australian almonds

In A Nutshell

The Official Newsletter of the Australian Almond Industry

Summer 2021

Meet the ABA's new Sustainability Manager...

Megan's on a mission

Story page 25

IN THIS ISSUE

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The Almond Board of Australia is the peak industry body representing the interest of almond growers, processors and marketers in Australia. In a Nutshell is published by the ABA to bring news to all industry contacts and members.

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ALMOND BOARD OF AUSTRALIA

In A Nutshell

The Official Newsletter of the Australian Almond Industry

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Megan Coles, pictured out at the ACE Orchard, has recently been appointed as the ABA's first ever Sustainability Manager.
Photo: Jane Kuerschner

For more industry updates, news, recipes and grower resources head to our website and social media pages

From the *Executive...*

Peter Hayes, ABA Chairperson and Tim Jackson, ABA CEO |

The growth of the Australian almond industry continues to reflect global consumption of almond products. While market pricing has weakened in 2021 due to record production in the three largest producers in the world – US, Spain and Australia – the long-term outlook for the industry remains positive.

The popularity of plant-based milk and ingredients has been one of the sectors driving the growth.
A Future Market Insights report has predicted that this sector alone will increase in value from $US13.24 billion in 2021 to nearly $US31 billion within the next decade.

The nutritional benefits of including almonds in a balanced diet continues to be well documented and embraced in increasing numbers right across the world.

As a high value, high health, shelf stable product, the almond is well placed to service consumers as we enter the new world of personalised nutrition and utilising natural goodness to tailor most-likely-to-succeed diets.

Personalised nutrition involves designing a diet that is specifically tailored to a person's genetic make-up.
Most consumers might not have heard of it, but ABA project partner Nutrition Australia reports that personalised nutrition is expected to be a $70 billion industry within the next four years.

The versatility of almonds – there is an almond ingredient for all occasions – will ensure that it is a viable option for many who embrace this new way of eating.

Short term challenges

While the big picture outlook on almonds looks extremely positive, there are challenges short term for growers and marketers.

> **"After almost two years of no international travel, the industry is hoping a return to open borders will ensure marketers and processors can return to face-to-face interaction (or is that mask-to-mask?) with key customers in many of our established markets and through traditional trade events...**

A shortage of shipping containers and wooden pallets is causing a lot of logistical issues for the supply chain as is the uncertainty around ongoing congestion of sea freight. Logistics costs have escalated dramatically this year and elongated delivery timeframes are changing the buying patterns of customers the world over.

Instead of managing lean inventory levels by employing a "just in time" buying philosophy, many are carrying larger volumes of buffer stock "just in case".

Australian almonds continue to triumph over adversity and exports so far this season (March to September) kernel weight equivalent, are up 34% on last year. The industry's long held marketing strategy around creating demand is as many markets as possible has played a strong part in this success story.

It has also helped that while other Australian commodities have been unable to ship product to China during 2021, almond exports to China are up 65% on last year.

Australia's inshell quality and kernel yields have also contributed to exports to India increasing by 76% on last year.

The ABA highly successful export marketing program will broaden its focus to new and emerging markets in 2022 to assist with the nation's crop growing by upwards of 50% in the next four years. A focus on South-East Asian countries, a renewed push into the Middle East and greater awareness of the Australian product in South America are all on the agenda.

After almost two years of no international travel, the industry is hoping a return to open borders will ensure marketers and processors can return to face-to-face interaction (or is that mask-to-mask?) with key customers in many of our established markets and through traditional trade events.

The value of on-the-ground representation via Austrade and Department of Foreign Affairs and Trade has emerged as a valuable asset in these times of on-line meetings across a wide range of time zones.

The ABA looks forward to continuing to work with these agencies to help drive demand as we head toward a farmgate value well in excess of $1 billion.

Making news...

Almond Festival forges ahead

DESPITE Covid forcing the cancellation of the Willunga Almond Blossom Festival earlier this year, organisers still forged ahead to hold the event last month.

Hundreds of people flocked to the WIllunga Recreation Park for the two-day festival, which celebrated almonds with an almond hub, almond cooking competition and an almond cracking competition.

The popular event also included side-show games, rides, market stalls and plenty of food.

The festival was proudly supported by the Almond Board of Australia.

More almond health benefits uncovered

A new study has shown the health benefits of almonds. The randomised crossover trial assessed glycaemic and appetite responses, among 100 people, to consuming two isocaloric snacks (providing 10% of participants' total energy requirements or 1030kJ). It found that snacking on almonds resulted in a significantly lower glycaemic response, compared to snacking on sweet biscuits. Although this did not translate into differences in appetite ratings, significantly less energy (mean -638kJ lower) was consumed over the testing day when almonds were the mid-morning snack, rather than sweet biscuits. For more information click here.

California almonds

Despite severe drought in California, almond production will continue to soar in the US, according to fooddive.com.


DEEP DIVE

Despite drought, almonds will keep on growing

California produces about 80% of the world's supply of the nut, which farmers have spent many years learning to produce more of with less water.

Click here for the full story. <<<

Riverina's almond *growth* continues

BY JANE KUERSCHNER

NESTLED in the agriculturally rich area of the Riverina, NSW, is tree nut growing powerhouse Stahmann Webster.

Originally two separate major agricultural companies, Webster Ltd and Stahmann Farms were recently joined to form Stahmann Webster.

The two companies – which together boast a history spanning 180 years – are a major player in the Australian tree nut growing scene.

The joint venture comes after Public Sector Pension Investment Board of Canada (PSP) – one of Canada's largest pension investment managers – acquired the Webster Walnut and Almond interest via their majority interest in Stahmann reached in 2017.

The company grows walnuts, pecans, macadamias and more recently added almonds to its portfolio.

The company has 1000 hectares of almonds planted at Sandy Valley, near Griffith, which includes varieties Nonpareil, Wood Colony, Monterey, Carmel and Shasta.

Stahmann Webster employ a permanent workforce of 170 people, with seasonal harvest labour peaking at around 400 across the entire group.

Stahmann Webster Director/CEO Ross Burling (pictured) said the current almond season is shaping up "very well".

"The wet spring weather provided an excellent pollination opportunity, resulting in a high percentage nut set," he said.

Continued page 8

“High winds caused a small percentage drop in early to mid-spring but we are still in a very promising position.

“We are currently in the pit hardening stage and nuts across our orchards are sizing well.”

Ross said the company is always looking to seek and assess opportunities for further growth.

He said challenges for almond growers are felt through the entire industry.

“The industry’s challenges are well known and we feel them like other growers,” Ross said.

“Among the most critical, as we come out of the pandemic, are ongoing labour shortages. This is something that concerns us as we head towards harvest next year.

“Input costs – particularly fertilisers, fuels and oils, and logistics – are another uncontrollable element that affect our efficiency and profitability.”

Ross said having sustainable practices in place was extremely important to Stahmann Webster.

“We have a legacy of seeking sustainable practices and identifying better outcomes not only for our properties and the environment but for the communities and stakeholders we interact with,” he said.

“We are committed to decreasing herbicide and pesticide usage through various programs as our farms various management teams (across all nut types) work towards green cover and biodiversity of our orchard floors and water ways.”

He added that water usage was also a top priority for the company.

“Water efficiency is critical to any irrigated farming business,” Ross said.

“This is a priority for our business and we are constantly investigating and investing in ways to improve the way we use water, from storage to irrigation to the varieties we farm.

“This season we are focusing on energy usage and pumping efficiencies and continuing to monitor this improving irrigation practices as we tweak efficiencies.”

