

PAPAYA PRESS

ISSUE 1 – MAY 2018



Papaya Sticky Disease. Credit: QDAF

IN THIS ISSUE

| | |
|---|---|
| From the Chair | 2 |
| Hort Innovation Update with Papaya Industry Relationship Manager Brad Mills | 3 |
| R&D Update – New varieties on their way! | 4 |
| Regional Round-Up | 5 |
| Minor use permits for the papaya industry | 6 |
| Tackling post-harvest decay losses with fungicides and hot water | 7 |
| Papaya Marketing Update | 8 |

New test to offer early detection of Papaya Sticky Disease

The Queensland Department of Agriculture and Fisheries (DAF) has successfully developed a single, sensitive test that is able to detect all of the four known umbravirus-like viruses that cause Papaya Sticky Disease.

DAF Plant Pathologist Dr Paul Campbell said the test can be applied to a variety of materials.

“The test has proved successful in working on leaf, fruit, petiole, seed, pollen and tissue culture material,” he said.

“This is an important option for industry to have now, as this viral test allows for early detection well before fruit symptoms appear.”

Australian fruit displaying similar symptoms tested negative in 2014 for papaya meleira virus (PMeV), the virus responsible for the disease. In 2016, more fruit from a number of Australian orchards displaying disease symptoms were submitted for diagnosis.

Although virus particles were observed in the plants, the plants were again

negative for PMeV. Next generation sequencing was used to look for virus sequences, and a new umbravirus-like virus was found in the infected plants.

Internationally during this time, the causal agent of Papaya Sticky Disease was changing. Following the 2015 sequencing of a virus causing the disease in Mexico, which showed no relationship with the virus in Brazil, there was a re-examination of the Brazilian strain of PMeV. It was shown in 2016 that two viruses were in the Sticky Disease plants, the original virus and an umbravirus-like virus.

Dr Paul Campbell said the disease was first identified in Brazil more than 30 years ago with fruit weeping watery latex that causes further cankers, making the fruit unmarketable.

“Altogether there are now four umbravirus-like viruses sequenced from papaya plants around the world, being Australia, Brazil, Ecuador and Mexico,” he said.

“Although they are related, there is a large amount of variation between

them, and are probably different species of a new genus of viruses.

“These viruses are strange, in that they do not produce a coat protein and require the help of other viruses to form particles.

“We currently don’t know what this companion virus is for any strain apart from the one found in Brazil. Details about this other virus are important as they have large impacts on virus stability, insect movement, and symptom development.”

DAF Mareeba has the ability to carry out the test in small numbers – phone 13 25 23 or email web@daf.qld.gov.au

For commercial volume testing contact GrowHelp via GrowHelp@daf.qld.gov.au

REMEMBER!

Papaya Sticky Disease is mechanically spread, so disinfestation of tools with bleach is recommended to avoid spreading between plants.



Papaya Press Volume 1 was produced for Papaya Australia by Cox Inall Communications.

This magazine is funded by Hort Innovation using the papaya R&D levy and contributions from the Australian Government.

Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

All contents © 2018 Papaya Australia

**Hort
Innovation**
Strategic levy investment

**PAPAYA
FUND**



See your levy at work with the latest HORTLINK!

Get an update on all new, current and recently completed levy-funded activity with the new edition of Hort Innovation's Hortlink. Just released, you can check out the papaya section at www.horticulture.com.au/hortlink-2018-edition-1/papaya.

As well as easy-to-read project updates, results and resources you can use in your business, Hortlink includes case studies, industry contacts and more. Don't miss the Faces of Horticulture section, which includes a closer look at Hort Frontiers activity, scholarship opportunities and other handy info!

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

From the Chair

GERARD KATH

Welcome all papaya interested readers to a new papaya communications publication.

I am aware that the last Papaya Post was produced in June 2015, nearly three years ago. I'm also aware that many growers have been asking as to why it is not being still done. The previous publication was a project managed under Papaya Australia, which was terminated in June 2015, so it has taken some time to get it going again.

