 4639 2009', 'Email sales@tanuki.com.au', and 'tanuki.com.au'.

WA grower uncovers risks to avocado fruit quality

Declan McCauley, Research Scientist, Department of Primary Industries and Regional Development

One of the Western Australian growers collaborating to monitor avocado quality through the supply chain has identified the use of post-harvest fungicide in the packing shed as a key factor for managing the risk of rots developing by the time fruit reach eating-ripe.

Declan McCauley from Department of Primary Industries and Regional Development (DPIRD), who is leading the monitoring work in Western Australia, says that while the identity of the grower remains confidential, both Declan and the grower did want to share the findings with other growers as a case study, so that they might learn from the collaborative work that is underway.

The grower said “observing fruit under storage has shown that more can be done to get better fruit, a post-harvest fungicide application this season will help”.

Now in its third and final year the avocado supply chain feedback project (AV18000) which is supported by avocado grower levees, is monitoring practices used throughout the supply chain, supply chain temperatures in consignments and the resultant fruit quality when avocados reach the eating ripe stage. This involves samples of fruit from the main avocado producing areas of Australia including south-west Western Australia.

The results from the last two years of monitoring from this particular grower, on which this case study is based, is presented in table 1. Even though there is only limited sampling, these results suggest that:

- When you compare the ‘normal’ results for the two samples per year (top row) with the avocado industry minimum target (bottom row), it is fair to say that there was a generally good fruit quality result for the relatively short domestic supply

chains (~15 days) where no storage of fruit occurred at the wholesaler.

- Comparing the 2019/20 mid-season result with the late season result might suggest that holding fruit until late in the season before harvest may raise the risk of increased rots due to a greater chance of additional infection occurring in the field.
- When you compare the Normal (row 1) with the Stored (row 3) result in the 2021/21 year, it suggests that while the fruit present good quality under normal supply chain conditions, the fruit may not have the robustness to hold that quality under extended supply chain timeframes. Supply chains can commonly be extended by 14 days when there is too much fruit hitting the market at once causing congestion, or when fruit is selected for longer export supply chains. This represents a hidden risk to fruit quality, that is not apparent under normal domestic supply chain length/conditions.

It should be noted that the industry minimum target for quality of 90% of fruit with <5% rots (10% total damage including bruising) was arrived at using consumer research. At this quality target or better, consumers are happy to make repeat purchases. Below this quality they are more inclined to stop buying for up to two weeks before repurchasing avocados.

While these numbers tell a story, it is also important to see what this fruit quality looks like. Figures 1 and 2 show typical fruit from the mid and late season sampling respectively in the 2019/20 season. Figures 3 and 4 show typical fruit from a normal and then stored sample respectively from the 2020/21 season.

While detailed temperature monitoring was recorded, good cool chain management was observed and because it is unlikely to have influenced the fruit quality, it is not presented in this case study.

In WA, due to the relatively new significant avocado plantings plus the dry summers in which avocados are harvested, some growers have viewed either pre or post-harvest applications of fungicides as optional. It should be pointed out that this grower does use a pre-harvest spray program of copper sprays to reduce infection in the orchard. This case study highlights that the use of pre-harvest fungicide may not improve fruit quality with mid-season harvested fruit in short domestic supply chains. However post-harvest fungicide application is a necessary and cheap option to ensure rot development is kept in check for fruit harvested late in the season or fruit harvested anywhere through the season that ends up in congested market conditions or in export supply chains.

Assessment	Fruit quality measure	2019/20		2020/21	
		Mid-season	Late-season	Mid-season	Mid-season
Normal (Av 15 days supply chain length)	% fruit with <5% rot	100 (Fig 1)	70 (Fig 2)	95 (Fig 3)	96
Stored (extra 14 days stored pre-ripening)	% fruit with <5% rot	Not recorded	Not recorded	50 (Fig 4)	60
Industry min target	% fruit with <5% rot	90	90	90	90

Table 1: Fruit quality results from the past two seasons of monitoring under project AV18000.