The history

About Stahmann Farms

Stahmann Farms Inc. was established in Las Cruces, New Mexico, in 1932 by Deane Stahmann Snr. Deane and his sons, the late brothers, Deane Jnr and Bill Stahmann, planted more than 100,000 pecan trees on a vast property still operated by the Stahmann family.

In 1965, Deane Stahmann Jnr came to Australia with the intention of creating the first commercial pecan operation in the southern hemisphere. He first planted trees at Gatton in Queensland and shortly after at the flagship property Trawalla near Moree in New South Wales. His dream of creating a new industry was realised in 1982 when the Toowoomba Processing Plant began supplying the finest quality processed pecan nut kernel from these farms to Australia and the world.

About Webster Limited

Webster Limited – the fourth oldest company in Australia – dating back to 1831 and is named for the founder's nephew, Alexander George Webster, who was born in (what was then called) Van Diemen's Land in 1830 later running the grain and wool business in 1856. Throughout its long history, Webster Ltd has been involved in many aspects of agriculture from broad acre farming to forestry and fresh vegetables, rural supplies, transport and machinery and most recently tree nut farming.

Since the 1990s Webster has pioneered the Australian walnut industry and today represents more than 90% of local production from orchards in Swansea and the Murrumbidgee.

Now too, the farming activities encompass almonds following the acquisition of Sandy Valley in the Riverina district.

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BORDEAUX WG

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BEE FRIENDLY FARMING® CERTIFIED
This recognises that
Almond Board of Aust. Inc
has met all the certification criteria as prescribed
by the Bee Friendly Farming® Task Force
DATE ISSUED: 3 September 2021
Fiona Chambers
CEO, WHEEN BEE FOUNDATION
Laurie Davies Adams
POLLINATOR PARTNERSHIP
australian almonds

PHOTO: ALICE KUERSCH PHOTOGRAPHY

Almond Board officially 'Bee Friendly'

BEES are critical to the success of Australian almond orchards and the team at the Almond Board of Australia (ABA) is proud to have its Almond Centre of Excellence (ACE) Orchard recognised as a Bee Friendly Farm.

The ABA recently received the Bee Friendly Farming Certificate from the Wheen Bee Foundation.

The Wheen Bee Foundation is an Australian registered not-for-profit charity that promotes awareness of the importance of bees for food security, and raises funds for research that addresses the national and global threats to bees.

Our orchard team had to meet a list of criteria to earn certification, including a commitment to plant bee friendly native vegetation within the orchard environment.

ABA ACE Orchard Farm Manager Anthony Wachtel (pictured) said it was fantastic to have met all the criteria to officially be recognised as a bee-friendly property.

“Bees are so important to what we do out here at the ACE Orchard and it’s extremely vital we create a safe environment so they can pollinate the trees as best possible,” he said.

To see the requirements and expectations of a Bee Friendly Farming Certified property click here.

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Sniffing out honey bee disease

American foulbrood

PHOTO: DANNY LE FEUVRE, SA

Dr Julia Grassl, Research Fellow, CRC Honey Bee Products, University of Western Australia

The Cooperative Research Centre for Honey Bee Products (CRCHBP) is driving innovation within the honey bee industry.

Pivotal to a flourishing and economically sustainable honey bee industry is the maintenance of healthy Australian bees. A new method patented by researchers from the Honey Bee Health Group at The University of Western Australia sniffs out American foulbrood, a devastating honey bee disease that ravages hives across Australia.

American foulbrood (AFB) is a bacterial disease lethal to honey bee larvae. AFB reduces larvae to a foul-smelling glue-like mass, causing colonies to die out, and can quickly spread between hives when they are in high-densities, such as pollination events. The disease is the most economically and biologically devastating disease for honey bees in Australia.

Despite costing Australian beekeepers millions of dollars per year through the loss of bee colonies, honey production and pollination services, preventing AFB outbreaks at pollination events can be difficult. Diagnosis requires manual hive inspections by skilled beekeepers and biosecurity officers, but inspections are labour-intensive, time-consuming, invasive to the honey bee colony, and can easily miss infected colonies as only 10% of hives are usually inspected during a bee health audit.

To de-risk pollination services and increase beekeeper participation, the Australian honey bee industry requires early, accurate and non-invasive detection of diseases to keep honey bees healthy and allow the continued expansion of the industry.

CRC researchers took an innovative approach to developing a non-invasive AFB detection method by using the infections' foul smell. Dr Julia Grassl and her team collected samples of AFB-affected larvae from across Western Australia.

UWA PhD student Jessica Moran analysed over 100 compounds emitted by honey bee larvae, and identified the key compounds that are unique to AFB infections. These AFB biomarkers can be used to accurately diagnose AFB from a sample of beehive air.

Collaborating with AgriFutures Australia, with the support of funding from the Department of Agriculture, Water and the Environment and the AgriFutures Honey Bee & Pollination Program, Dr Grassl's research group is now developing novel chemical sensors that specifically target the AFB biomarkers.

These sensors will allow AFB to be detected rapidly and accurately in beehive air, without opening the hive or disturbing the colony. Patent applications have been submitted for the disease biomarkers and sensor design to ensure this innovative intellectual property remains in Australia and attracts further research and investment.

"A beehive breathalyser for AFB will help safeguard the honey bee pollination services in Australia. By rapidly screening hives for AFB, beekeepers will be able to detect outbreaks earlier, preventing severe losses in production and revenue," Jessica Moran said.

The commercialisation of a sensor device for early detection of AFB has the potential to transform the disease detecting capabilities of the honey bee and pollination industry on a global scale.

This project is supported by funding from the Australian Government Department of Agriculture, Water and the Environment through a grant to promote the importance of bees and the AgriFutures Honey Bee and Pollination Program (agrifutures.com.au/honey-bee).

MINDFUL EATING

"With warmer weather comes the pleasure of being more active outdoors. This might mean your body needs extra fuel. You could eat larger nourishing meals or snacks. Mixing some fresh Spring fruit with a healthy handful of almonds would work well as a before or after exercise snack. The almonds, paired with fruit, combines the carbohydrate from the natural sugars in the fruit to refuel muscles, with the protein in the almonds to help support muscle growth and repair." [1]

Simone Austin is an advanced sports dietitian, keynote speaker and author. She is also our nutrition program ambassador.

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5852756

australian almonds | fitness & sports nutrition

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Marketing update

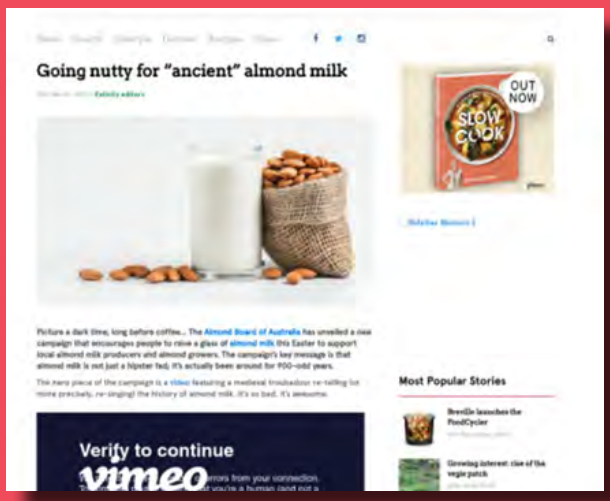
Joseph Ebbage | **Industry Market Development Manager**

Lou Martin | **ABA Marketing Officer**

As part of our Domestic and Export Marketing plan, we have developed three content pillars that summarise key attributes of Australian almonds. These include sustainability, health & nutrition, and versatility & food innovation. Throughout the year we have articulated these key attributes to structure the activities and different promotions we have undertaken.
To convey our messaging around versatility and food innovation, we have structured our promotions to involve different almond products to help explain our story.
We would like to present to you some of the highlights from 2021.

