MangoMatters

OCTOBER **2021** / VOLUME **FORTY-FIVE**

SUNNY DAYS ARE AROUND THE CORNER

and with them, Aussie Mangoes!

PAGE 14

IN SEASON NOW

SPRING ISSUE

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Practical biosecurity surveillance resource released

Plant Health Australia (PHA), recently released the Exotic Pest and Identification Surveillance Guide for Tropical Horticulture to improve biosecurity surveillance in northern Australia.

MORE ON PAGE 16

Australian Mango Industry Association (AMIA) Contact Details

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amia Australian Mango Industry Association Ltd. AUSTRALIAN MANGOES Hort Innovation Strategic levy investment MANGO FUND

CONTENTS

WANT TO CONTRIBUTE?

If you would like to submit pictures and story ideas to AMIA, or provide feedback, please contact the AMIA team via the details listed on this page.

CEO'S REPORT

Brett Kelly
Chief Executive Officer, AMIA

Email: ceo@mangoes.net.au
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"We must continue to adapt and overcome as we work through this challenging environment."

- Brett Kelly

As I enter my sixth month in the role, there is a lot happening as we fast approach the season. The Strategic Investment Plan (SIP) has been finalised and reviewed by the Strategic Investment Advisory Panel (SIAP). Following this, we are expecting tenders for the key levy investment projects to go out shortly (if they haven't been released already). AMIA will start drafting submissions for these projects. The objective is to have this finalised by March 2022 when the current project contracts finish. The new SIP will be for five years, with the new projects to run for three years. These projects are all funded through the levies and managed by Hort Innovation as legislated.

We now have two new Industry Development Officers (IDOs) appointed for both the NT/WA and QLD/NSW regions. Celine Jordens is our NT/WA IDO and Paige Liebich is our QLD/NSW IDO.
We welcome them both to the AMIA and our industry. Celine and Paige will be travelling around meeting with our members, growers, and other industry stakeholders over the next few months. Marine Empson has been promoted to Industry Development Manager (IDM) and both IDOs will report to her.

The marketing position, previously held by Treena Welch, is currently vacant since she finished up and is being put out for tender shortly. AMIA will put in a submission for this.

I will keep you updated as we work through the process and will inform you on the outcome. In the meantime, we are working with Hort Innovation to ensure all marketing activity is fulfilled.

The AMIA Board and management team took part in a co-operative knowledge workshop conducted through the BCCM (Business Council of Co-operatives and Mutuals). This is part of gaining more knowledge and eventual access for our members to workshops should they have an interest in forming a co-operative in their region. We will strive to further enhance tools, knowledge, and access for our members in all aspects of running a successful business in the mango industry. I will keep you updated as we develop these programmes.

I have now also completed an Internal Strategic Plan for the AMIA. I will continue to discuss and update our members on this, as I get around to meeting more of you.

Please feel free to contact me any time if you would like more information. As we have had a lot on; between recruitment, the SIP process, and preparations for the season. I have decided to present this to the AMIA Board and then members at the end of the 2021/2022 season. This will give everyone more time to review it, and agree on a way forward, with the aim of enhancing other key aspects of our industry outside of the levy/Hort Innovation mechanism. Our aim will be to better resource the AMIA, to better service and resource our members, and ultimately ensure future sustainability and growth in the industry.

Lockdowns across the country, due to the COVID-19 pandemic have again and will continue to wreak havoc. As we know this makes it very difficult to plan, however we must continue to as best as we can—particularly with labour requirements. Where possible if we can use local resources if available through sharing employees, this is worth investigating in all local communities. It is worth contacting your local councils, manufacturers, retailers, schools, etc. to see if something can be arranged. We must continue to adapt and overcome as we work through this challenging environment.

I wish you all the best for the upcoming season and I look forward to meeting more of you in person (restrictions permitting) over the next few months.

CHAIRMAN'S REPORT

Ben Martin
Chairman, AMIA

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> **"As I mentioned in my previous report, I have been engaging with our federal politicians on labour needs for the industry and the Ag Visa program."**
>
> *- Ben Martin*

The Australian Mango Industry in 2021 continues to confront the challenges presented by the pandemic and it has added an additional tier to the challenges faced by all growers.

This season has resulted in mixed flowering across the regions. The North Queensland areas have seen poor flowering and fruit retention in several mango varieties, and it is evident that an improved understanding of the mechanisms which trigger flowering, fruit set, and fruit retention is required. There has been a considerable increase of technological knowledge and genetic research and the application of this knowledge is vital, to achieve improved reliability, productivity, and growth of our industry.

As I mentioned in my previous report, I have been engaging with our federal politicians on labour needs for the industry and the Ag Visa program. A meeting is scheduled with Mr. George Christensen MP to progress these matters.

Effective and timely marketing is critical for the industry and the AMIA continue to engage with Hort Innovation to ensure they understand and fulfil their marketing obligations to the mango industry. I expect that the export industry will again be impacted by transport restrictions in 2021 and our industry through Hort Innovation's role must be promoting the positive attributes of our fruit to ensure a sustainable return is delivered to producers.

The remainder of 2021 and early 2022 is essentially the business end of the annual mango season and I extend my best wishes for a successful season.

DIRECTOR REPORTS

NORTHERN TERRITORY & NORTHERN WESTERN AUSTRALIA

Geoff Warnock
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Initial flowering started in this region in early May but was very patchy, however favourable flowering conditions persisted until the end of August, creating a very drawn-out setting period. Whether the late setting fruit survives will depend on weather conditions during this month, normally September provides the region's first 40-degree days; if this occurs the late setting fruit will drop. However, if the weather continues, as it is at present (early September), we could be in for a long drawn-out picking period, this could be favourable given the expected shortage of labour for picking.

Growers are currently in the process of picking and packing fruit from the initial early flowering and the first fruit from the region should be in the markets this week (mid-September).

Production from the region will be difficult to estimate due to the flowering period but hopefully, for the growers' sake, we will see more volume compared to last season.

Hopefully this will be over by peak flowering.

Other challenges facing growers this season will be sufficient workers, transport, and access to markets. We will need to address these challenges as they arise.

I take this opportunity to wish all growers a rewarding and profitable season.

FAR NORTH QUEENSLAND & NORTH QUEENSLAND

John Nardi
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E: johnn@favcoqld.com.au

Flowering in the Dimbulah/Mutchilba/Mareeba region is a little inconsistent, with some growers experiencing a reasonable early flower and fruit set and others very little. But there does seem to be a reasonable late push happening now that could eventuate into a crop if it holds, although it will likely be late. The weather over the coming weeks will be the determining factor if this flowering will set. I am more confident in the later varieties holding, rather than the earlier ones, but time will tell. For those that did experience early flowering, it is looking like the season may begin two weeks earlier than last season at this point, indicating that some Dimbulah growers will potentially start their season possibly in the second week of November. Currently, not taking in to account the late flowering, I am estimating the region will be 25-30% down on last season's total overall volume. This may be less obviously if the late flowering does eventuate into a harvestable crop.

As we would be aware, lockdowns because of COVID-19 outbreaks, are still influencing the markets and people's normal everyday lifestyles. Hopefully with increased vaccination rates we will see an end to this soon, leading to a positive outcome for mango sales. Let us hope it all pans out to a favourable season for all this year.

John Nucifora
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The Australian Mango Industry, Hort Innovation and AMIA have been working on the Strategic Investment Plan (SIP), and it will not be long before it is finalised. The SIP will guide work invested in by levies. In my opinion, I would like to see more promotion and advertising programs in the Mareeba and Dimbulah area. I would like to thank everyone that was involved in the SIP process.