For more information contact

Declan McCauley, Research Scientist (DPIRD), Ph (08) 9777 0184, Email Declan.McCauley@dpiird.wa.gov.au.

Acknowledgement

The AV18000 project has been funded by Hort Innovation, using the Hort Innovation avocado industry research and development levy, co-investment from the Qld Department of Agriculture and Fisheries, WA Department of Primary Industries and Regional Development and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture. Key project delivery partners also include Avocados Australia Ltd and Rudge Produce Systems.

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Figure 1. Mid-season fruit from 2019/20.



Figure 2. Late-season fruit from 2019/20.



Figure 3. Normal fruit from 2020/21.



Figure 4. Stored fruit from 2020/21.



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Is fruit maturity influencing variability in ripeness?

Noel Ainsworth, Principal Supply Chain Horticulturist, Department of Agriculture and Fisheries

Investigating the possible link between fruit maturity and the variability in ripeness is a new component of the *Avocado Supply Chain Feedback project* (AV18000). While the research literature tells us that fruit maturity can affect fruit robustness and the fruit's ability to ripen consistently, we wanted to find out if the effects were so significant that variability in maturity was impacting on variability of ripeness at retail. If this was the case, then too much variability in ripeness might increase the time consumers pick over the fruit, thereby increasing the risk of bruising and reducing the likelihood that consumers will clear the volume of fruit on display each day. This in turn would increase the handling required by store staff, potentially reducing fruit quality and increasing costs.

Using the same samples taken from supply chains to monitor quality, staff at Rudge Produce Systems also recorded dry matter measures of fruit maturity before the fruit got to the soft ripe stage. They used a Near Infra-Red device (Figure 2) to average two readings per fruit on 980 fruit between June 2020 and July 2021. They also recorded the firmness of each fruit when the tray reached soft-ripe stage of ripeness.

We separated out the Hass from the Shepard data, suspecting that the Shepard dry matter data may have lower results, which could cloud the relationship. Figure 3 shows that with readings of Hass dry matter ranging from 17 to 31%, we could find no relationship to firmness/ripeness. A separate examination of the relationship between dry matter and firmness for Shepard (not shown) also failed to find evidence of the suspected inverse relationship.

We also decided to check for any trends associated with dry matter data. Rather than looking at individual fruit we examined the average dry matter per tray samples. Figures 4 and 5 shows that we failed to detect any trend or influence through the period of sampling or between districts.

So without a strong relationship evident in this data there is no case for packaged managers to consider segregating fruit sent to retail based on dry matter, as it is unlikely to reduce the variability of ripeness on the retail display. The lack of relationship may have been clouded by other factors influencing ripening including the diligent use of ethylene and ripening conditions, and the diversity of fruit origins from across the five main production districts of north Queensland, central Queensland, central NSW, Tristate and south-west Western Australia. We will continue to keep an eye on dry matter versus ripeness for the remainder of the AV18000 project.



Figure 1: Uneven ripeness in a tray [indicated by fruit colour]



Figure 2: A Felix near infra-red device measuring dry matter of avocado fruit.