Almond milk for Easter

In the lead-up to Easter for 2021, we ran a 'History of Almond Milk' promotion. The key content was to communicate that almond milk as a named product first became popular in Europe in the 1100's. It was brought to Europe by the Spanish Moors and found a large market as a non-animal food that was particularly relevant in Medieval Christian Europe in their pre-Easter period. The purpose of this message was to add interest and value to almond milk and communicate the true versatility of this product. We sent several almonds packs to social media influencers that included a cake made from almond milk, a recipe card and a large carton of Australian almond milk. We had 50 pieces of content shared with a total reach of 400,000 people.



Macarons for Mother's Day - celebrating our 2021 new season

The objective of our 2021 Mother's Day Promotion was to communicate the good taste and versatility of almonds. The iconic image of a pink macaron was the signature symbol of this Australian Almond's promotion.
A key piece of creative for our 2021 Mother's Day Promotion was a 3D animation of the lifecycle of an almond that moves from blossom to harvest. The animation concludes with the almond being ground into meal and being used in a pink macaron. We also sent a Mother's Day pack to 30 influential mothers around Australia. We had 25 social shares across all social media platforms reaching approximately 600,000 people.

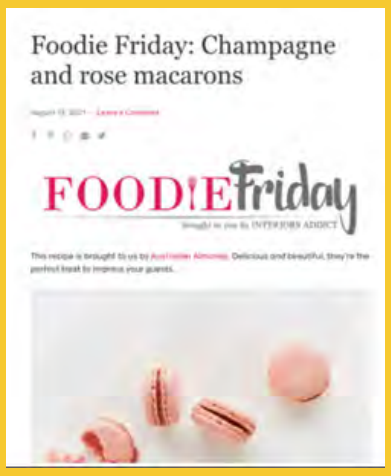
Marketing update

Macarons for Mother's Day - celebrating our 2021 new season

62 pieces of coverage

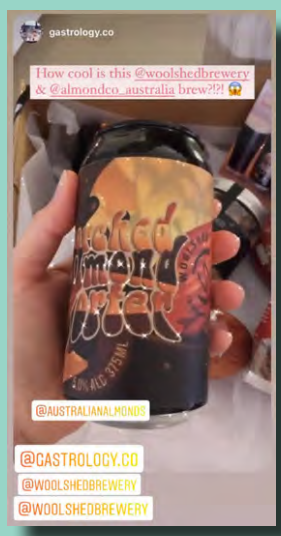
313k online readers reached

25 social shares



Almond Cheers for the September footy finals

For the September AFL finals for 2021, we acknowledged it would be a good opportunity to celebrate the versatility of almonds with showcasing the Almond Porter Beer produced by Almondco Australia and Woolshed Brewery.
We organised an almond gift pack to be sent out to social media influencers in addition to hosting a competition on our Facebook and Instagram platforms for the chance to win a gift pack.
We reached a total of 32,000 people on Facebook, had 116 shares across Facebook and Instagram and 230 comments on the competition post. Click here to see the response from Gogglebox stars Wayne and Tom.



Marketing update

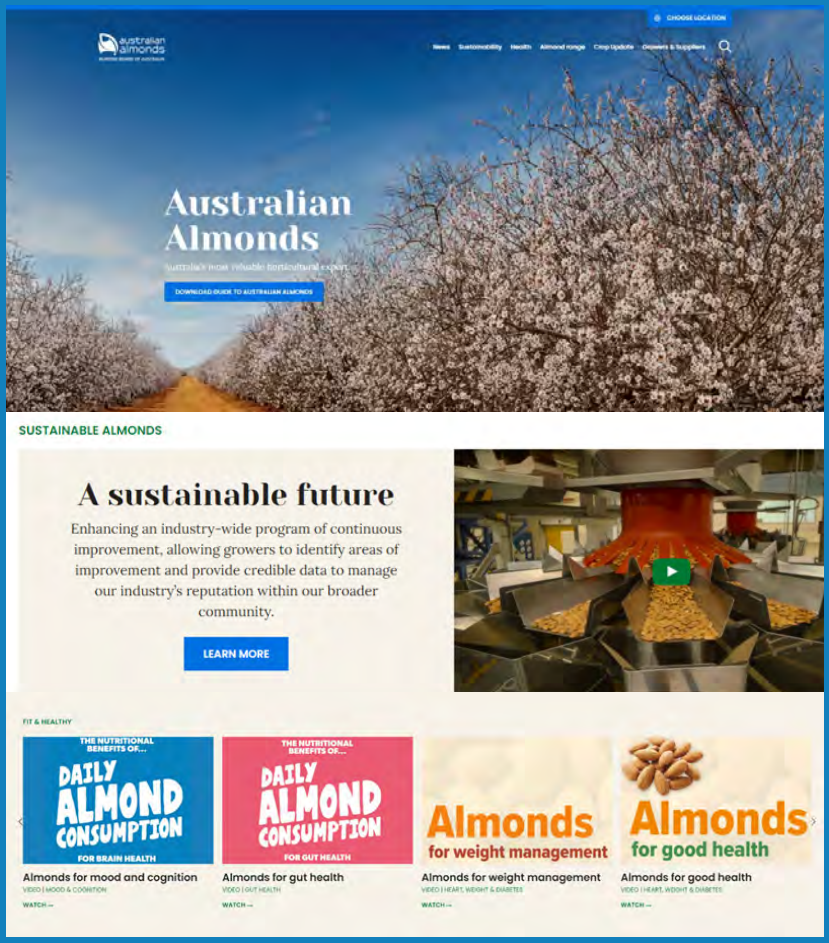
Export website sites

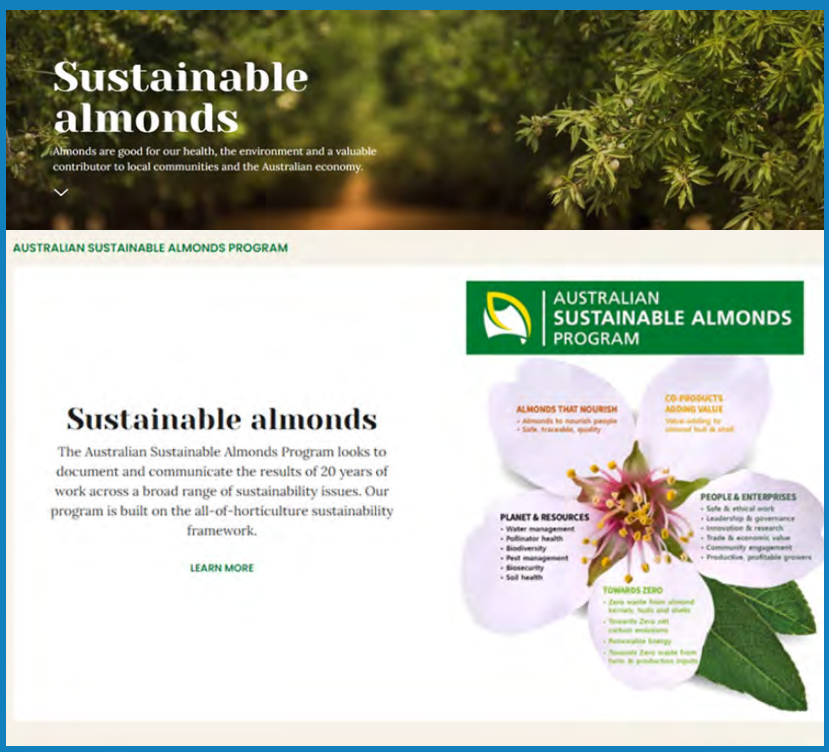
As part of our export market development program, we have developed a series of market-specific websites each with their own domain name: eg australianalmonds.jp for Japan.