Continued page 7

NOTE: No board report submitted for Darwin region. No board report submitted for Katherine region as position is currently vacant.

"In a more difficult business environment, agriculture is turning to technology to simplify operations and use data to help farmers make better decisions. I would like to strongly encourage all growers to embrace the available technology."

- Karl Gygar

Continued from page 6

Flowering has finished in the area, and it seems that a lot of growers are experiencing a very patchy crop. However, there are some growers that have indicated they are expecting a record crop this season. I personally believe that overall, volume will be down on last season.

It is sad to see that COVID-19 is consistently having an impact on sales; with some markets making less sales and other markets receiving large amounts of second grade fruit—this is putting pressure on certain markets. The labour force is also continually under pressure. I am hearing from certain growers that securing labour is a major issue for them. I encourage growers to reach out to AMIA and services like Harvest Trail to assist with securing labour.

I would like to wish all mango industry stakeholders much success for the season ahead.

SOUTHERN WESTERN AUSTRALIA

David Morcombe
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Flowering is already under way in Gingin. There was a very wet Winter, and we are now hoping for good pollination conditions in the months ahead.

In Carnarvon there are good water levels. Flowering has been good and fruit set is under way. Hopefully it will be a good season.

In other horticultural crops labour scarcity has been creating extra stress and increased cost. For example, shutdowns are limiting capacity for the food service industry, which in turn is having a negative impact on prices. Hopefully as mangoes do not have a great reliance on the food service industry, and if the supply chain through to consumer retail sales remains strong then we can still sell our crop for a reasonable return.

SOUTHERN QUEENSLAND & NEW SOUTH WALES

Karl Gygar
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At the time of writing, we are heading into the start of another season. I wish every grower all the best for the upcoming season in what will no doubt be a tough environment.

COVID-19 of course will play heavily on the availability of labor and sales generally in the market. We can only hope that restrictions ease in the future and infections fall. As you may be aware the new five-year Strategic Investment Plan (SIP) will be released shortly. I thank everyone who participated in its creation and hope that it drives profitability for growers into the future.

In a more difficult business environment, agriculture is turning to technology to simplify operations and use data to help farmers make better decisions. I would like to strongly encourage all growers to embrace the available technology. For those of you who are not sure what is available, I would encourage you to look at the Hort Innovation website or other organisations such as EvokeAG. There are new innovations coming to market every day, many of which could be helpful to your enterprise.

Not all new technology is complicated or in fact technical and in many instances simple applications can make a huge difference.

Once again best of luck to everyone this season.

AMIA & INDUSTRY NEWS

Excutive team update

Australian Mango Industry Association is pleased to welcome Celine Jordens and Paige Liebich to the team and industry, as the company's new Industry Development Officers.

Celine will represent NT/WA and Paige will represent QLD/NSW. Both ladies are excited to meet you if they haven't already.

You can contact them on the details below.

Celine Jordens – Industry Development Officer NT/WA
M: 0457 555 939
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Paige Liebich – Industry Development Officer – QLD/NSW
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Celine Jordens.

Paige Liebich.

Mango industry considers co-op options

We are excited to announce a new initiative available to our industry stakeholders.

The Australian Mango Industry Association (AMIA), together with Business Council of Co-operatives and Mutuals (BCCM) is looking to help members by educating them on how a co-operative business model can help them compete and scale by working together, while at the same time remaining independent businesses at the farm gate.

"I've been speaking to a lot of growers out there that are very interested in forming their own co-operative, so we want to give them more tools to be able to do that," AMIA chief executive officer (CEO) Brett Kelly said.

"There's opportunity and strength in numbers and synergy across the industry. At the moment we have independent operators and that's good, but it also means they're all competing with each other.

"As the representative body we want to point them in the right direction and say instead of all acting independently, why don't you explore the opportunities around being a co-operative?"

In agriculture alone, 229 co-operatives facilitate the operations of more than 24,000 member businesses in farming, fishing, forestry, and irrigation.

Mr. Kelly said there was huge potential in AMIA's 100-plus member base to explore farming co-operatives.

"Co-operatives are really quite beneficial and there's opportunity for members and growers to learn how a co-operative would work for them," Mr. Kelly said.

The peak body for grower and other co-operatives, the Business Council of Co-operatives and Mutuals (BCCM), recently held a workshop for the AMIA board and management through its $2.5 million Australian Government funded Co-operative Farming program.

"The BCCM is really pleased to work with AMIA to provide co-operative education to the mango industry. It puts another option on the table for producers to boost farm gate returns," BCCM CEO Melina Morrison said.

AMIA is planning to hold further workshops with members to explore their options in the near future. Once organised, mango industry stakeholders will be informed about the meetings via industry communication. People who aren't already subscribed, can do so at www.mangoconnect.com.au.

If you are interested in participating in a workshop, or would like to find out more, please contact CEO Brett Kelly on M: 0437 435 363 or E: ceo@mangoes.net.au.

ABOUT BCCM

The BCCM unites co-operatives, mutuals and member-owned businesses with the common objective of increasing awareness of the co-operative and mutual business model and the important contribution of member-owned businesses to the national economy and community development of Australia.

Eight in 10 Australians are members of at least one co-operatively owned business

Next chapter on National Mango Breeding Program (NMBP) hybrids

Three mango hybrids produced during the NMBP will transition to the next phase of their commercial development in the coming months. The varieties, currently known as NMBP-1201, NMBP-4069 and NMBP-1243, are protected by Plant Breeders Rights granted through IP Australia, and are currently grown by over twenty growers on orchards in Western Australia, the Northern Territory, Queensland, and New South Wales. Following the conclusion of the breeding program, CSIRO led the commercialisation of the varieties on behalf of the NMBP state and territory partners and licensed Newmanco in 2015 for the commercial rights to the three varieties.

Newmanco, CSIRO, and the state and territory partners have successfully agreed on a new arrangement which sees DAF taking on the Licensor role moving forward. Newmanco's Brett Kelly said that "Newmanco fully supports the new project team and wishes them every success.

The expertise and resources to be provided by DAF is fantastic news for those involved, such as the nurseries providing high health growing material, the growers nurturing their trees, and for mango lovers alike, as the new project team continues to bring these exciting varieties to market."

Lynne Turner, General Manager Horticulture & Forestry Science in DAF said "now that some regions have maturing orchards, the next phase will involve an Expression of Interest seeking tender proposals from suitably experienced agents to take on the licence to manage the propagation, growing and marketing of the varieties. The Intellectual Property portfolio will be expanded to include registered Trademarks. Parties interested in propagation, growing or marketing opportunities can contact the Business Manager by email to hfsbm@daf.qld.gov.au.

NMBP-1201.

NMBP-1243.

New biosecurity website

The Australian Government recently launched a new national website that will help the public easily find answers to their biosecurity questions.

The website helps everyone better understand their role in keeping Australia safe from pests and disease. This site will continue to evolve and grow to support people's biosecurity information needs.

This new website brings together resources from the Australian, state and territory governments, industries, and non-government agencies.

Whether you're an individual or a business, the website links you to everything you need to know about your biosecurity responsibilities.

If you think you've spotted a biosecurity risk, this tells you what you can do about it.

Visit the national biosecurity website, biosecurity.gov.au, for the latest biosecurity news and information. Together we can all do our part to support Australia's biosecurity system.

The new biosecurity website.