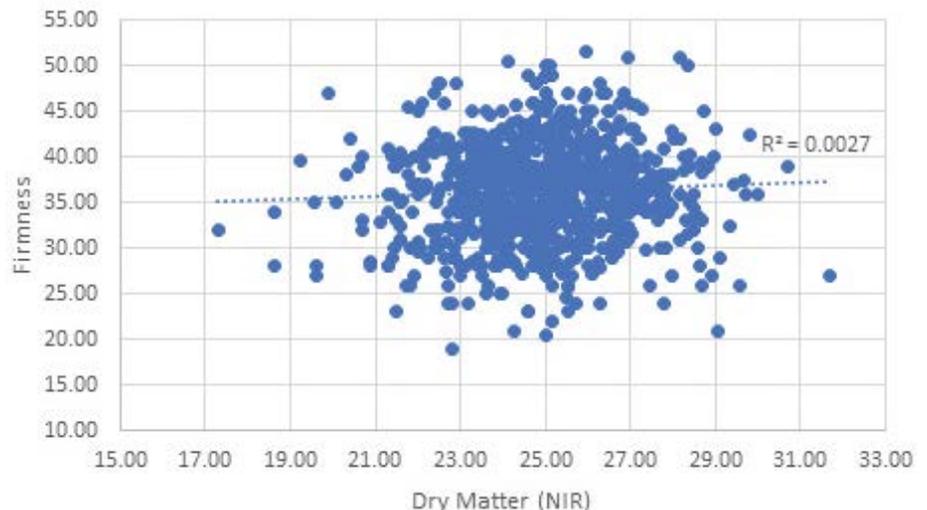


Figure 3. A plot of Hass dry matter and firmness measurements.

Given that we were already examining dry matter, we thought that it would be timely to also look at the proportion of immature fruit that had been consigned to market. The project only sampled Shepard fruit from north Queensland and all of those individual fruit were above the recommended 21% dry matter. Hass fruit however was sourced in mid-season from all of the five districts mentioned above.

Figure 6 shows that on average, 14% of all fruit were below the recommended 23% dry matter. There were also significant differences between the districts sampled with north QLD and Tristate dispatching a disproportionate amount of immature fruit. F6

Acknowledgement

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Author: Noel Ainsworth, Principal Supply Chain Horticulturist, Department of Agriculture and Fisheries, Mobile 0409 003 909, Email noel.ainsworth@daf.qld.gov.au.

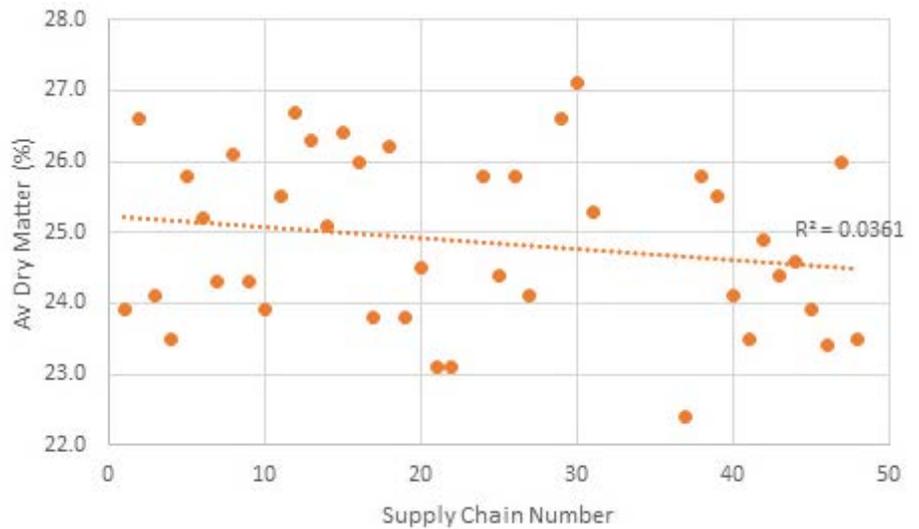


Figure 4. Average Hass dry matter versus supply chain number sampled through the year.