The new *Australian Papaya Industry Communication Program* (PP16001) is funded through the Hort Innovation Papaya Fund. Cox Inall Communications were appointed by Hort Innovation at the end of last year to implement the three-year program, which includes this new biannual magazine – the Papaya Press – and also an industry-facing section of the www.australianpapaya.com.au website.

Cox Inall consultant Megan Woodward has been the main driver behind this publication and she has been working hard to give us a new and fresh version of the old 'Papaya Post'.

At the time of writing this report I have not had much insight as to how it will look or be received, so I hope you will enjoy the content and presentation. We are aware that most publications nowadays are in email form, however within the SIAP meeting we felt that a hard copy is still the best.

I would encourage you to please pass on any feedback to the communications lead at megan.woodward@coxinall.com.au about the new look magazine so we can let the communications team know – what was good, what was bad and what you might like to see in future editions.

So, where is the industry at now, and where are we likely heading?

The last five years have seen significant growth in terms of production, yet a slight decrease in grower numbers. Production growth has been relatively equal on the coast and the Tablelands with not much change in Northern Territory or WA. The expansion has been



mainly from existing growers who seem to be getting larger. However, I would suggest that over the last three to six months we have seen an increase in grower numbers being mainly from the banana industry, which has been through some difficult times.

This means that over the next one to two years we will most likely see an increase in fruit landing at markets, which will have to be met with a robust marketing strategy or growth by force as a result of poor prices.

We are a much more mature industry and a more consumer accepted product nowadays, to where we were five to 10 years ago. This is a result of better and more stable growing, as well as marketing practices, along with an increase and unification of varieties. Consumers seem to know our fruit far better these days and are less confused with different varieties and eating experiences. We must however, recognise that a lot must still occur in consumer education to be able to expand demand and meet likely increased production. Industry growth and viability will be on the back of increased demand and growers producing a product that meets or exceeds that demand, at a viable price. Time will tell.

On this note, I wish all growers a successful time ahead. I hope that the remaining year is favourable weather wise and that fruit quality is excellent with prices at profitable levels.

Happy papaya production.

Regards,
Gerard Kath

Hort Innovation Update with Papaya Industry Relationship Manager Brad Mills



BRAD MILLS

The new Papaya Strategic Investment Plan is here

A five year plan has been developed, representing the Australian papaya industry's collective view of its research and development (R&D) and marketing needs.

The *Papaya Strategic Investment Plan 2017-2021* (SIP) is an investment roadmap for the Hort Innovation Papaya Fund. It outlines the priority areas for R&D investment, helping to guide decisions on projects to be funded by the papaya levy.

The 29-page document has been developed by Hort Innovation in consultation with growers, Papaya Australia, and the broader industry.

Download the Plan from the 'For Growers' page on the Papaya Australia industry website <https://australianpapaya.com.au/for-growers/industry-resources>

How is the SIP used?

The plan is structured around three key investment outcomes, each backed by a number of strategies to address the priorities of the industry.

- Increased quality to ensure consistency of supply to the consumer
- Access to new varieties and improved pest and disease management improves growers' productivity and profitability
- Improved market access and increased consumer demand increases returns to growers.

All research projects submitted to Hort Innovation will be weighed up through an advisory process (see below) to ensure they reflect the agreed strategic objectives for the industry, as outlined in the SIP.

Industry Advice

The Papaya Strategic Investment Advisory Panel (SIAP) has responsibility for providing strategic investment advice to Hort Innovation. Both Hort Innovation and the advisory panel will be guided by the SIP, focusing on those issues identified as being a higher priority.



The Papaya SIAP currently consists of grower representatives from both the Innisfail and Mareeba growing regions as well as representation from Queensland Department of Agriculture and Fisheries. The SIAP is chaired by Eoin Wallis, an independent consultant responsible for ensuring the panel operates with good governance.

Summaries of each meeting can be found on Hort Innovation's Papaya Fund page at www.horticulture.com.au/papaya

Potential impact of the SIP

The anticipated investment of \$2.4 million over the next five years in R&D, extension and marketing activities is expected to generate \$10.03 million in net benefits for the industry, representing a benefit cost ratio of 4.18 times to growers and service providers along the value chain.

Have an idea you'd like considered as a research project?