We have built a central site (in English) that will then be translated and customised to suit each individual market. Sites will be created in Mandarin, Japanese (Nihongo), and Indonesian (Bahasa).

We created a large presence for our 5 marketers which will feature key contact information and an overview of their organisation. This will be an excellent resource for consumers as they can contact each of the companies directly. We have also carefully selected a range of topics that align with our key messaging which includes sustainability, health and versatility, almond range, crop update with industry statistics and industry news.

The new website will be a great resource for our global trading partners and consumers in our key markets around the world. The website is easy to navigate, and the overall aesthetic and design is very modern and sophisticated. We look forward to sharing this with you in the coming weeks.





CHECK OUT HOW WE'RE PROMOTING ALMONDS BY CLICKING ON THE PHONE...

Marketing update

Blossom season 2021

To help communicate the natural goodness of Australian almond orchards in bloom and to promote the Bee-Friendly Farming practices of Australian almond pollination we sent almond gift packs to different social media influencers around Australia.
The almond packs included almond honey, an almond recipe, blanched almonds, and bee seed bombs. This year's promotion was a huge success, with our message being amplified across more than 20 influencers' social media channels and reaching 1.35 million people on Instagram.

World Diabetes Day

As part of our Marketing calendar for 2021 and 2022, we have chosen to promote some of the "world days" to coincide with our key themes and messaging around health and sustainability. This will allow us to communicate what we are doing as an industry relating to a particular topic. All the content developed will be used for our website and social media platforms.
On November 14 we celebrated World Diabetes Day. It was a great opportunity to raise awareness of this disease given how many people are affected here in Australia and around the world. It was also important to communicate how following a nutritious diet can help reduce the chances of developing diabetes.
We posted a video to our social media platforms of two Advanced Sports Dietitians, Simone Austin and Purva Gulyani, providing some important nutrition tips to maintain a healthy lifestyle.
We reached a total of 2.1 million people across Facebook, LinkedIn and Instagram.

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Tim *takes* the reins

WORDS AND PHOTOGRAPHY
JANE KUERSCHNER

SUSTAINABILITY and reconnecting with stakeholders after Covid are just a few of the top priorities on the Almond Board of Australia's new CEO's radar.
Tim Jackson took over the top job from former CEO Ross Skinner in early October after 12 years at Almondco, five years running his own media services and more than two decades as a journalist and editor.

He said the choice to take on the role at the Almond Board made sense after already spending a lengthy stint working in the almond industry.
"Having a knowledge of the almond industry is one of the things that appealed to me about the job rather than coming in cold," Tim said.

"Through my work at Almondco, I have an understanding of the industry and know a lot of relevant the stakeholders.
"I did get the chance to connect with growers and build an understanding of the supply chain and the challenges around being a grower and what they and customers expect."

Tim said one of the biggest challenges facing the almond industry is showcasing what sustainable practices are present and what is being done to become more sustainable.
"Enhancing our credentials is really important," he said.

> **"The versatility of almonds is going to continue to grow and the fact our industry in Australia is going to increase by at least 50 per cent brings some challenges in the short term but in the long term there's a global demand there that is growing...**

"I think we have a really good story to tell but we need to refine it.

"The recruitment of Megan Coles, our Sustainability Manager, will help with that.
"But we have a healthy product that can be used in a number of ways and if we can refine and build our narrative around how we produce the product in a sustainable way then I think we have a compelling story for consumers."

Tim said the almond industry is already working in a sustainable way and the ABA's challenge is to promote it.
"I think that's where we've come under fire because we haven't been able to aggregate some of the things we already do," he said.
"I think our growers are among some of the most efficient water users in agriculture. Almost 100 per cent drip irrigate, so any of the water used goes directly to the plant.

"From a carbon point of view there's emerging information that the almond industry is potentially carbon neutral or carbon negative given how many trees we have in the ground.
"There's a lot of good stories to be told and it's just a matter of us undertaking the necessary research and measurements to provide a credible framework."

Tim said the next decade for the almond industry was "exciting".
"Given we're in the midst of a global phenomenon around consumers looking for healthy plant-based products, there are wonderful opportunities to drive demand that matches the increased yield on the way," he said.
"The versatility of almonds is going to continue to grow and the fact our industry in Australia is going to increase by at least 50 per cent brings some challenges in the short term but in the long term there's a global demand there that is growing."

Tim said he empathised with growers who had been hit with recent bouts of severe weather.

Continued page 22


australian almonds

"Growers are an amazingly resilient group of people who roll with the punches," he said.
"Talking to people about the terrible storms we've had they just get on with their business.

"They know they've lost money but it's part and parcel of what they do and the fact they're known as some of the best growers in the world is a credit to them and they're probably underestimated in a lot of ways."
Tim said he was keen for the ABA team to reconnect with its stakeholders.
"We've got a really multi-pronged role to play on behalf of the industry," he said.

"We spearhead the research and development program and our ACE Orchard has just been featured on the Hort Innovation's annual report as a shining example of what can be done in the industry.
"Then we've got our marketing campaign, which remains a market leader both domestically and internationally.

"We've gone from an industry where people didn't even know Australia grew almonds to an industry where we are now seen as a viable alternate source of almonds outside of California.
"We've done an amazing job, but we've still got plenty to do.
"The next 18 months will be about advocating on behalf of the industry and reconnecting with our stakeholders on a face-to-face basis.

"The ABA staff have done an amazing job to try and keep the lines of communication open on critical issues through our webinars and Zoom meetings.
"But nothing beats face-to-face conversations and farm visits."
Tim said he had "big shoes to fill" after taking over from Ross Skinner, who held for the role for 11 years.

"Ross is held in high regard in agri-political circles and we have retained his services," he said.
"The work he has driven on the creation of the ACE Orchard and Research and Development sets up the industry as we strive to do things as efficiently and profitability as possible.
"There is a vision there that the next generation of almond growers will appreciate."

To touch base with Tim email tjackson@australianalmonds.com.au or call 0438 871 312.

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Megan's on a mission

WORDS AND PHOTOGRAPHY
JANE KUERSCHNER

WITH an extensive background in sustainability and environmental management in the wine industry, Megan Coles has now turned her attention to the world of almonds.

Recently appointed as the first-ever Sustainability Manager at the Almond Board of Australia, Megan is ready to get her hands dirty and dive headfirst into working with industry stakeholders on developing and delivering the roadmap to support positive environment and sustainability outcomes for the industry, our local communities and regions.

Continued page 26

Megan studied Natural Resource Management, with a focus on agriculture, at The University of Adelaide, before getting her foot in the door in the Barossa wine industry.

"I initially took on an environment and viticulture role based at St Hallett, in the Barossa, in the early 2000s and was fortunate to be given the opportunity to really grow the environment focus of the role and from there took on an environment and sustainability leadership position for the broader business Fine Wine Partners," she said.

"During my time with St Hallett and Fine Wine Partners we delivered a range of large and small projects and programs, from introducing biodegradable plastic bags for the collection of grape samples through to carrying out carbon footprinting, implementing energy and water efficiency and biodiversity initiatives across our wineries and vineyards and then into wellbeing, community sponsorship and engagement programs."

From St Hallett and the Fine Wine Partners group, Megan went onto the role of National Environment Manager at Accolade Wines, before joining the Sustainable Winegrowing Australia team at the Australian Wine Research Institute (AWRI).