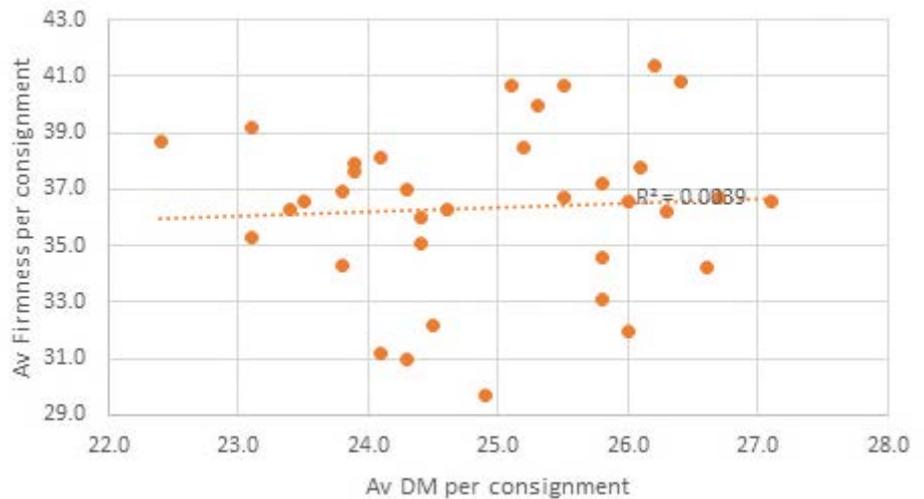


Figure 5. Average dry matter versus firmness for each Hass consignment sampled.



Study finds that older regular avocado consumers have better cognitive abilities

Want to preserve your memory as you age? Reach for an avocado.

A study published today in *Frontiers in Nutrition* showed that regular consumption of avocados is linked to better cognition.

Researchers from the University of Kansas Medical Center and the Hass National Avocado Board examined data from the National Health and Nutrition Examination Survey (NHANES) and performed a cross-sectional study of participants aged 60 or older. Those who reported consuming avocado in the 24 hours prior to the dietary survey scored higher on three different types of tests measuring cognition, even after other variables were factored out.

While additional studies are needed to confirm the precise benefits and tease out why avocados may have such a positive effect on memory, the take-away is simple: incorporate avocados into your diet if you want to preserve your memory as you age.

“One of my key research agendas is to understand how we can prevent neurodegenerative diseases and preserve cognition as we age,” said Matthew Taylor, Ph.D., RD, assistant professor in the Department of Dietetics and Nutrition in the School of Health Professions at KU Medical Center.

“The NHANES study had collected cognition data in older adults, and they also had really good diet data,” Taylor said. “So it was a good data set to investigate this relationship. If you look at avocados, they are very nutrient-dense and have some unique properties, including carotenoids, that are thought to be beneficial to cognition. We hypothesized that there may be a connection, and we found there was.”

The study showed that, even once other variables such as education, age, physical activity and smoking were accounted for, the avocado and its positive impact on cognition remained. Taylor says avocados are nutritionally similar to other foods known to aid cognition. “As we look at our how our diet affects cognition, we are finding diet patterns that benefit brain aging, like the Mediterranean diet with its emphasis on olive oil and fatty fish.”

Taylor notes the avocado is loaded with B vitamins, supports healthy metabolism and can help reduce inflammation. And while it’s calorically dense, it’s worth making room for those calories in your diet.

“Avocados in general have a vast amount of nutrition in one package,” he said. “There also may be some synergistic elements of these nutrients working together.”

Taylor encourages continued study, noting that understanding how to improve cognition and reduce the effects of aging on the brain will continue to be important as the U.S. population grows older. “We really need participants in all types of clinical trials,” he said. “Understanding how all of these pieces work together continues to be a puzzle.”

This research was supported by the Hass Avocado Board and the National Institutes of Health.

You can read the original research article in *Frontiers in Nutrition* online at <https://www.frontiersin.org/articles/10.3389/fnut.2021.746453/full>.



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Is fruit set related to weather at spring? A retrospective analysis.