Processor contact details

AMIA have put together a processor directory, which is now available on our website.

Visit: www.industry.mangoes.net.au/contact/processors.

We will add any other interested processors if we receive their details.

If you are a processor and are interested in being featured in this directory, please email com@mangoes.net.au with your company's full name, a contact name, number, and email and where you are located.

Chemical update

The Department of Agriculture and Fisheries (DAF) has competed a Sunset Review of the Agricultural Chemicals Distribution Control Regulation 1998 (the ACDC Regulation). This is consistent with the requirement for all subordinate legislation in Queensland to be reviewed on a regular basis to ensure that regulations remain cost-effective and fit-for-purpose. Australian Mangoes was involved in the consultation which informed this review.

The ACDC Regulation, authorised under the Agricultural Chemicals Distribution Control Act 1966 (the Act), provides the framework for the provision of licensing of agricultural chemical application (aerial and ground distribution).

On 31 August 2021, the Agricultural Chemicals Distribution Control Regulation 2021 replaced the Agricultural Chemicals Distribution Control Regulation 1998.

The following minor changes were implemented in the ACDC Regulation:

- Removal of AHCPMG301 (Control Weeds) as a competency training unit required for chemical application licences.
  The removal of this competency unit aligns with a national agreement reached in agricultural and veterinary (agvet) chemical control-of-use harmonisation between the Commonwealth and all state and territory jurisdictions, which have been endorsed by the Council of Australian Governments (COAG).
- Amendment of the particulars required to be entered in the public register to reduce the level of information disclosed.
- Removal of Restrictions on opening containers of volatile chemicals, which was an unnecessary requirement on industry for constraints on opening certain chemical containers within 25m of a crop or of stock that is susceptible to damage. The risk associated with the volatility of currently registered agricultural chemicals to crops and stock is adequately managed through label instructions.

IFAM update

Extension of the International Freight Assistance Mechanism (IFAM) program was recently announced. IFAM will receive an additional $260.9 million to continue operations until 30 June 2022, with an operational tail to the end of July 2022.

Click here to view the announcement.

Check the IFAM website: www.austrade.gov.au/news/news/international-freight-assistance-mechanism for the current list of available flights and further details.

If exporters would like to provide feedback regarding flight routes, specifically, if you would like to see particular routes available, we can liaise with Austrade. Please contact Marine Empson e: marine@mangoes.net.au or m: 0457 555 838 if you have any feedback.

AG Visa, PLS and SWP further details

The Agriculture Visa is now in place.

This follows an announcement made by National Cabinet recently that between now and March 2022, Australia will double the number of Pacific workers in Australia under the Pacific Labour Scheme (PLS) and the Seasonal Worker Programme (SWP) bringing in an extra 12,500 workers.

Reforms to Australia's labour mobility programs, have also been announced recently, and as part of the first stage of these reforms the PLS and the SWP will be easier to access, protect worker welfare, and better meet the workforce needs of regional Australia.

The centrepiece is a single streamlined application process for both the PLS and SWP offering more flexibility and less red tape. This will ensure the pacific labour programs continue to meet critical worker shortages and remain the Australian Government's leading workforce program into the future. Eligible approved employers will also have their status recognised for both programs.

The Pacific Australia Labour Mobility (PALM) website (palmscheme.gov.au) has been established for employers to apply to join the PLS and SWP through a single application.

PALM scheme worker. Photo credit: https://www.palmscheme.gov.au/.

Seasonal workers touchdown

An NT Farmers charter flight from Vanuatu touched down in Darwin recently to deliver over 160 desperately needed seasonal workers under the Seasonal Worker Program for this year's mango harvest.

All workers will now have undertaken 14 days of supervised quarantine at the Howard Springs Quarantine Facility.

"The workers will play a critical role in saving this year's multimillion dollar mango crop. Their work will ensure that the best Territory mangoes will arrive on supermarket shelves around Australia this season," said Mr Paul Burke, CEO of NT Farmers Association.

"We are extremely relieved that these workers are finally arriving, many farmers feared that they would not be able to harvest their mangoes due to Australia's severe worker shortage. The workers are saving farmers from financial ruin and are making an enormous contribution to the Territory's agricultural industry."

"The touch down of this plane is a culmination of nearly twelve months of tough negotiations and hard work by NT Farmers with eight Commonwealth and Territory government departments and the Government of Vanuatu.

"NT Farmers recognize the outstanding support provided by all levels of government and industry to bring these seasonal workers here. The Territory government in particular, has worked extremely closely with us to achieve this outcome. This is an outstanding example of government and industry proactively working together for the benefit of Territorians, the economy and seasonal workers.

"The workers are instrumental in supporting the NT's mango industry which generates over $130 million dollars per annum and thousands of FTE jobs.

Nicole Manison, NT Minister for Agribusiness and Aquaculture.

The local mango industry supplies over 50% of Australia's mangoes and are the earliest to enter the market."

"NT Farmers thanks Ni-Vanuatu workers for traveling to the Top End and contributing to the NT economy. Safety is paramount for the industry, all farms have strong COVID management plans in place," said Mr Burke.

"These workers are critical for our mango industry and our upcoming harvests. It's crucial we get our mangoes off the trees and onto the market," said Nicole Manison Minister for Agribusiness and Aquaculture.

"The NT produces over $130 million worth of mangoes annually, which flows back into the Territory economy with more local jobs and more opportunities for regional development.

Paul Burke, CEO of NT Farmers Association.

"Our number one priority remains keeping COVID-19 out of the Territory and this initiative is a great example of industry and governments working together to get much needed workers onto our farms safely."

Mango map now up on website

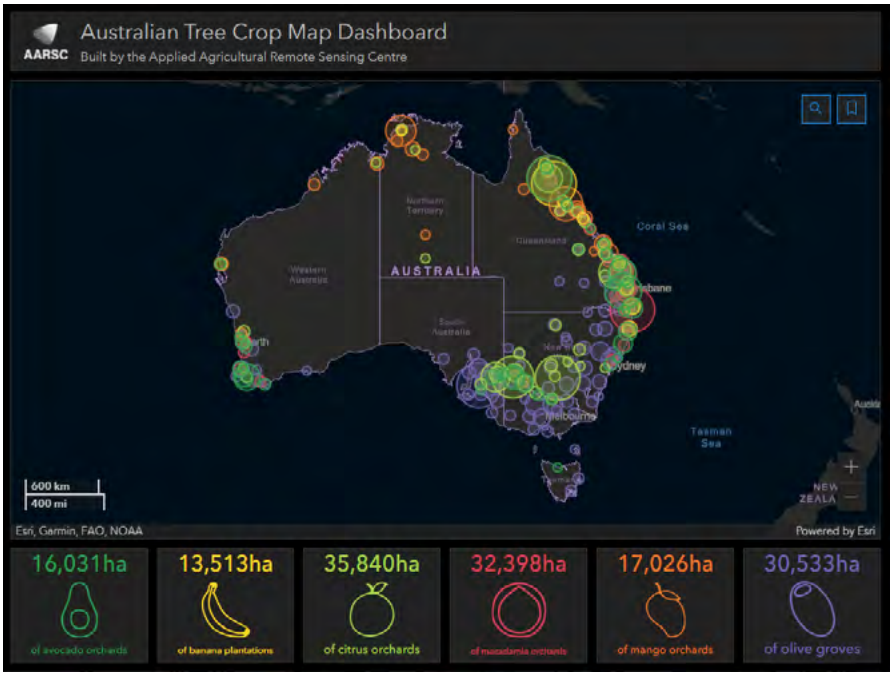
The National Mango Tree Crop Dashboard has now been added to the Australian Mangoes website. Head to www.industry.mangoes.net.au/resources/resources-library/national-mango-tree-crop-map-dashboard to view it.