"I had been involved in the Sustainable Winegrowing Australia program, as both an industry member and also as a member of the Steering Committee and was very proud to join the team at the AWRI and support them in delivering the program to growers and wineries across Australia," she said.

"My time working on the Sustainable Winegrowing Australia program has given me some really good insight into managing programs at a national industry level and also engaging stakeholders to come on board."

Megan said she has always had a passion for the environment and agricultural sector.

"My passion for the environment and farming came from growing up on the Murray in a farming community," she said.

"Living through those days when they first started talking about the health of the Murray, the environmental flows required and how to get the balance right with farming needs for water."

Megan said she has a strong belief in showcasing to growers how the introduction of a sustainability program can benefit their business.

"I am very big on taking people along on the sustainability journey, building others knowledge and understanding about what it means, engaging people and seeking their input to guide the journey is really important to me," she said.

"During my time at St Hallett I think we had about 80 growers and we wanted to get them on board with environmental management and sustainability.

"So we brought them into the winery and showed them what we were doing and from all accounts they really enjoyed the opportunity.

"And then we talked to them about what they could do on their property and across their business."

Megan said there is a clear appetite from customers and consumers for products that are produced in a sustainable manner.

"Not only are customers and consumers wanting us to grow and produce our products in a sustainable manner, they are also demanding we demonstrate our practices are sustainable," she said.

"It will be key for the industry that we showcase current and future sustainability initiatives that are being implemented by growers and processors to all of our stakeholders".

Megan said she is looking forward to applying her expertise within the almond industry.

Continued page 28

What the word 'sustainable' means to Megan... "It's about delivering positive economic, social and environmental outcomes to ensure that our planet and people prosper and flourish now and into the future."

"Having a sound background in an agricultural and manufacturing environment, combined with my technical knowledge and practical hands-on experience in environment and sustainability will be really beneficial," she said.

Megan said she believes the almond industry is heading in the right direction.

"I am confident that the industry is already heading in the right direction, the insights I have had into the industry already, have highlighted that there are some great sustainability initiatives underway by growers and processors," she said.

"I often find that people are doing a whole range of really good things in this space, but they don't always badge them as sustainability initiatives" she said.

"Overall, for the industry I think the next steps are about finalizing our sustainability strategy and developing the program to support it on the ground and engaging and supporting all of our stakeholders on this journey."

Megan said she is looking forward to getting out and about across Australia's almond-growing regions.

"I like getting my hands dirty so don't be surprised if you find me out in the orchard doing something," she said.

"I'm looking forward to connecting with the growers and the processors face to face."

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STORM RESPONSE

Braving the storm

SOME almond-growing regions across South Australia, Victoria and New South Wales were recently battered by a number of storms, which brought winds over 100km/h, heavy rain and hail.
In wake of the severe storms, many growers throughout the almond regions in the affected areas have experienced varying levels of crop loss and tree damage.

ABA Industry Development Officer Ben Wiblin and ABA Marketing Officer Lou Martin visited growers in the Adelaide Plains after the area was hit by severe hail in October.
"The ABA has been attempting to quantify the degree of crop loss from an industry perspective with the current estimate being 4000 to 5000 tonnes, however it is likely that we won't fully know the extent of the loss until after harvest," Ben said.

"Industry development staff have been on farm talking to affected growers about their strategies to overcome the damage.

"While many of the growers have experienced similar events in the past, every incident poses new challenges.
"The common strategies that growers are undertaking include, the removal of broken trees and branches, applying sprays to prevent disease on wounded trees and fruit and mulching lost crop to maintain orchard hygiene."

Ben said the attitude of growers to moving on with the job was impressive.
"The optimistic spirit of the affected growers is as strong as ever focusing on cleaning up and setting trees up for a bigger and better crop next year," he said.

"If anyone needs further support or resources provided to them, please do not hesitate to contact one of the industry development staff."

A series of grower resources were produced last season with a focus on coping with adverse weather conditions at harvest. These can be downloaded from the ABA website or via the provided links.

Grower resources

Preparing for adverse weather at harvest – factsheet

ABA Production Committee discussions about dealing with adverse weather at harvest - podcast

ABA Webinar Series 1: Integrated Disease Management

ABA Webinar Series 2: Irrigation Management

ABA Webinar Series 3: Integrated Pest Management

ABA Webinar Series 4: Sustainable Chemical Use

ABA Webinar Series 5: Food Safety and Quality

PHOTOS: ALICE KUERSCH PHOTOGRAPHY

Out at the ACE Orchard

THE Almond Board of Australia's Almond Centre of Excellence (ACE) is home to a 60-hectare experimental and demonstration orchard that delivers part of the industry's research and development activities.

The orchard was established with funding support from the South Australian and Commonwealth governments and the assistance of Hort Innovation.

Various research institutes now use the facility to test and demonstrate innovate almond production strategies. One of these is The Department of Primary Industries and Regions research division, the South Australian Research and Development Institute (SARDI).

SARDI Research Scientist Tim Pitt (pictured) said his team are currently working on a number of projects at the Loxton-based experimental orchard.

"SARDI's ACE trials are testing density optimisation (308 to 1481 trees/ha), rootstock compatibility and the effects of different soil amendments," he said.

"Overlaid across all trials are investigations into canopy structure, production characteristics, water use efficiency, and soil water and nutrient dynamics.

"Secondary investigations include assessments of root density/distribution and the benefits of increasing soil carbon in the rootzone."

Tim said having access to the ACE Orchard was a valuable resource for researchers and growers.

"The value of a dedicated research farm cannot be understated," he said. "It allows almond growers to view the work of multiple research providers in the one location and witness the development of experimental production systems before they become available for commercial application.

"Many of the experimental treatments and varieties being hosted at the ACE orchard are at the very early stages of their development and some are likely to get in the way of normal operations.

"It would be difficult for most growers to justify hosting this type of research in their commercial operations and many of these trials would not occur if the ACE site were not available.

"The capacity of the ACE experimental orchard to collaborate with research providers and commercial partners provides almond growers with a unique opportunity to view and learn from multiple field investigations in the one location.

Continued page 34

“Growers can continue to profit from their traditional production systems at their own orchards whilst monitoring the development of experimental systems at the ACE research facility.
“The Australian almond industry is fortunate to have access to a second experimental farm in Sunraysia, The Mildura SmartFarm, hosted by Agriculture Victoria Research.
“With two dedicated almond research orchards the Australian almond industry is well placed to rapidly capitalise upon recently developed varieties, rootstocks and production systems.”
Tim said some of the trials were yielding some encouraging results.
“SARDI’s rootstock compatibility plantings are already demonstrating promising canopy shapes and yields,” he said.
“We hope that learnings from these trials will fast-track the development of efficient high density (shake and catch) production systems.
“Early results from SARDI’s optimised density trials highlight the yield potential of Carina, Vela and Shasta over Nonpareil and suggest that higher densities translate to greater yields per hectare.
“These exciting results need to be repeated over multiple seasons confirm longevity of performance, cost benefits and long-term management requirements.”
Tim said SARDI’s trials included looking at irrigation scheduling.
“SARDI have developed numerical models for ACE plantings that can forecast the response of different production systems to future climatic conditions and alternate irrigation schedules and water qualities,” he said.
“These irrigation/fertigation models are supported by field measures of water and nutrient applications and yield performance across different treatments.
“SARDI proposes to extend the value of water modelling tools by installing large scale weighing lysimeters in future ACE plantings to accurately measure the water balance for target varieties grown under Australian conditions.”
For more information on the ACE Orchard click here.