Hort Innovation encourages all growers and industry participants to share their thoughts and ideas for the research and other investments they would like to see.

If you've got an idea, head to the Hort Innovation website (www.horticulture.com.au) and search for 'Concept Proposal Form'. Ideas that are in line with strategic investment priorities are directed to the relevant advisory panels for advice. That advice is then used by Hort Innovation to work the ideas into project proposals.



R&D UPDATE

New varieties on their way!

Queensland researchers aim to release new papaya varieties to growers next year as part of an ongoing research project.

Led by researchers at Griffith University, *New genetic targets to improve quality in Papaya* (PP15000) is a strategic levy investment under the Hort Innovation Papaya Fund. It was funded by Hort Innovation using the papaya research and development levy and contributions from the Australian Government.

Researcher and Industry Development Officer, Dr Chat Kanchana-udomkan, said the ultimate goal of the breeding program component of the project is to produce tailor-made varieties suitable to the growing regions of the Tablelands and coastal areas.

"We have high goals for this project as the new varieties need to perform better than the industry standard cultivars, which are RB1 for red papaya and 1B for yellow pawpaw," Dr Kanchana-udomkan said.

"We are aiming for improvements in yield, eating quality and, most importantly, flavour."

The research team evaluated 26 breeding lines for fruit quality and productivity characteristics in three consecutive years, aiming to identify potential new parental varieties.

"Good performing trees were then selected and pollinated to produce new F1 hybrids," Dr Kanchana-udomkan said.

"The F1 hybrids have been planted and evaluated for their performance in multiple environments, and the best three performing trees in each growing region were selected on productivity and fruit quality characteristics, including high yield, thick flesh, good skin characteristics and flavour.

"These were self-pollinated (F2) to fix the good characteristics."

Dr Kanchana-udomkan said in theory, the process needs to repeat at least five cycles (F5).

"We are currently having F3 generations (87% genetic stable) of red and yellow papayas planted in five different plantations," she said.

"The selected lines reveal low fruit set, high yield and good flavour. Seeds of F4 (94% genetic stable) are

under the production process and will be available to growers in the next planting season.

"The next phase of the breeding project is to stabilise the parental lines and produce more uniform seeds for growers."

The overarching project began in 2016 with a focus on improving the quality of Australian papaya and producing elite, uniform cultivars. It has five key sub-projects:

- Breeding to improve flavour and other important traits in commercial papaya
- Collection of papaya germplasm and the development of a related database, to provide a resource to increase the genetic base of Australian papaya
- Molecular studies to assist breeding for papaya
- Papaya ringspot virus type P (PRSV-P) resistance work
- The employment of an industry development officer (IDO), who is



Dr Chat Kanchana-udomkan in the field.

responsible for carrying out the other sub-project work and for working closely with growers, researchers and other industry stakeholders.

For an update on other ongoing work in the project, access the latest edition of Hortlink via the Papaya Australia website 'For Growers' page: <https://australianpapaya.com.au/for-growers/industry-resources>

DID YOU KNOW:

One major output from this project to date is the development of the Handbook of Papaya Evaluation: Productivity and Fruit Quality Traits. You can download it from the 'For Growers' page on the Papaya Australia website!

Any questions about this project? Contact researcher and industry IDO Chat Kanchana-udomkan at c.kanchana-udomkan@griffith.edu.au

Hort Innovation
Strategic levy investment

PAPAYA FUND

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

REGIONAL ROUND-UP

INNISFAIL, QLD - Joe Zappala

Production on the wet tropics has been high. Good plantings last year as well as good growing conditions in the second half of last year have resulted in good autumn production.

Flooding events in February and two further flooding events in March have rainfall totals equaling above 1 metre. This has affected quality with ripe fruit rots and Phytophthora being an issue. The wet weather has also affected tree survival especially in older trees.

The wet season monsoon has now moved back to the Northern Hemisphere and the weather has improved significantly. A lot of new growers are expected to come on line towards the end of the year, and increased plantings on the coast are expected to deliver good production in the last four months of the year.

TULLY, QLD - Daniel Mackay

The Tully papaya growing region has just endured its first heavy wet season in many years. This hindered picking, slowed down growth and postponed early planting of papaya.