Mango growers are encouraged to submit feedback, a button to do this can be found at the top of the map.

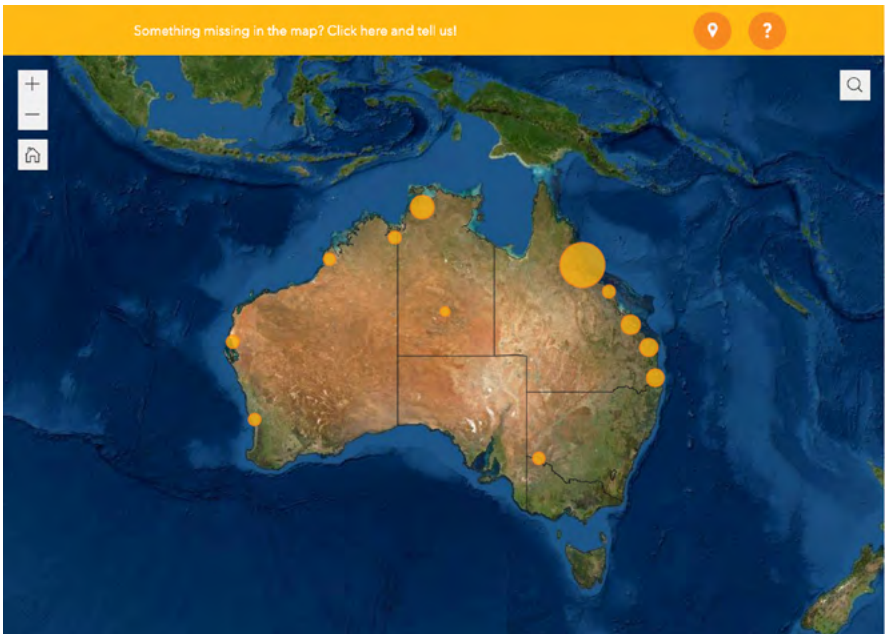
The Australian Tree Crop Map Dashboard produced by AARSC researchers Craig Shephard and Joel McKechnie as part of Multi-scale Monitoring Tools for Managing Australian Tree Crops: Phase 2 was recently awarded first place at the global Esri User Conference (which has over 50,000 delegates this year).

This is a career highlight for both Craig and Joel and demonstrates that this application is world leading.

Hort Innovation



Joel McKechnie and Craig Shephard.



The Australian Tree Crop Map Dashboard.

MARKETING & PR

Sunny days are around the corner and with them, Aussie Mangoes!

Australians know when the weather gets warmer and the days get longer, it's time for a mango.

The new creative campaign this season is 'Taste the Sunshine'. The campaign focuses on mangoes transportive taste, how one bite of a juicy Aussie Mango can melt away life's worries and take you to a tropical destination, just like the regions from which mangoes grow.

We'll seek to educate consumers on Australian mangoes of all varieties, inspire occasions in which they can be used and remind our consumers that in a year where not everything is perfect, an Australian mango is just the weekly taste of sunshine they need.

DIGITAL

Consumers have been forced to spend more time indoors and online throughout 2021. Aussie Mangoes aim to transport Australians from their kitchen to a world of paradise. From October to January Aussie Mangoes will reach viewers in their home with 15 and 6 second videos played across YouTube. The videos aim to align experience seekers with their passions and get them to feel excitement about mangoes ultimately re-thinking the number and variety of potential use occasions.

PR

Marking the official launch of season, Aussie Mangoes partnered with the Brisbane Produce Market Mango Auction, which was held online this year in mid-September. The auction is an iconic charity event which attracts significant media coverage and has raised a cumulative total of $1 million for charity.

Aussie Mangoes also teamed up industry and growers, including Jenko's Mangoes, to produce a fun film featuring the Jenkins' family. The video alongside other interviews, stats and commentary featured across multiple news outlets including 9 News, 7 News, ABC News and The Australian. Total coverage at the time of publishing includes 105 articles for PR (74 in broadcast and 31 online), reaching over 56.8 million people, and 13 social posts, reaching over 1.2 million people. A big thanks to everyone who helped in this year's season launch!

Continued page 15

Our mission this season is to:	
GET: Pre-family singles and couples that like mangoes	**WHO:** Already like mangoes
TO: Enjoy a mango once a week	**BY:** Positioning ourselves as the go to guilt free treat.


Friday, September 17, 2021 ntnews.com.au $2.20 incl GST

NT News YOUR VOICE IN THE TERRITORY We're for you

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49 DAYS TO FREEDOM

Mango MADNESS BEGINS

Sam and Ruby Jenkins eating the first mangoes of the season at their family farm in Noonamah. Picture: Amanda Parkinson

WHILE the Build-Up heralds hot and sticky weather it also brings with it the sweet delicious flesh of the mango.

Trays and trays of the Top End's favourite fruit are being picked and packed ready to be devoured by hungry mouths.

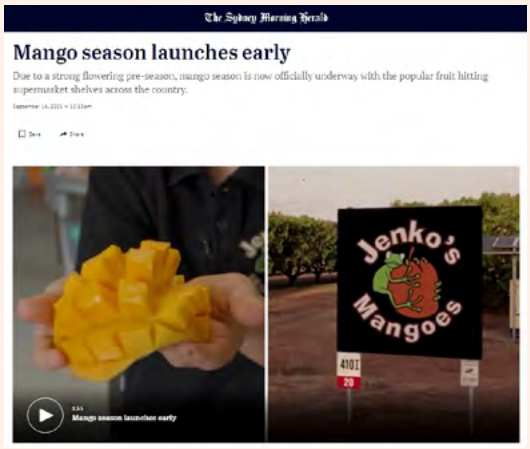
Australian Mangoes have officially launched the season with distribution of mangoes set to increase to 200,000 trays in mid-late September. Jenkos Mangoes expect to pack 50,000 trays this season.

PG FULL STORY

NT News front cover.


Going troppo for big mango season

NT News article.



Sydney Morning Herald article.

Australian mangoes social post.

Continued from page 14

Although there will be no Messtival this year, additional activity leading into summer will include a brand partnership announced in line with the peak of mango season.

SOCIAL

Aussie Mangoes social media went live in line with the PR announcement. Social channels will adopt an 'always on' approach, aiming to use Masterbrand assets, new recipe shots and chic, minimalistic images to provide mango content based on educational, entertaining, and inspiring messages.

POINT OF SALE

Aussie Mangoes will feature within retailers between October and January as a last touchpoint before purchase. The new look and feel will remind experience seekers that adding mangoes to their everyday basket is an opportunity to 'Taste the Sunshine'.

In addition, some retailers are taking part in a sales and display competition, pitting each store against each other to compete for the most luscious and abundant mango display.

EXPORT

The campaign will extend to promote Aussie Mangoes in export markets with the intention of building a stronger relationship between stakeholders and leveraging the quality an Australian mango has to offer. Key markets will include New Zealand and South Korea. Digital promotional activities across these markets will drive awareness and understanding of the product.

ENGAGEMENT

Engagement with retailers and the whole supply chain remains an important part of the Australian Mangoes marketing strategy. This pillar of activity is crucial in maximising the engagement and support by the major grocery retailers and independents and leveraging their ability to access large numbers of consumers in the most cost-effective manner. Furthermore, the key projects being supported by Hort Innovation, namely, crop forecasting, quality standards, and consumer demand, will be brought together to maximise their understanding and support within the mango supply chain.