Shot hole of almond

Agriculture Victoria
Simone Kreidl, Tonya Wiechel, Peta Faulkner,
Len Tesoriero and Jacky Edwards
Agriculture Victoria Research, Department of Jobs, Precincts and Regions, Victoria.
Crop Doc, NSW Department of Primary Industries, Ourimbah, New South Wales.

- Caused by Wilsonomyces carpophilus.
- Causes circular tan lesions on leaves which may excise giving a shot hole effect. A diagnostic characteristic is black sporulation in centre of lesion.
- Overwinters in dormant buds.
- Dispersed by rain.
- 8-12 hours of leaf wetness at between 20-25°C is ideal for infection.
- Control is by fungicides, resistant cultivars and avoiding sprinkler irrigation.

Introduction

Shot hole is a foliar disease found worldwide on Prunus species and caused by the fungus Wilsonomyces carpophilus. It is usually well controlled by fungicide application but can cause defoliation if left untreated. This is the main cause for concern as severe defoliation can weaken the tree and lead to loss of fruit. Infection of the hull does not reduce kernel quality but yield may be adversely affected due to fruit drop if young fruit are infected.

Identification and symptoms

In almond, lesions are most commonly found on leaves and fruit, twig and flower infections are rare and usually superficial. The plant responds to infection by forming a physical barrier around it, cutting it off from healthy tissue.
Leaf symptoms begin as red specks that develop into small circular tan lesions which may have either a purplish or yellow margin (Figure 1). When conditions are right, the fungus will produce black fruiting bodies in the centre of the leaf lesions, which are a diagnostic feature of the disease. Some leaf spots abscise from the healthy tissue giving the characteristic “shot hole” effect. This is dependent on temperature and leaf age; older leaves often retain the lesions whereas those on young leaves fall out. Adaskaveg (1995) also reports that infections developing at cooler temperatures (15°C) stay attached to the leaf while those forming at warmer temperatures (22°C) detach. The disease may be difficult to diagnose as leaf symptoms can be confused with other issues such as herbicide or copper damage, insect feeding or other fungal/bacterial infections.

Figure 1. Shot hole symptom on leaves. Inset photo is by Statewide IPM Program, Agriculture and Natural Resources, University of California.

Fruit infection produces small corky slightly raised lesions occurring mostly on the upper side of the fruit (Figure 2). Lesions are superficial extending less than 1-2 mm into the hull. Severe infections may produce gum or cause the fruit to deform but usually the kernel is unaffected. Twig infections, if present, are similar to fruit infections.

Where it comes from

Fungal spores mainly overwinter in healthy dormant buds, probably deposited there by rain during autumn, or occasionally in twig lesions. Spores can remain viable for several months until spring when they are dispersed by rain splash to newly developing leaves and flowers. Due to the dispersal method, symptoms may be worse in the lower part of the tree. Leaf lesions develop fruiting bodies which produce new spores; these are then spread to young leaves or fruit resulting in multiple generations of the disease per season.

Favourable conditions

Infection is influenced by temperature and wetness; at warmer temperatures a shorter wetness period is needed for infection to take place, but longer wetness periods lead to greater disease severity. Frequent rain is therefore ideal for disease development as infection requires 8-12 hours of leaf wetness. Temperatures between 20-25°C are most favourable but spore germination and fungal growth can occur at colder (5°C) and hotter (>30°C) temperatures, although with less success.
Abscission of lesions during warm weather means that spores may not get a chance to form under these conditions, but cooler wet conditions where the infected tissue remains attached allows spore development in the canopy and leads to increased secondary infections.

Control measures

In Australia fungicides in FRAC group 11 (QoL), and 11 in combination with group 7 (SDHI) or 3 (DMI) are registered for use on shot hole as well as groups 9 (AP), M1, M3, M4 and M5 (APVMA 2020). These are commonly used to control a number of different fruit and foliar diseases as part of an orchard’s general spray program.

Figure 2. Shot hole symptom on fruit.

Removal of remaining leaves prior to autumn rain and controlling late season infections may be useful for reducing inoculum. Fungicide application for shot hole will be tailored depending on the amount of rainfall predicted in the area and if there is a known risk of infection in the orchard. It there was serious infection in the previous season then sprays could be applied as early as petal fall, otherwise apply sprays as symptoms require. Care should be taken to ensure good coverage of the entire canopy. While shot hole is frequently seen in Australian orchards it is well controlled by the existing fungicide programs and rarely causes economic damage.
For further information about the “Integrated disease management program for the Australian almond industry (AL16005)” project led by Agriculture Victoria click here.

Hort Innovation Strategic levy investment | ALMOND FUND

This project has been funded by Hort Innovation using the almond research and development levy and funds from the Australian Government. For more information on the fund and strategic levy investment visit horticulture.com.au

The new *threat* facing almonds

THE Australian agriculture sector including the almond industry is facing a new biological security threat, according to two Melbourne University researchers.
Professor Pablo J. Zarco-Tejada and Dr Tomas Poblete say a vastly unknown bacteria called Xylella fastidiosa (Xf) will soon be on growers' radars.

XF is an incurable bacterial disease which causes plants to wither and possibly die. It leaves plants with scorching and browning leaves and reducing the size of fruit in a wide variety of important crops including olive, almond, avocado, coffee, grapevine, citrus and many herbaceous and forest species.

It is believed it could also infect native Australian and ornamental plants.
However, researchers believe they are a step closer to developing a rapid and more accurate large-scale screening process of at-risk crop species by enhancing the effectiveness of airborne scanning that uses hyperspectral imaging.

Hyperspectral images allow them to "see" in more fine-grained wavelengths, and their previous research has already demonstrated that they can use it to detect Xf in olive trees before symptoms were visible.

According to Professor Zarco-Tejada and Dr Poblete, a common problem is the remote sensing algorithms that scan the hyperspectral images can't always distinguish the symptoms of Xf from the symptoms of other pathogens or environmental stress like lack of water or nutrients.

They say this aspect is particularly relevant for pathogens like Xf that invade a plant's vascular (circulatory) system because the bacteria eventually block the water flow, causing similar symptoms that can be wrongly attributed to lack of water.

The pair's research with international partners from the EU, UK, and US, demonstrates that hyperspectral imaging and a novel algorithm can distinguish the disease from water-induced stress and increase Xf detection to up to 92 per cent accuracy while reducing uncertainty to below six per cent across different hosts, including almond and olive, and across other vascular pathogens.

The impact of Xylella Fastidiosa on olive trees.

The research is based on scanning 1 million infected and healthy trees in seven regions in Europe.
In a trial in Victoria last year, funded by the Department of Agriculture, Water and Environment (DAWE) as part of the National Xylella Preparedness Program, they were able to scan several thousand hectares of healthy almond, citrus and olive trees with varying water and nutrient status levels as baselines to better adapt the Xf detection models developed in Europe for the particular varieties and management practices in Australian agriculture.

These methods enable the collection and delivery to the grower of water stress and nutrient maps for each tree in an orchard within 24 hours.
These are innovative precision agriculture technologies to support the efficient use of resources and optimising yields while protecting the environment.

And in the context of biosecurity, if an Xf outbreak occurs in Australia or elsewhere, their methods could potentially be used to rapidly detect and prevent the spread of the disease.

Professor Zarco-Tejada and Dr Poblete say the rapid detection through airborne and drone-based hyperspectral imaging is the best hope for protecting Australia's $A15 billion horticulture industry and preventing Xf's spread around the world.

This article first appeared on the University of Melbourne's website Pursuit and was reproduced with permission. To read the original article click here.