Declan McCauley, Department of Primary Industries and Regional Development

In the wake of a very large crop set in the spring of 2018 the spring of 2019 was characterised by a very poor fruit set in the avocado orchards located in the Manjimup and Pemberton areas. Data from packing house outputs from the harvest of the 2020 season, which was set from the flowers of the 2019 season, showed that the crop from the Manjimup area was only 29% the size of the crop from the previous year, which was the largest crop so far from the region. The coastal orchards located in areas such as Busselton and Perth set a more normal crop of avocados at the same time. Perth in particular had a crop size that was 90% of the previous year, which itself was 96% the size of the previous year. Therefore, the fruit set was more consistent than in the Manjimup and Pemberton areas. Poor fruit set is undesirable and can be managed practically in different but complimentary ways. Diligent use of pollinators (beehives or, as recently suggested by Department of Primary Industries and Regional Development scientist David Cook, flies) and application of water and minerals greatly affect tree productivity, but, sometimes fruit set can be unusually poor. Growers have expressed concern over this poor fruit set and have questioned whether weather conditions at flowering could be responsible. The following article is an extract of a desktop review into the weather conditions that prevailed during the spring of 2019, and attempts to understand possible effects on that season fruit set.



Figure 1. A male Edranol flower in the morning.



Figure 2. A female Hass flower in the morning.

Blooming, genesis of an avocado fruit

An avocado fruit begins with a flower in spring. That flower begins its development the previous winter as primordial buds that originate on the past summer's vegetative flush. They develop through the end of winter and early spring and eventually each bud will develop into a large cluster of inflorescences. Each inflorescence can bear up to 100 or so flowers and a whole tree can have tens of thousands of flowers. The flowers open over a protracted period of four to six weeks.

The development of avocado flowers has been researched in growth chambers and shown to be initiated by cool temperatures (15-20 degrees Celsius) (Buttrose and Alexander 1978, Acosta-Rangel 2021).

The flowers themselves have an in-built defence against self-pollination whereby an individual flower will open in male

and female stages at different times. For a Hass avocado tree, flowers will open as female in the morning and shut by noon then reopen the following day at noon as male flowers (Figure 1). Flowers in pollinator trees, such as Edranol, will open as a male in the morning then reopen the next day in the afternoon as a female flower (Figure 2). Pollen transfer is usually by bees, but other insects can act as pollinators as well. Bee activity, and hence pollination is affected by variations in weather conditions.

Bees are very important insects as they are responsible for the pollination of around one third of all crops. Bees are living creatures and therefore their behaviour is affected by the prevailing conditions. Generally, bees forage at temperatures above 12-14 degrees Celsius. They prefer to forage when the sun is shining and do not forage when it is raining (Vicens and Bosch 2000). Therefore, by looking at weather data for the flowering period in 2018

and 2019 it may be possible to observe patterns that may have affected bee activity.

If a bee carrying pollen from a male flower visits a female flower, and if that pollen is left on the stigma of the flower, the pollen can germinate and grow the pollen tube down to the ovary. A single pollen cell will fertilise the ovule generating an embryo and begin the process of growing a seed and the fruit. The success of pollination and fertilisation is affected by temperature and humidity with a temperature range of 15-25 degrees Celsius and a relative humidity of 75% being ideal for pollen germination on the stigma. If fertilisation does occur, then the fruit will 'set' and it can grow.

Carbohydrate status in the tree is known to have a role in bearing and starch is known to have a specific role within the flower. In avocado flowers the starch reserves can vary by a factor of up to 1000 and are associated with



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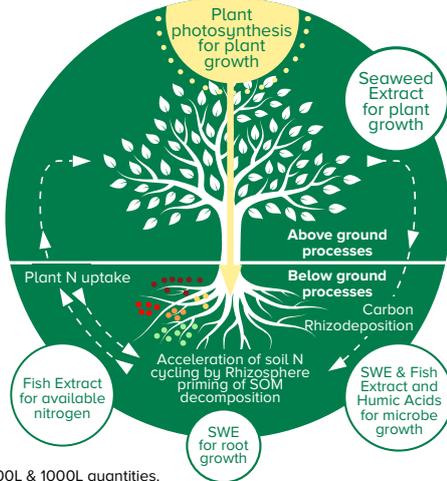
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the success of fertilisation in that flower; higher flower starch levels result in greater fertilisation success (Alcaraz 2013).