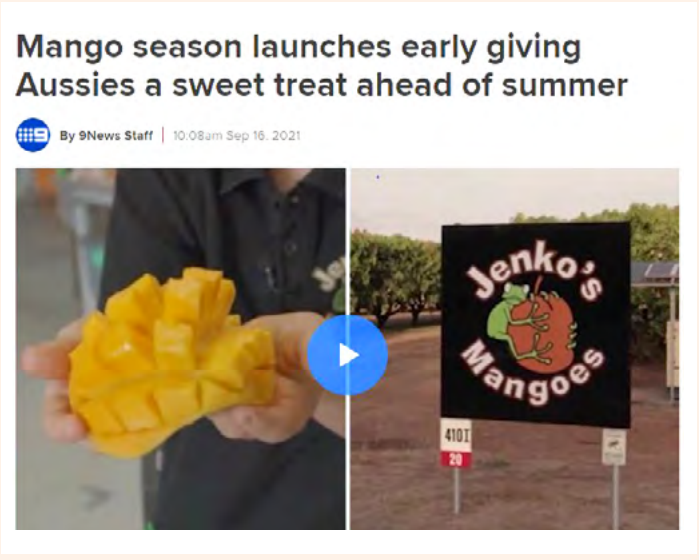
Whilst we seek to recruit for this position, engagement activities continue, supported by Hort Innovation and AMIA.

Keep an eye out for weekly updates on the 'Taste the Sunshine' campaign in *My Mango*.

For further information please contact Hort Innovation Marketing Manager, Tate Connolly on P: 0427 145 642 or E: Tate.Connolly@horticulture.com.au.

Hort Innovation

9 News social post.



9 News article.

BIOSECURITY, RESEARCH & POLICY

Biosecurity—practical biosecurity surveillance resource for tropical plant industries

As part of our commitment to represent the biosecurity interests of the Australian Mango Industry, Australian Mangoes (AMIA) provide information about biosecurity, pests, and diseases.

This edition, we look at the Exotic Pest and Identification Surveillance Guide for Tropical Horticulture. This article has been supplied by Plant Health Australia.

For a copy of the guide please contact AMIA Industry Development Officers Paige and Celine; they have copies of the guide to give out.

Industry Development Officer - QLD/NSW
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Surveillance is a cornerstone of effective biosecurity and is essential to managing plant pests in Australia. Plant Health Australia (PHA), the national coordinator of the government-industry partnership for plant biosecurity in Australia, recently released the Exotic Pest and Identification Surveillance Guide for Tropical Horticulture to improve biosecurity surveillance in northern Australia.

Inspecting crops for signs of new pests is an important method to protect Australia's plant industries from exotic pests, as early detection and reporting improves the chances of successfully containing or eradicating new pests.

The growing rate of world-wide trade, the geographical spread of pests and the intensification of agriculture and horticulture, increases the risk of exotic pests entering and establishing in Australia.

"With its unique environment, northern Australia presents specific biosecurity challenges given its remote growing areas, diverse range of plants, sparce population, and vast coastline," says Trevor Dunmall, Biosecurity Planning Manager at PHA.

"The area's proximity to neighbouring countries with high exotic pest populations, further reinforces the effort to protect northern Australia's pant industries," he says.

Funded by the Australia Government Department of Agriculture Water and the Environment, the exotic pest guide is designed to increase awareness of exotic pests and provides useful information on what to do if a suspected pest is found.

Fondly referred to as the 'Ute Guide', the manual has been designed to be small enough to fit into a ute's glove box for easy on-the-go identification of pests.

Crops specifically covered in the guide include avocados, bananas, citrus, lychees, mangoes, melons, papaya, passionfruit, pineapples, and tropical vegetables. Exotic fruit flies get a special mention, as pests of multiple tropical crops.

The guide is divided into two sections:

The biosecurity and surveillance section describes key aspects of on-farm biosecurity and how to undertake pest surveillance.

Different surveillance techniques such as visual observation, assessing plants in urban and peri-urban environments, assessing fruit in packing sheds, trapping surveys, and recording survey results, are discussed.

In case something unusual is spotted, there is information about what to do with samples of insect pests and diseased plant material, and how to report the find.

Continued page 17

Fondly referred to as the 'Ute Guide', the manual has been designed to be small enough to fit into a ute's glove box for easy on-the-go identification of pests.

Continued from page 16

The identification of key exotic pests' section provides information on the high priority exotic pests for several of the horticultural crops grown in northern Australia.

While there are many more exotic pests, most of the pests in this guide have been categorised as high priority pests by industry, based on a number of parameters, including likelihood of pest entry, likelihood of pest establishment, likelihood of pest spread, and potential economic impact.

This section provides images of pests or images of disease symptoms, as well as a brief description of how to interpret the descriptions and icons.

It is important to remember that if something unusual is spotted, it may be an exotic pest and needs to be reported. Do not hesitate to seek advice by calling the Exotic Plant Pest Hotline on 1800 084 881.

Visit the PHA website to download a copy of the Exotic Pest and Identification Surveillance Guide for Tropical Horticulture, or contact our IDOs on the details at the top of this article.

Follow PHA on Facebook, Twitter and LinkedIn for the latest plant biosecurity news.

Plant Health AUSTRALIA

Grower resources to support change to high density systems

There are now numerous resources available to help support mango growers wishing to transition to intensive management practices.

These have been developed through the three-year 'Transforming Mango Futures Project', funded by the Cooperative Research Centre for Developing Northern Australia (CRCNA), and led by DAF with partners Manbulloo Ltd, Marto's Mangoes and the Australian Mango Industry Association (AMIA). Outcomes of this project will help transform the productivity and profitability of the Australian Mango Industry through research, development, and extension of next–generation, economically-proven, innovative mango production systems.

Three demonstration trials were established on commercial mango orchards in Bowen, Mutchilba (Mareeba), and Katherine as key outcomes of the project. Each demonstration site of high-density plantings included both trellised and non-trellised designs and were evaluated with the growers' main varieties (KP and/or R2E2) and a few of the new NMBP mango varieties (1243 and 4069). At this time, numerous trees had reached the second wire in the trellis systems and there was good branching in the conventionally managed systems. This is despite a few setbacks to the establishment of the demonstration blocks, including two 'one in 100-year' frost events that occurred back-to-back in Mutchilba.

Overall, the project has produced many resources to support the mango industry in adopting intensified planting systems; an entertaining, short video summarising these activities and outputs from the project is available on the Queensland Agriculture YouTube channel.

Continued page 18

Mature high-density R2E2 'slim-hedge' orchard (Marto's Mangoes, Bowen).

Continued from page 17

More specific details about individual resources are included below.

Three videos were produced which cover the key concepts and skills required to manage high density mango systems:

1. High-density mango intensification: the basics
2. High-density mango orchards: espalier trellis
3. High-density mango orchards: slim hedges.

These videos are available on the Queensland Agriculture YouTube channel and can also be accessed through the CRCNA webpage and the Australian Mangoes Best Practice Resource Library.

A report; 'An economic case study of intensive mango systems' was produced to assist stakeholders in assessing the economic costs and benefits of adopting higher planting densities.

The manual, 'Establishment of high-density mango orchards' (link available on CRCNA website shortly) was also developed to support growers who are considering intensifying or who have established higher density mango orchards.