Despite these setbacks, Tully growers have implemented better growing practices which should contribute to producing good volumes of fruit through the rest of autumn.

Surprisingly, the recent challenging conditions have not impacted visual appearance and eating quality of the fruit, as may have been expected. Looking forward, winter will slow down growth as normal, but spring will see good volumes again.

TABLELANDS, QLD - Gerard Kath

This regional wrap covers the areas of Atherton Tablelands from Atherton to Mareeba and west to Dimbulah and north to Lakeland.

This region is continually expanding in papaya production by both big, small and new growers. In the main, there are not that many growers (10 to 20) but some growers are very large. Small growers are typically three to five acres and large growers being 100 to 150 acres. My guess is that the region accounts for somewhere around 50% of industry production for 2017 and 2018. Most plantings have been in the red varieties with about two to three growers growing yellows.

Like all regions, weather during the wet season plays a big part in how the next eight month crop ends up. The Tablelands enjoyed a close to normal wet season with some areas exceeding average. The most important effect here is that Tinaroo Dam is now sitting at approximately 95%, which secures water for irrigation for the remainder of the year.

There have been some fruit quality problems in the last two to three months due to the wet, however I would expect quality to improve from now on. It remains to be seen how cold winter will be as this can also have an effect on quantity and quality.

I see an increase in production on the Tablelands this year compared to last year due to increased plantings and no major growing impediments thus far. There still seems to be optimism for the future.

CARNARVON, WA - Annie van Blommestein

Pawpaw production in Carnarvon has been steady so far this season and tree health has improved with the good supply of fresh water that has come down the Gascoyne River. These flows have freshened up the aquifers, so water supply for the year should be very reliable.

The predominant species of pawpaw grown in Carnarvon is Red Lady and trees are kept for an average of three years, with the majority of fruit picked as greens. This may change in the near future with a current Mediterranean Fruit Fly eradication project in full swing. The Carnarvon Growers Association Recognised Biosecurity Group (CGA RBG) baiting team and sterile fly release program coordinated by the Department of Primary Industries and Regional Development (DPIRD) together with good industry involvement has led to significant reduction in monitored numbers of wild flies, which is good news for all the growers in the district.

Want to submit an update from your growing region?

Email industry relationship manager Brad Mills to be included!
bradley.mills@horticulture.com.au

Minor use permits for the papaya industry

**JODIE PEDRANA, R&D MANAGER,
HORT INNOVATION**

While the use of pesticides and other chemicals in the horticulture industry is being modified through the increasing uptake of integrated pest management approaches, there remains a need for the strategic use of specific chemicals.

Chemical companies submit use patterns for product label registrations to the Australian Pesticides and Veterinary Medicines Authority (APVMA) – however the papaya industry is generally provided with limited label registrations because of its ‘minor’

crop status in this area (meaning the chemical companies can consider the market size too small to generate adequate commercial returns for the R&D investment they’d need to make to support a registration). This is where minor use permits come into play. The APVMA’s national permit system adds some flexibility to the approval process and provides a legal framework that can allow access to products for minor-use purposes.

Through the *Papaya industry minor use program* (PP16000) in the Hort Innovation Papaya Fund, levy funds and Australian Government contributions are used to submit renewals and applications for these minor use

permits to the APVMA, as required.

All current permits for the industry are in the table below. Those flagged with an asterisk (*) are permits that have been applied for or renewed through PP16000 in the current financial year.

Before use, it is recommended that you confirm the details of the permits through the APVMA website at <https://portal.apvma.gov.au/permits>.

Upcoming minor use permits

When available, details on any newly issued or renewed permits are circulated in Hort Innovation’s monthly Growing Innovation e-newsletter, which levy-paying members receive monthly.