Growers set to benefit from new agreement

A NEWLY formed agreement for almond growers and nurseries will provide clear direction for transactions between both parties.

Almond Board of Australia Deputy Chair and Walker Flat Almonds General Manager, Peter Cavallaro, said the Nursery Tree Classification Agreement (the Agreement) will be an important resource for growers and nurseries.

"The Agreement is designed to give growers and nurseries a set of standards to aspire to, this will help achieve the best possible quality of trees delivered by nurseries to growers," he said.

Mr Cavallaro said the document would help lead to the best possible outcome for the grower and the nursery.

"The Agreement will assist in giving growers and nurseries a formal platform to have open and clear discussions on what is expected of both parties," he said.

"This will include growers ordering with sufficient time for nurseries to be able to fulfill their orders.

"The nursery tree standards should be referred to by growers and nurseries to achieve the best possible outcome for all."

Mr Cavallaro said the Agreement provided clear information for the almond industry to use as a comprehensive guide for a number of aspects of almond production.

"The aim is to give the almond industry a set of standards to work towards to achieve the best possible quality and consistency regarding grades, true to type, high health budwood material and the best possible rootstock for their growing areas," he said.

Almond nursery stock specification and agreement

Setting the standards

FOR many years, the almond industry has been working with nurseries to develop a clear and concise description of high-quality planting material and an 'agreement' that facilitates the transaction between nurseries and growers.

The agreement's aim is to accommodate successful transactions that rely on open and clear communication. The agreement and standards have been developed to provide a mechanism to document communications at the start of the process and avoid any surprises on delivery.

The almond industry has established an industry-specific 'Nursery Tree Supply Agreement' (the Agreement) and 'Nursery Tree Classification Standards' (the Standards) has been developed to assist in this process and facilitate these discussions.

The Standards has been developed by almond growers in consultation with nurseries and describes different grades of nursery trees and the characteristics that define them.
The Standards is an important step in supporting the almond industry in accessing strong and healthy planting material and minimising variability in orchard plantings due to tree losses, substandard or infected planting material, or genotype that is not true-to-type.

The intention of the Standards is to provide a mechanism that ensures nursery stock meets an industry standard.

Specifically, the Standards provides:
❑ A consistent description that characterises 'superior' planting material is commonly applied across the industry.
❑ A standard measure of tree quality criteria to assist with ordering trees and receiving orders against the specified criteria.
❑ A key message that the almond production environment must be protected from serious pests and pathogens.

Specifying ABA budwood material is the first criteria that growers should specify, and nurseries will have documentation to show the origin of the planting material so that growers can be sure high health virus free budwood material from the ABA budwood program is being supplied.

Figure 1. Sufficient root mass to support a Grade 1 tree.

The Standard provides for three different Grades 1, 2 and 3 with sub-category 'A' determined by the presence of laterals for Grades 1 and 2.
The most distinguishing characteristics between the grades is the height of the tree; the diameter at the graph union and at full length; the number and thickness of laterals.

The Standard describes characteristics that are expected to be met for all material supplied by nurseries including: straightness; graft union/bud height; free of suckers and lateral growth below 700mm; free of pest and disease; free of soil and weed seeds; without mechanical or physical damage; defoliated, washed and moist on delivery; a sound root system.

The root system must be sound for all grades as this is what supports strong growth in the orchard (Figure 1). Without a strong root system tree growth will be weak and slow to establish and may delay tree production.
Growers may prefer a different tree structure and are encouraged to specify the requirements in the agreement at the time of ordering.

The Scheme works in conjunction with the Nursery Tree Supply Agreement (the 'Agreement'), which is a formal agreement that has been developed by the ABA in the interests of both growers and nurseries and is available as a template from the ABA website.

The Agreement documents the discussions and agreed position between the nursery and the grower at the time of ordering and provides a point of reference when material is supplied to ensure the grower is receiving what they have ordered and paid for.
The ABA does not set the price for nursery stock, this is a private agreement between each grower and nursery.

Tree prices for each grade should be determined at the time of ordering together with additional charges specified and inserted into the Agreement Item 3 Order Details, tree classification and quote.
It is also useful to document additional charges for wrapping, packaging, crating and delivery so the total costs are known to the grower.
Storing of material may attract additional fees and this should also be discussed upfront should the need arise.

It is well recognised that the ability to grow trees to an expected standard may be constrained by the seasonal conditions.
Clause 9 in the Agreement outlines the requirement for nurseries to keep growers informed of the progress of growth and communicate the expected grade of trees or delay in delivery. This should be done at the earliest possible time and preferably two months prior to the agreed delivery date.

Growers should plan their planting and replant requirements at least two years ahead so that trees can be ordered with sufficient time to produce a Grade 1 tree.
The recommended timeframe for ordering is 15 months prior to the required delivery date for a spring budded tree.
If only Grade 3 trees (or lower) are available, which might happen if orders have been placed late, the best situation might be to arrange with the nursery to grow-on these young trees as a two-year-old to achieve Grade 1 Criteria and avoid a weak start and tree losses in the orchard.
For a copy of the Agreement and Standard click here.

Manheim

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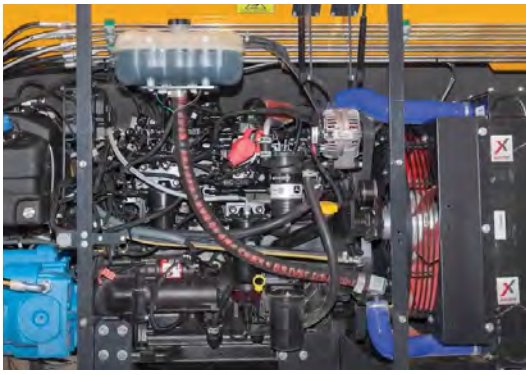

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Wind management in orchards

The Almond Board of Australia (ABA) has been working with Ceres Imaging to gain a better understanding of what is happening out at its experimental orchard through aerial imagery and advanced analytics. Scott Gillett, from Ceres Imaging, has detailed the process being undertaken at the orchard...

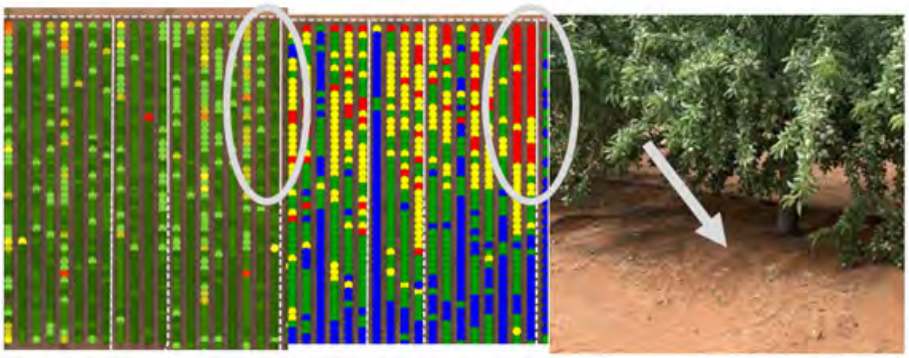
Ceres Imaging has been providing aerial data and analytics for the ABA's Almond Centre of Excellence Orchard for several seasons.

Scott Gillett, from Ceres Imaging, said some early-season imagery has highlighted the potential for insights to assist with managing wind.

"Apart from issues with tree breakage in stronger winds, wind can also have an impact on almond orchards through increasing transpiration losses and causing dripper burial in sandy soils," he said.

"These impacts through wind can vary from season to season, and quite noticeably through different areas of a growing region.

Continued page 42



Comparing NDVI and water stress imagery of the same area highlights potential issues to check.