A final element of avocado flowering to mention is that a general interpretation of good flowering weather can be described by a ‘pollination event’ which is interpreted as a period at least three days long where the temperature does not go below 10 degrees Celsius (Whiley and Winston, 1987). Trying to observe the number of ‘pollination events’ and other conditions such as rainfall can be useful in determining the conditions for pollination and fertilisation and further predicting possible crop load.

Overview of conditions at Busselton, Manjimup and Pemberton in 2019.

To investigate the correlation between fruit set and weather conditions, three locations were chosen; Pemberton, Manjimup and Busselton which represent the major avocado growing areas. Manjimup and Pemberton are both located relatively inland and consequently are characterised by greater extremes than the coastal Busselton weather. Coastal locations benefit from the sea effect which moderates temperature.

The maximum and minimum temperatures for all regions during the flowering period were taken from Department of Primary Industries and Regional Development (DPIRD) weather stations and plotted over time. ‘Pollination events’ (where the minimum temperature was above 10 degrees Celsius) were also taken from the data and separately plotted so site differences could be compared (Table 1). An analysis of conditions was done on a sample of 500 hours from Busselton and Manjimup for 2019 to determine the proportion of hours where the humidity, bee temperature limit (12 degrees C) and rainfall were optimal. The focus of attention was on the spring dates from the 5th of October to the 5th of December at Manjimup and Pemberton, and from the 19th of September to the 20th of November at Busselton. These dates were chosen to reflect when flowering was occurring at the three different sites.

Table 1. Summary of pollination events at Manjimup, Pemberton and Busselton for 2018 and 2019. One single event is considered as a continuous three day period when the minimum temperature did not go below 10 degrees Celsius.

Results and conclusion

It was hotter at Manjimup and Pemberton in 2019 than in 2018 and there were more opportunities for pollination in 2019 than in 2018 at all sites (Table 1). While there was rainfall during the pollination events there was still an opportunity for bee activity during these times as it did not rain all the time and because the temperature was ideal during these pollination events, being above the 12-14 ° Celsius cut-off needed for bees to start foraging. Relative humidity during the day showed that pollination most likely occurred outside of times considered to be ideal when humidity was well below 75%. Presumably this was not a sign of poor conditions but indicates instead that ideal conditions found in the lab are not fully representative of field conditions. Many of the avocado flower conditions currently accepted, including the definition of ‘pollination event’, were generated under lab conditions and are difficult to apply to real world situations. Also, there remains still the possibility that a carbohydrate shortage after the heavy 2018 crop (harvested in 2019) may have resulted in trees compensating by setting a smaller crop.

Year	Location	Number of events	Total days	Total Rainfall (mm)	Average single point maximum per event (° celsius)	Average daily maximum temperature (° celsius)
2018	Manjimup	5	21	33	27.5	21.1
	Pemberton	5	26	28.8	25.3	20.2
	Busselton	4	26	26.8	24.9	21.5
2019	Manjimup	6	24	4	31.9	23.7
	Pemberton	6	34	18.3	31.1	22.9
	Busselton	5	28	21.1	27.2	22.9

Table 1.

Ultimately, even if there is a relationship between the weather and fruit set, these data were collected retrospectively without any form of control on direct effects, therefore are not able to express the desired association. While not possible in this scenario, a better analysis would control for variability and confounding factors by measuring weather conditions at specific locations where fruit set is then quantified. Additionally, the reliance of lab derived physiology models need to be addressed. What isn't known well enough is how key facets of weather—namely rain, humidity, and temperature affect an in-situ flower in real time. In particular the temperature of flower and inflorescence tissues is totally unknown with respect to external factors such as temperature, humidity, and even the time of day. Also, the flower overlap between the male and female stages has been studied, but not with continuous real time monitoring, therefore lacking the ultimate link identifying possible weather controls.