MINOR USE PERMITS CURRENT AS OF APRIL 18, 2018

| Permit ID | Description (Chemical / Crop / Issue) | Date issued | Expiry date | Permit holder |
|---------------------|--|-------------|-------------|------------------------------------|
| PER12592 | Chlorothalonil and difenoconazole / Papaya / Black spot and brown spot | 14-Aug-11 | 30-Jun-20 | Growcom |
| PER13076 Version 2 | Propamocarb / Papaw or papaya (seedlings) / Damping off | 05-Apr-12 | 31-Mar-22 | Papaya Australia C/Hort Innovation |
| PER13158 Version 9 | Dimethoate / Specified citrus and tropical fruit commodities wit inedible peel (post-harvest) / Various fruit fly species | 06-Oct-11 | 06-Mar-19 | Hort Innovation |
| PER13671 Version 3 | Beta-cyfluthrin (Bulldock 25 EC) / Papaya / Fruit-spotting bug and banana-spotting bug | 28-Nov-12 | 28-Feb-23 | Papaya Australia C/Hort Innovation |
| PER14098 Version 2* | Etoxazole (Paramite Selective Miticide) / Papaya / Two-spotted mite | 3-Oct-13 | 30-Jun-23 | Papaya Australia C/Hort Innovation |
| PER14097 Version 3* | Abamectin and fenbutatin oxide / Papaya / Two-spotted mite | 31-Oct-13 | 30-Jun-23 | Papaya Australia C/Hort Innovation |
| PER12450 Version 6 | Trichlorfon / Specified fruit crops / Fruit fly | 06-Oct-11 | 31-Jan-21 | Growcom |
| PER14417 | Copper as hydroxide / Papaya / Papaya fruit rot | 28-Feb-14 | 31-Mar-19 | Papaya Australia C/Hort Innovation |
| PER14490 Version 2 | Metalaxyl-M (Ridomil Gold), Metalaxyl (Zee-mil) + Phosphorous acid / Papaya / Phytophthora root rot and pythium | 4-Apr-14 | 31-Mar-22 | Papaya Australia C/Hort Innovation |
| PER13859 | Dimethoate / Orchard clean-up for fruit fly host crops following harvest / Fruit fly | 9-Feb-15 | 31-Jul-24 | Growcom |
| PER80746 | Ethephon / Papaya / Fruit de-greening | 18-Aug-15 | 31-Aug-20 | Papaya Australia C/Hort Innovation |
| PER85397* | Sulfoxaflor (Transform) / Lychee, mango, papaya, and passionfruit (field grown) / Fruit-spotting bug and banana-spotting bug | 17-Apr-18 | 30-Apr-23 | Hort Innovation |



Not a member? Sign up to the free membership program via <http://horticulture.com.au/membership-application-form>.

Any new or renewed permits will also be searchable, along with all other current permits for the industry, at <https://portal.apvma.gov.au/permits>.

Data generation projects in papaya

Hort Innovation funding is used to generate data for the support of permit applications to the APVMA. Data generation projects have and continue to involve a number of minor use permits and label extensions across the various horticulture industries, including papaya.

To facilitate these projects, Hort Innovation has supported the horticulture sector in gaining access to additional funding for strategic investment. In 2015/16 this included almost \$1.1 million in assistance grants for access to industry priority uses of AgVet chemicals, from a possible \$1.6 million available. In 2016/17, close to \$1.3 million was secured in these grants, from a possible \$2.4 million pool available to all agricultural and livestock research and development corporations.

For the papaya industry, funding assistance from the 2016/17 grant program is being used to generate data sufficient to support an application for label approval for Trivort insecticide (acetamiprid + pyriproxyfen) with ADAMA, for the control of a number of pests in tropical crops including spotting bugs, hoppers, scales and mealybug. The studies are being undertaken through the project *Generation of residue, efficacy and crop safety data for pesticide applications in horticulture crops* (ST16006) and are due for completion in early 2020.

Funding from the earlier round of assistance grants was used to generate sufficient data to support the permit extension application for PER13671, supporting the continued use of beta-cyfluthrin (Bulldock 25 EC) in papaya for the control of fruit-spotting bug and banana-spotting bug. These studies were undertaken through the project *Generation of residue data for pesticide minor use applications in horticulture crops* (ST15027) and were completed in July 2017. Permit PER13671 was extended in February 2018 as version 3, until 2023.