The manual includes information on both 'slim-hedge' and trellised high-density systems.

In addition to the electronic resources developed for the project, (and where COVID-19 restrictions permitted), demonstrations of high-density systems to stakeholders were conducted during annual tours of the three demonstration sites and at the DAF Planting Systems Trial at Department of Agriculture and Fisheries Walkamin Research Facility in Mareeba (Walkamin).

In 2021, thirty growers, researchers and agronomists attended the "High-density Mango Canopy Training Field Day" held at (Walkamin), where training and pruning skills for managing high-density orchards were demonstrated.

Although the project has now concluded, DAF and the original partners will continue to support the development of novel intensification methods. This will be achieved through a new DAF internally-funded project 'Transforming Orchard Futures', with informal support from Manbulloo Ltd, Marto's Mangoes and AMIA, as well as a host of new collaborators including Acacia Hills Farm and NT DITT. New high-density plantings by NT DITT include the Coastal Plains Research Farm, Katherine Research Station, and the Ali Curung Aboriginal Community.

Any commercial growers across Queensland, the Northern Territory and Western Australia that have existing high-density orchards (both trellised and non-trellised) or are planting new high-density blocks, and wish to share their knowledge, or learn from the project are welcome to collaborate during this next phase.

The future for an intensive, more profitable mango industry looks bright thanks to the 'Transforming Mango Futures Project'.
A huge thanks to the CRCNA and all partners, collaborators and participants that contributed to the success of this project.

Article submitted by Dale Bennett (dale.bennett@daf.qld.gov.au) and Geoff Dickinson (geoff.dickinson@daf.qld.gov.au), Department of Agriculture and Fisheries, Mareeba.

New high-density R2E2 'espalier trellis' trial with manager, Rory Nunes (Manbulloo, Mutchilba).

Shining a light on efficient mango production

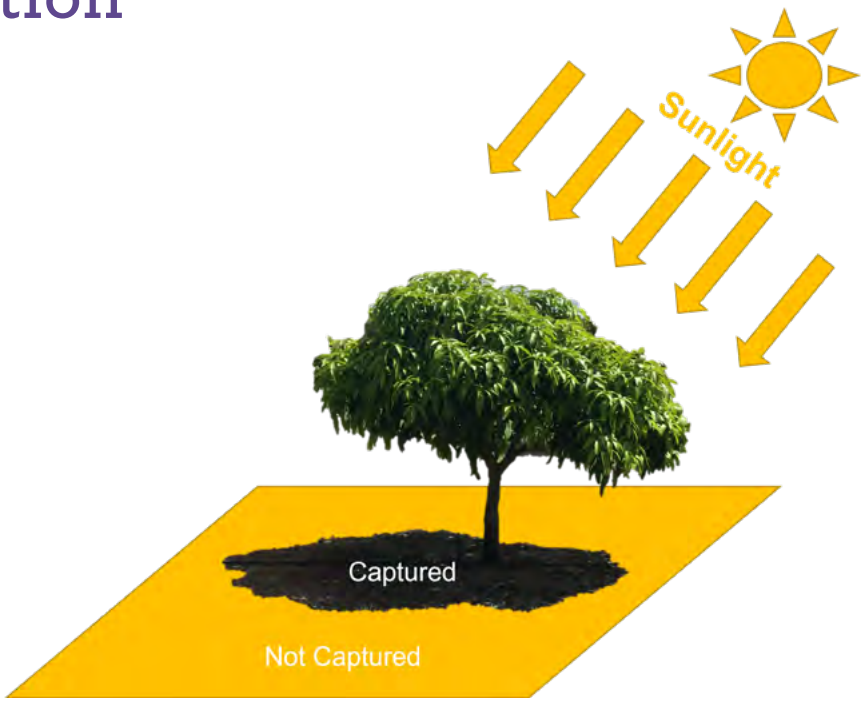
Part 1 of the Mango Small Trees Initiative Article Series

Mangoes need sunlight to grow, bear fruit and everything in between. Simple, right?

But how much sunlight? Where do we need the sunlight? And how do we make the most of the sunlight we have?

These are all questions the DAF Mango Small Trees Team are trying to answer as part of the National Tree Crop Intensification in Horticulture Project (AS18000).

Understanding how sunlight interacts with mango leaves throughout the canopy is a major theme of the project, as the energy in light is the driver of photosynthesis, tree growth and fruit production. Ultimately, it plays a big part in understanding how to make a mango farm more efficient.



LIGHT INTERCEPTION

Light interception is the percentage of the total sunlight falling on an area of land that is intercepted by the tree. This was investigated in relation to growing mangoes in a high-density system. High light interception is fundamental to making a mango orchard more efficient. The question to be considered is "How can we make sure that as much light as possible is hitting the tree and not the ground?" The answer is: increase the surface area of mango tree per hectare.

The difference in light interception between a conventional mango orchard planted at 208 trees per hectare and a high-density orchard planted of 1250 trees per hectare was measured for five-year-old Calypso trees. Conventional mango plantings were found to intercept only 14% of the light, compared to high density which was able to intercept 49% of the light.

LIGHT DISTRIBUTION

Light interception is only part of the story. Another important part is how efficiently the tree uses the light it captures, or light distribution. Light distribution describes what part of the tree is getting light. Often, in large, thick trees all light hits the outside of the tree and only a very small amount gets into the middle. This would be considered poor light distribution. Light distribution and its implications on productivity is one of the areas being focused on in the current project.

One of the ways that mango trees lose efficiency is through leaves inside the tree not getting any light.

Leaves are designed to capture light, and turn it into energy, but when the plant has put the resources into creating leaves that don't capture any light, those resources are wasted. By increasing the amount of light penetrating into the heart of the canopy, the number of unproductive leaves is reduced, and efficiency is increased.

There are several ways to make sure light is getting into the middle of the tree, one of them is meticulous pruning, which is often time-consuming and expensive. Another way is to decrease the canopy volume, while maintaining the surface area of the tree or its 'outer skin' which captures most of the sunlight.

A higher surface area to volume ratio is beneficial as shown in the figure below, where the low-density orchard has a high surface area, but a high volume, giving a low surface area to volume ratio. That means there are a lot of leaves in the shade that are not photosynthesizing. In the high-density orchard, there is also a high surface area, but a low volume, giving a high surface area to volume ratio, with a lot less leaves in the shade that aren't photosynthesizing.

Continued page 20

Low Density
High Surface area
High volume

High Density
High Surface area
Low volume

Continued from page 19

FRUIT QUALITY

Light levels are very closely related to fruit quality. Too little light results in pale fruit that get downgraded, but too much light results in sunburn and fruit are thrown in the bin.

Overall pack-out assessments conducted as part of the last project showed that high density plantings had approximately 65% first grade fruit, 33% second grade fruit and 2% rejected fruit. Low density plantings had approximately 50% first grade fruit, 44% second grade fruit and 6% rejected fruit.

There was no difference in the sunburn between the two different densities. Better pack-out and less rejects shows we're on the right track with the interaction between sunlight and fruit quality. The next step in this project is to look at what other factors other than the light levels (e.g., temperature and water stress) are contributing to sunburn and we aim to make the amount of sunburnt fruit zero.

THE FUTURE IS BRIGHT

One thing that is very clear about the work that has been done in light is that it is very important and forms a basis for how much energy a tree can produce.

There are still gaps in our knowledge and the team at DAF are working as part of National Tree Crop Intensification in Horticulture Project to try and understand as much as we can about mango trees and light. It is hoped this research can be used to help make mango farms more efficient.