Due to this knowledge gap regarding the effect of weather on flower set DPIRD has recently proposed a new project in collaboration with Agricultural Produce Commission to monitor inflorescence tissue

temperature over time, and monitor flower opening and closing under normal orchard conditions. The project aims to understand how temperature affects flowering in field conditions and if possible, deliver suggestions on orchard management regarding prevailing weather.

Acknowledgements

The *Avocado capacity building WA* (AV17006) project has been funded by Hort Innovation, using the Hort Innovation Avocado Fund research and development levy, co-investment from The Department of Primary Industries and Regional Development and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

References

Acosta-Rangel A, Li R, Mauk P, Santiago L, Lovatt CJ (2021) Effects of temperature, soil moisture and light intensity on the temporal pattern of floral gene expression and flowering of avocado buds (*Persea americana* cv. Hass). *Scientia Horticulturae*, Volume 280, 109940, ISSN 0304-4238, doi: [org/10.1016/j.scienta.2021.109940](https://doi.org/10.1016/j.scienta.2021.109940).

Alcaraz ML, Hormaza JI, Rodrigo J (2013) Pistil Starch Reserves at Anthesis Correlate with Final Flower Fate in Avocado (*Persea americana*).

PLoS ONE, Volume 8(10): e78467. doi:10.1371/journal.pone.0078467

Buttrose MS, Alexander DMcE (1978) Promotion of Floral Initiation in 'Fuerte' Avocado by low temperature and short daylength. *Scientia Horticulturae*, Volume 8.

Vicens and Bosch 2000 Vicens N, Bosch J (2000) Weather-Dependent Pollinator Activity in an Apple Orchard, with Special Reference to *Osmia cornuta* and *Apis mellifera* (Hymenoptera: Megachilidae and Apidae). *Environmental Entomology*, Volume 29(3) doi: 10.1603/0046-225X-29.3.413.

Whiley AW, Winston EC (1987) Effect of temperature at flowering on varietal productivity in some avocado-growing areas in Australia. *South African Avocado Growers' Association Yearbook* 1987. Volume 10.



INTERNATIONAL NEWS

Bayer to increase global fruit and vegetable consumption

Bayer is lifting the profile of horticulture within its business. This year the global chemical giant announced a new business strategy specifically for horticulture with a focus on activities that “deliver tailored solutions to the farm, advance sustainable innovations on the farm and address value chain and consumer needs beyond the farm”.

The company also reinforced its overall approach to increasing fruit and vegetable consumption on a global level.

The announcement comes on the back of 2021 being labelled by the United Nations as the International Year of Fruits and Vegetables.

The horticulture strategy is underpinned by Bayer’s genetics, crop protection and digital capabilities.

Bayer head of global vegetable seeds Inci Dannenberg said only a fraction of the global population comes close to consuming the daily recommended serving of fruits and vegetables.

“Bayer is doubling down on its approach to enabling growers and partners to address the barriers to improving fruit and vegetable consumption in order to achieve health for all, hunger for none,” Ms Dannenberg said.

Source: Good Fruit and Vegetables.

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Peruvian avocado exports have skyrocketed in 2021

The value of Peruvian avocado exports skyrocketed to a new high this year, growing by 47 percent year-on-year through July to reach \$949 million, Trade Minister Roberto Sanchez has said.

That compares to \$645 million exported over the same period last year, and is up 14 percent on the \$834 million exported during the whole of 2020.

This year's figures do not yet include data for August 2021, the final month of the season.

Sanchez attributed the strong results to an uptick in production and exportable fruit driven by greater investment in the country and good prices in export markets.

The main destinations were the European Union, which took

54 percent, followed by the United States, and Chile. Exports to South Korea were notable this year, quadrupling year-on-year to \$30 million.