Tackling post-harvest decay losses with fungicides and hot water

Growers may recall previous research published by Lynton Vawdrey and Yan Diczbalis from the Queensland Department of Agriculture and Fisheries (QDAF) into reducing losses through post-harvest decay of fruit.

The project *Effect of curative and protective pre-harvest fungicide and post-harvest hot water applications on decay of papaya* (PP1300) was a strategic levy investment under the Hort Innovation Papaya Fund. It was funded by Hort Innovation using the papaya research and development levy and contributions from the Australian Government.

Specific recommendations have resulted from the 2014-2015 trials at Innisfail and Mareeba on the most cost effective spray combinations for the control of post-harvest rots.

KEY RECOMMENDATIONS:

The fungicide spray schedule of chlorothalonil and mancozeb (Mareeba area) or an alternating program of chlorothalonil and copper hydroxide (Innisfail area) will provide the most cost effective control of post-harvest rots of papaya. The direct impact of de-leafing in reducing post-harvest rots is small, but the practice also provides the added benefit of optimising spray coverage in the control of leaf diseases.

Hot water treatments had a greater impact in reducing disease than that of Sportak®, the currently registered postharvest fungicide.

The findings from this study provide justification for the industry to consider hot water as an effective alternative to prochloraz.

Hort Innovation
Strategic levy investment

PAPAYA FUND

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

Papaya Marketing Update



ELISA KING

Continuing on from a successful 2017, marketing efforts for 2018 are already showing strong results! Here's the latest on key activities from Hort Innovation's Marketing Lead for Papaya, Elisa King.

PR Health Report + Media Engagement

One of the cornerstone aspects of marketing activities undertaken this year is a health report commissioned by Hort Innovation, produced by Accredited Practising Dietitian Caitlin Reid.

The nutritional review recommends that papaya should be a regular addition to the shopping basket, and highlights the significant health benefits associated with the fruit.

In addition to the health report, 12 new recipes have been developed for the Australian Papaya website (<https://australianpapaya.com.au/recipes/>). Each of the recipes has been shared with media in collaboration with the health report in an effort to extend the reach of the papaya marketing campaign.

Women's Fitness magazine featured a double page spread on papaya in their May 2018 issue which included one of the new recipes as well as health insights from Caitlin Reid.

To further engage media, the recipes and health report were included in a special papaya produce hamper sent to

specific social media influencers, which resulted in the sharing of content by popular Instagram identities.

In-store Sampling

The papaya in-store sampling campaign started on the 28th of April and runs until 26th of May 2018. 60 stores – including Woolworths, Coles and Independent retailers – will take part in the campaign across New South Wales, Queensland, South Australia, Victoria and Western Australia.

Brand ambassadors man the sample sites and offer consumers freshly cut papaya samples with an optional squeeze of lime. The in-store campaign also offers a brilliant opportunity for key messages from the health report to be communicated with shoppers.

Baby Show & Expo Update

The Essential Baby and Toddler Show is a mass consumer event, staged annually in Brisbane, Melbourne and Sydney. More than 45,000 new and expectant parents will attend the shows in 2018, all looking to discover the latest products, services and advice in the market.

Papaya is considered a pregnancy and baby superfood, and the expo offers an ideal target audience for papaya.

The first of the expos was held in Melbourne in late April.

Brand ambassadors offered samples of red papaya puree with a hint of

fresh banana, as well as freshly cut papaya with a squeeze of lime. A recipe brochure was also handed out.

The Sydney event will be held 18th – 20th May; Brisbane event will be held 15th – 17th June.

Social Media Insights

The top post on the Papaya Australia Facebook page (@papayaaustralia) for April was an educational message about the different varieties of papaya and papaw. This was a great opportunity to highlight variety differences and also link to the industry website.

We've found that those who follow the page – now equaling more than 25,300 people! – respond well to educational messages, and are keen to learn more about the fruit. We'll continue to create content like this, alongside beautiful recipes.

We've also noticed that the busiest time on the Facebook page is between 6pm and 10pm, so more content will be scheduled during this time.

To read the full Marketing Update, visit <https://australianpapaya.com.au/for-growers/>

Hort Innovation
Strategic levy investment

PAPAYA FUND

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