Light is just one of the themes being investigated in this project, keep an eye out for our next theme in a later issue of *Mango Matters*.

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, Plant & Food Research and the Western Australian Department of Primary Industries and Regional Development, and contributions from the Australian Government.

Year of the fly

Native hover flies dominate the Darwin mango flowering season

WHY STUDY MANGO POLLINATORS?

Many crops need or benefit from insect pollination. The insects providing pollination services often vary widely between crops, growing regions and even between years. By studying crop pollinators, we may be better able to protect and manage pollination services in the future.

WHAT KINDS OF INSECT VISIT MANGO FLOWERS?

In the flowering season of 2021 (Jun-Jul), we surveyed mango flower visitors on three farms around Berry Springs in the Northern Territory (NT). Surprisingly, flower visitation was dominated by just a single species of native hover fly, *Mesembrius bengalensis* (Syrphidae). This one species alone accounted for 57% of all visits!

Meanwhile, another native insect, the stingless bee, *Tetragonula mellipes* (Apidae), made up a further 31% of visits. The remaining 12% of visits were made up by various flies, bees, and wasps, including a second hover fly species, *Eristalinus punctulatus* (2%).

In contrast, European honeybees accounted for less than 1% of all visits. This is surprising as honeybees often dominate flower visitors in many Australian crops, including apple, cherry, almond and avocado, and are also known as a mango flower visitor in some regions.

Hover flies are an ever-present but generally only small component of pollinator communities worldwide. In fact, to the best of our knowledge, this is the first time hover flies have been documented as the dominant flower visitor in any crop!

WHY DO FLIES VISIT FLOWERS?

Hover flies are part of the insect Order Diptera, which contains the "true flies". The Order Diptera includes many familiar and related flies such as blow flies, fruit flies, march flies and even mosquitoes.

Like bees, many fly species will visit flowers to collect nectar and pollen. They use these resources to power their extremely rapid flight, as well as for developing eggs and sperm for reproduction.

When dissected, the guts of many Mesembrius hover flies that we collected from the mango farms were packed with mango pollen.

Furthermore, the ovaries of many *Mesembrius* females were full of large eggs. This suggests that the hover flies were actively breeding during mango flowering and using the mango pollen to power their energetic sex lives.

ARE FLIES POLLINATORS?

In short, yes. Flies in general have been well documented to carry and deposit pollen of many plant species. In some cases, hover flies deposit as much pollen as honeybees. However, as hover flies are usually less common than bees, their contribution to pollination is generally thought to be less important.

Although *Mesembrius bengalensis* was the most abundant flower visitor in our surveys, it is not yet known if this species is an effective pollinator. However, several factors suggest that *Mesembrius* should be a good pollinator. In pollinators, both larger body sizes and hairiness often correlate with pollination performance. The relatively large size and hairiness of *Mesembrius* therefore suggest that it is likely to deposit significant amounts of pollen on the stigmas of the flowers it visits.

WHERE DID THE FLIES COME FROM?

The dominance of flies in this mango flowering season comes after a very strong wet season in the NT.

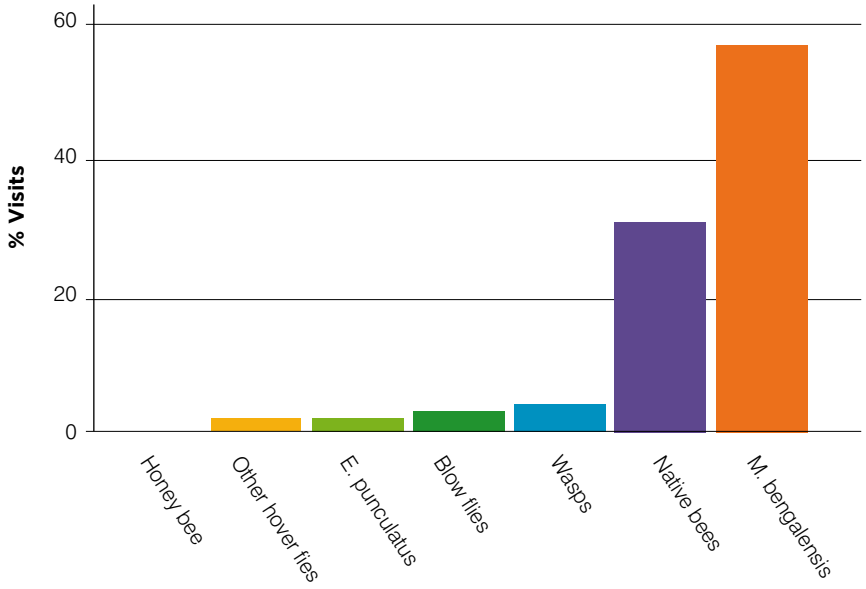
Anecdotally, in previous drier years, such as 2019, these hover flies were much less common.

Although the larval habitat of *Mesembrius* is unknown, close relatives of these flies typically breed in low oxygen and water-logged habitats, where they feed on bacteria and other microorganisms. Darwin is surrounded by a vast network of wetlands and flood plains that increase in size substantially after "the wet". We therefore suspect that *Mesembrius* may breed in these wetlands and their offshoots. The pronounced wet season is likely to have increased the size of these wetlands and may explain the high abundance of hover flies in 2021.

FUTURE RESEARCH

In the future, we plan to quantify the amount of pollen transferred to stigmas when these flies visit mango flowers, to demonstrate their pollination efficiency.
We also hope to confirm our theory on the importance of wetlands and rainfall for populations of *Mesembrius*. If correct, our research suggests that protecting the wetland habitats around Darwin may be critical to safeguarding pollination services in the future. However, it may also be possible to use our knowledge of the life history of *Mesembrius* to promote, and possibly supplement, pollinator populations. This may be particularly important in dry years.

Continued page 22.



Flower visitors by percentage of all visits to mango flowers on farms around Berry Springs, NT in 2021. A native hover fly, Mesembrius bengalensis, and a native stingless bee, Tetragonula mellipes, together accounted for 88% of all visits.

Continued from page 21.

Meanwhile, comparing mango pollinator communities in Darwin to those in northern Queensland and Western Australia will allow us to understand if these strategies may also be applied to other tropical growing regions.

We hope that our work will help support pollinators and pollination services in the Australian Mango Industry.

Acknowledgments

The Managing Flies for Crop Pollination project (PH16002) is funded by the Hort Frontiers Pollination Fund, part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation, with co-investment from the Department of Primary Industries and Regional Development, Western Australia, The University of WA, Western Sydney University, University of New England, Seed Purity Pty Ltd and Biological Services and contributions from the Australian Government. It has also been funded by Hort Innovation, using the avocado research and development levy and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

By Dr Jon Finch and Prof. James Cook, Western Sydney University.

The hover fly Mesembrius bengalensis (Syrphidae) feeding on mango flowers in the Darwin region. Many hover flies, also known as flower flies, appear similar to bees and wasps at first glance because of their striped yellow and black bodies. However, hover flies can be easily distinguished from other insects by their characteristic "helicopter-like" flight. Hover flies are often observed to hover in mid-air before making sudden, darting movements.

ADVERTORIAL

P&C AUTOMATION ANNOUNCEMENT

Brisbane based post-harvest equipment and solutions provider P&C Automation has seen a significant increase in demand for their services in recent times, this being driven by market changes and effects on the industry due to COVID-19.