Managing dripper burial

Scott said "the need to keep a clean orchard floor to assist with harvesting can also result in drift over dripper tube in sandy soils".

"Initially the emitters will continue to put out water at the same rate as the drippers on the surface," he said.

"Over time they have been observed to slowly reduce in output until they are no longer effective.

"Observations have shown ultra-fine particles of colloidal clays accumulate around the emitters. Feeder roots also grow into this zone, trapping the finer particles close to the plastic tube.

"Quite often the colloidal clay will build up on the outside of the dripper emitter blocking flow as the clay seals off the dripper from the outside as it dries and no longer disperses," he said.

Fine clay particles around the dripper line and fine roots forming a mass which will eventually restrict water flow.

"This layer gradually becomes denser until water has difficulty moving through it to the surrounding soil."

Scott added that the flow is then reduced or totally blocked.

"What can also be created by these buried drip sites and altered flow rates is the potential for variable soil wetting patterns, creating thermal osmotic gradients in the soil during the hotter months of the year.

"These soils become drier and then have issues with rewetting later in the season.

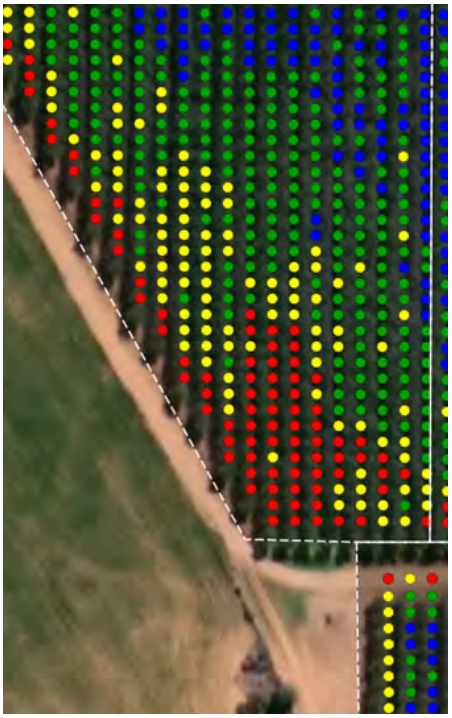
"It can be difficult to check all potential risk areas after every wind event. The imagery layers Ceres Imaging provides are well suited to helping prioritise where to check.

"The layers showing growth, such as NDVI and chlorophyll, change slowly over the season, while layers such as the Water Stress Index that reflect canopy temperature show recent changes."

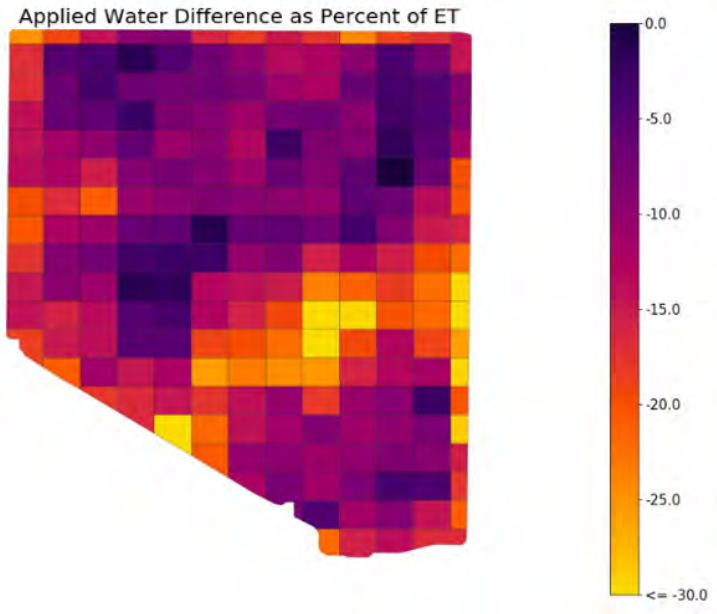
Scott said that examining both types of data together can "reveal areas that have been growing well but have reduced transpiration".

Western dripper line is covered (with some areas not emitting) while the dripper line on the other side away from prevailing wind is unaffected.

North and western edge of orchard is showing stress—some due to dripper burial and potentially also some transpiration wind stress. The prevailing wind is more westerly in the early part of the season, and the northern edge is adjacent to a bare paddock.



Stress can be seen on the edge, reaching further into the orchard in the rows not protected by adjacent trees.



Multiple thermal images can provide a picture of where wind might be impacting along an edge. This is the cumulative stress index.

"These areas can then be checked for potential issues, including buried drippers," he said.
Using Ceres Imaging, some potential problem areas have been identified within the Almond Centre of Excellence.
An approach which will be trialled as the season progresses is identifying several at risk areas and checking a handful of rows within them for dripper burial and removing sand.
If the treated rows stand out on the imagery as growing better, then the impact of burial on the surrounding rows can be quantified.

Monitoring transpiration losses

Longer term impacts through transpiration losses can be harder to quantify, but areas of heightened stress can be seen on the edge of orchards.
"Prevailing winds are generally west and south westerly in Australian growing regions. Wind on average tends to be more westerly early in the season, with a shift to more southerly as the season progresses," said Scott.
"Reviewing a single image can help identify areas where transpiration losses might be occurring, particularly if there is some wind impact on the day of the flight.
"Areas which are highly exposed (such as those along the edges and adjacent to bare ground) are particularly noticeable.
"Measures which attempt to quantify stresses such as transpiration losses over time can provide useful input when planning irrigation."
Scott said one potential measure which helps to highlight areas for changes to irrigation inputs is a planning tool that Ceres provides called "Cumulative Stress Index".
"It's created by combining multiple images over the course of a season," he said.
"Taking this longer-term view helps highlight where issues (including transpiration losses) are re-occurring.
"Areas along the edges will show higher evaporation levels if transpiration losses have been persistent.
"Using this information in irrigation planning can help improve the consistency and returns for an orchard."

Acknowledgement

Thanks to Shane Phillips (Nutrien) for comments on the draft.

About Ceres Imaging

Ceres Imaging delivers precision irrigation solutions that help farmers build more profitable and more sustainable operations. By combining advanced analytics and high-resolution aerial imagery, we provide the full picture of irrigation system performance and crop health. Learn more at ceresimaging.net.

australian almonds

ALMOND BOARD OF AUSTRALIA

ABA MEMBERSHIP: JOIN TODAY

The Almond Board of Australia (ABA) is the peak representative body for the Australian almond industry and as such addresses many issues that impact on all participants in the industry including growers, processors and marketers and those who supply inputs.

These impacts can be positives such as free trade agreements or promotion to stimulate demand and hence prices or they can involve minimising negative situations such as food safety issues, market access problems, chemical registrations etc.

The ABA develops and drives the implementation of the Australian industry's strategic plan which is done to benefit all producers and other industry participants.

The strategies involve building domestic and export markets, the key to strong grower returns and addressing a wide range of risks from the availability of production inputs to government policies that impact on costs and yields.

These matters effect on the bottom lines of almond enterprises.

The ABA's whole of industry strategies have been successful and have worked to ensure the large increases in production have been cleared.

The ABA operates a number of activities that support industry and generate revenue to fund its operations and keep membership fees at a low and affordable cost.

Being an ABA member provides crucial support for your industry body that we need and appreciate. A strong membership base provides added force in our representation of industry to government and in the wider community.

Join the ABA today, in the knowledge you are assisting the industry and yourself to move forward as Australia's most valuable horticultural industry.

Join the ABA by visiting our website, phoning 08 8584 7053 or email admin@australianalmonds.com.au