The export figure through July this year was made up of \$910 million of fresh avocados and 39 million of frozen. This year, 253 Peruvian companies have shipped avocado abroad. Of these, nearly half were micro, small and medium-sized companies,

Peru is the second largest avocado supplier in the world, after Mexico and ahead of Spain, Chile, the United States and Colombia.

Source: Freshfruitportal.



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Korea a growth market for avocados

In early September attendees of the Global Avocado Congress were told that while China is seen as the next frontier for avocados in Asia, but Korea could “develop faster” as a market.

In an article by Fruitnet’s John Hey it said that Korea continues to underline its reputation as one of Asia’s most exciting growth markets for avocados, according to leading global suppliers speaking at Global Avocado Congress.

Korea’s avocado imports increased by 61 per cent year-on-year in 2020 to top 13,000 tonnes, and the growth has continued this year, fuelled by a surge in Peruvian imports. Total imports stood at 10,181 tonnes through the end of July, up 77 per cent on the 5,740 tonnes imported during the first seven months of 2020.

While the market slumped in July following record shipments from Peru, the emergence of the Latin American supplier has been a key factor in expanding Korean avocado consumption, according to expert speakers at Global Avocado Congress.

“Korea’s been looking for a source of supply that’s consistent and can run programmes for the retailers, and that’s what we’re seeing with Peru,” said Tommy Padilla, senior director of export sales for Mission Produce at Global Avocado Congress.

The arrival of Peruvian supply has provided a better alternative to Mexican imports during the summer months, further driving growth, he added.

“Buyers are no longer depending on a piece of Mexican fruit in the summer. We all know the rainy season is in the

summer. This leads to spotting issues during the summer in export markets,” he said. “Now they can import from Peru during the summer and switch to Mexican supply later in the season when the dry matter is good.”

Building the market for pre-ripened fruit will be key to taking consumption in Korea to the next level, Padilla noted. “Currently, buyers just want green fruit. Until we can educate them on how to ripen, we’re going to hit a ceiling on consumption. There’s not much conditioning of fruit right now. But the sky’s the limit if we can get these people to eat ripe fruit.”

Jose Antonio Gomez, managing director of Camposol International, said the Korean market is growing steadily, and that developing retail sales of avocados is also key to speeding development.

“I would say Korea is somewhere between Japan and China in terms of channel development. China is more wholesale-focused, where Japan is more retail-oriented. Korea is in the middle,” said Gomez.

“Once you have the supply chain moving fruit through retail, you get a bit more control; you can present fruit when it’s ready and get more appreciation from consumers.”

“Korea is getting there, and I think it’s going to develop faster than China and grow towards Japanese consumption levels. Right now, Korea is 10 per cent of Japan’s consumption but I have no doubt Korea could reach half the volumes of Japan, which are around 70-80,000 tonnes currently.”

Source: Fruitnet.

Chilean Avocado Committee forecasts production increase by 57%

The Chilean Avocado Committee has forecast that the country will produce 220,000 tonnes of avocados in the 2021-2022 agricultural season, i.e. 57% more volume than the 140,000 tonnes it produced in the 2020-2021 campaign. According to the union, the production volume will increase because of the improved weather conditions and the positive fruit set there's been.

120,000 tonnes of the total production will be exported. Western Europe is one of the main destinations, as the country shipped 75% of its avocado to this destination during the previous season.

The remaining 100,000 tons of avocados will go to the domestic market, making the avocado the fruit with the largest percentage of its national production marketed in the country.

During the 2020-21 season, Chile exported a total of 74,040.52 tonnes of avocado. 55,520.8 tonnes were destined for Western Europe, mainly for the Netherlands, the United Kingdom, and Spain. In addition, 9,986.93 tonnes were sent to the markets of South America and 2,522.48 to Oceania, which consolidated them as the most important commercial regions for Chile's production.

During the start of the 2021-22 season, Chile has already exported 397.29 tonnes of avocado to Western Europe and 203.18 tonnes to South America.

Source: simfruit.cl



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