P&C Automation offers a range of packing and processing solutions to the mango and wider post-harvest industry. All equipment is locally designed, built and supported in Australia. They have recently opened a new head office, paired with a manufacturing space for custom equipment in Brisbane to increase capacity to meet this demand. Pairing this new space with their existing capacity through several strategic partnerships, P&C Automation can now offer a more extensive range of equipment and services to all fruit packers and processors Australia wide.

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ADVERTORIAL

Continued research and development benefits post-harvest disease control

All of us in the industry have a special appreciation for what ends up on the kitchen bench, and the story behind the oval fruit labels proudly adorning them.

Dr Shaun Hood, Technical Services Lead at Syngenta.

Growers will experience this more acutely than most. Growers of tropical tree crops understand what goes into delivering a quality product to market, from planning to the concerted effort to get the crop to the point of harvest. At the start of the season, they've diligently taken care of the tree architecture to make sure that the foliar pesticide applications can reach the target and do their job. Weeds will have been managed throughout the season, and fertiliser applications timed to precision with the irrigation schedule, to maximise the crops yield potential. Their advisors are equally dedicated to helping achieve a great harvest and have people enjoy the fruit.

Syngenta has spent a lot of time in packhouses with growers, with a keen interest in helping achieve lasting protection against post-harvest diseases. Post-harvest care is often a case of no news being good news, for growers. When we introduced SCHOLAR® fungicide, it was a game changer in its effectiveness against rots and it quickly became the industry standard for good reason. Our continued work in packhouses, following the fruit through to table ripeness, continues to remind us just how effective SCHOLAR® is.

You might know SCHOLAR® as its active ingredient fludioxonil. It really is a case of SCHOLAR® being more than the sum of its ingredients, it's the countless hours spent in the lab and the field devoted to helping solve on-farm challenges. Or the fruit bowl as the case might be.

We at Syngenta are fortunate to be a part of this industry and take great enjoyment in being among a handful of companies that are truly devoted to the discovery of new molecules, which become the latest fungicide innovations. Syngenta is continuing its work in the field of post-harvest disease control options for Australian fruit growers. It is a very slow process, over multiple seasons as we have to evaluate efficacy and ensure that we can confidently stand by our product claims. This isn't an easy task when one considers that every packhouse and the equipment in use tends to be very different.

Together these different Modes of Action (Moan) offer the industry a solution with broad spectrum robust activity against the pathogens that cause side rot and stem end rot. Citrus growers also have a new post-harvest solution in CHAIRMAN®, it too is a co-formulation, this time propiconazole (Group 3) has been matched with fludioxonil (Group 12). This combination delivers exceptional control of blue mould, green mould, and sour rot, all of which are major post-harvest diseases that can potentially destroy a citrus shipment.

"At Syngenta we are committed to developing post-harvest solutions for the Australian fruit industry and we value your commitment in supporting our products SCHOLAR®, GRADUATE® A+ and CHAIRMAN®"

We also have to evaluate crop safety to make sure the treatments will not damage the fruit and most importantly, we have to conduct highly regulated residue studies so that Maximum Residue Limits (MRLs) and import tolerances can be established.

In recent years Syngenta has bought two new post-harvest fungicides to market, and unless you oversee these crops you might not know they exist. Avocado growers will be familiar with GRADUATE® A+, it's a unique co-formulation that contains both fludioxonil (Group 12) and azoxystrobin (Group 11), which helps with resistance management in the packing shed.

Syngenta is currently working on label extensions for some of our existing post-harvest fungicides creating new solutions for a wide range of tropical fruit. We'll let you know more when we get closer to registration.

At Syngenta we are committed to developing post-harvest solutions for the Australian fruit industry and we value your commitment in supporting our products SCHOLAR®, GRADUATE® A+ and CHAIRMAN®. For advice on best practice application methods contact your local Syngenta Territory Sales Manager, we'll do our best to further support the legacy behind your fruit labels.

The best post-harvest protection any mango can have is SCHOLAR.®

SCHOLAR prevents post-harvest fungal disease development, maintaining fruit quality in transport and storage to increase both profitability and marketability. For further information talk to your local Syngenta representative or visit **syngenta.com.au**

Scholar®

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IS YOUR CROP PROTECTED? SCAN HERE

Dicarboxylic acids have no effect on sunburn two years in a row – further findings

Following the article that appeared in the Winter edition of *Mango Matters*, further analysis of data was made.

Further data analysis showed Photon® had a positive impact on blush. Blush increased on the west side of the fruit when Photon® was applied (Figure 1). This is the side of the fruit receiving the afternoon sun which is the most intense. Therefore, Photon® is reducing the level of stress in the fruit enough to stop mild sunburn and induce blush instead.

Investigation into the causes of sunburn and management techniques of mangoes is on-going.

Head to www.industry.mangoes.net.au/resources/overview/ to review findings published in both the Winter and Spring editions of *Mango Matters*.

For further details please contact Tara Slaven, Research Scientist Tropical Fruit, Department of Primary Industries and Regional Development (WA), E: Tara.Slaven@dpird.wa.gov.au.

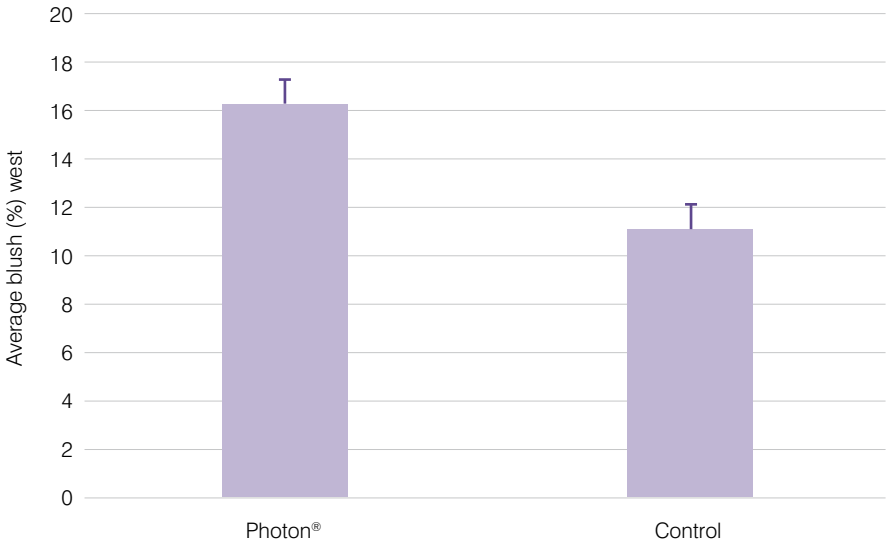

Figure 1. Average percentage of blush on the west side of the fruit for Photon® and control treatments.

PEOPLE & EVENTS

Dom Casagrande crowned new mango monarch

Brisbane Produce Market has reached a significant milestone, with the annual Mango Auction raising over $1 million for charities since 2002.

This year's symbolic first tray of mangoes was won by 2018 Mango King, Domenico Casagrande, from Megafresh in Chandler and Carina, who this year secured the title of 2021 Mango Monarch thanks to his generous $10,100 winning bid.

Congratulations Dom!

Mango Madness Festival

The Darwin Mango Madness Festival is interactive and educational, delicious and sticky, with a little bit of mango madness for the whole family to enjoy and celebrate the beginning of Darwin's mango season

When: Saturday, 13 November, 3pm-7pm.

Where: Darwin Waterfront.

Registration: www.mangomadnessfestival.com

Domenico Casagrande.

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