

# PAPAYA PRESS

ISSUE 6 - NOVEMBER 2020

## Papaya clean seed update

DR PAUL CAMPBELL

The 'Papaya clean seed program' (PP18001), delivered by the Department of Agriculture and Fisheries Queensland (QDAF), is working to better protect the papaya industry from papaya sticky disease by delivering a clean seed protocol.

Testing for the final three parent lines from Papaya Seeds Australia have recently been initiated through the embryo rescue program to clean up the papaya meleira virus. Though it will be a while before they are large enough to test for the virus.



The first clean parental material on the Tablelands.  
Photo credit: Dr Chat Kanchana-udomkan

Similar to results from the first two parent lines, the project team hope to see very low numbers of infected plants after the embryo rescue. So far, they've identified only five infected plants from the embryo rescued material, with most plants having been tested several times.

The project team have been working with Papaya Seeds Australia to move virus free plants into the field to establish reinfection rates and monitor for the presence of the virus. This is critical in the development of a management plan for parental lines to ensure virus free seed for industry.

Clean plants from the previous seven parent lines have all been established in tissue culture to safeguard industry's investment towards clean seed. Over eighty plants from six parental lines have been planted in the field at both the Tablelands and on the coast.

Plants are being regularly sampled and tested for papaya meleira virus, to evaluate virus movement in the field. The speed of the reinfection will have a large impact on the management of the parent material to produce clean seed moving forward.

The project team at QDAF have also been working on developing a new type of test to support the virus

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diagnostics. This new test seeks to identify if a plant is infected within 45 minutes directly from a drop of latex from the fruit. No special equipment will be required, the reaction will just need to be kept at a constant 65°C.

In the future this kind of test could be used directly by industry to check on the infection of the plants. Further work is being done to explore the availability of tests to diagnose infection directly from a small amount of leaf tissue.

*The 'Papaya clean seed program' (PP18001) is funded by Hort Innovation using papaya industry levies and funds from the Australian Government.*

**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](http://horticulture.com.au)



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**Hort  
Innovation**  
Strategic levy investment

**PAPAYA  
FUND**

## See your levy at work!

Get an update on all new, current and recently completed levy funded activity on the Hort Innovation Papaya Fund page at [www.horticulture.com.au/papaya](http://www.horticulture.com.au/papaya).

You can access easy-to-read project updates, a snapshot of the Papaya Fund, research reports and resources, key industry contacts and more. Don't miss the Hort Innovation 'Growers' section to keep informed on your levy investments, upcoming events, 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](http://www.horticulture.com.au/membership).

# From the Chair

GERARD KATH

**W**elcome to the November edition of the Papaya Press.



Though it has been a challenging year for everyone, I do believe that the papaya industry has fared ok amidst the pandemic in terms of negative market impacts. We've been quite fortunate compared to other industries.

During the early stages of COVID-19 in March and April this year, we weren't sure of the impact that the economy and consumer ramifications would have on our industry. But it has been really positive to see fresh fruit and vegetables remain top-of-mind, as consumers prioritised health and cooking more at home.

We're seeing and anticipating great yields for the remainder of the year, with the wholesale price of papaya also on the rise. This is surprising, as we generally see a downturn in price when yields are high.

It's great to see strong demand for papaya fruit, with the current harvested fruit cutting and eating really well.

I hope to see consumer demand continue as we lead into Christmas.

As I'm sure you're aware, over the next few months and as we head into 2021, we are expecting possible labour shortage issues. This will have a particularly significant impact on short season fruit industries such as mangoes and lychees, who need lots of short-term workers as summer fruit comes on.

The papaya workforce is generally quite consistent work, so we haven't seen a large impact yet and I don't expect we will.

From a Hort Innovation perspective, Ben Woodman remains on to advise and manage the marketing budget, with Georgia Sheil being our primary Industry Strategic Partner (ISP).

There has been no Strategic Investment Advisory Panel (SIAP) meeting scheduled but keep an eye out for more information on this to come. We look forward to outlining and sharing a new plan and information moving forward.

As we lead into the Christmas period, I wish everyone a safe and productive rest of the season and a happy New Year.

Best regards,  
**Gerard Kath**

## 2020 GROWER COMMUNICATIONS SURVEY

**The final annual grower survey under the current 'Australian papaya industry communications program' (PP16001), was carried out in June to July this year.**

This survey aims to give levy payers the opportunity to provide feedback and influence the future direction of the program so that they continue to receive the information that want, and need, from levy-funded research & development and marketing projects.

Ten survey questions were developed to gain feedback on the latest edition of the Papaya Press, the 'For Growers' webpage, as well as determine understanding of the levy and content preferences.

Thank you to the 11 papaya growers who participated in this year's survey – your insights and feedback are much appreciated.

### KEY SURVEY INSIGHTS

- On average, respondents rated the May 2020 Papaya Press 8.55 out of 10.
- Eight of the respondents thought there was enough information on the R&D levy.
- Seven out of the 11 respondents said they had accessed the 'For Growers' page since receiving the May 2020 Papaya Press.
- Nine respondents identified climate as a top concern for their business, and seven said pest and disease.
- Seven respondents said they would like more content on R&D outcomes and fact sheets or project summaries.

# MARKETING AND SOCIAL MEDIA UPDATE

**D**uring the COVID-19 pandemic, consumers continued to show an increased interest in home cooking as well as their health.

Through marketing activity, Papaya Australia has continued to offer positive influence for all home cooks by providing general meal ideas and promoting the health benefits of papaya fruit.

## PUBLIC RELATIONS CAMPAIGN

To support the spring flush, the marketing team develop two seasonal press releases to remind consumers of the availability and benefits of papaya. A big part of gaining coverage around these releases is by sharing new papaya-inspired recipes with media.

There is currently one media release out, which has garnered 41 pieces of coverage across print, online, social, and direct mail. One of these was in the MiNFOOD print clipping shown.

The next piece of media activity will focus on the release of the papaya health report, which builds on current consumer interests in health and immunity, to increase the number of



consumers choosing papaya fruit as part of a healthy diet. This includes updated nutritional information, recipes, trends, and other relevant consumer information.

Access a copy of the papaya health report, at: [australianpapaya.com.au/about/nutrition](http://australianpapaya.com.au/about/nutrition)

## SOCIAL MEDIA

The Papaya Australia social media activity continues to attract and engage consumers with their regular postings across Facebook and Instagram.

The sentiment for papaya channels continues to be positive, with fans regularly engaging and sharing how they utilise the fruit and commonly asking about variety and selection.

For the spring social campaign across September to 23 October, the papaya Facebook channel had achieved 70% of the target KPI on impression, and 55% of target impressions on Instagram.

Instagram stories are a great way to engage a younger audience and have been performing well in capturing attention out of social news feeds.

Having a strong social media presence is an important way to interact with consumers as well as provide inspiring content for a healthy lifestyle.

As shared in the Papaya Fund 2019/20 Annual Report, grower content appealed greatly to fans and when accompanied with a seasonal update it garnered high engagement and reach on the page.

## PAPAYA GROWERS – WE NEED YOU!

To keep driving demand for Australian papaya and to help connect consumers with papaya's farm-to-table journey, the papaya marketing team are calling for the nation's growers to submit video and imagery content that shares a personal insight into farming.

Content provided will be posted on Papaya Australia's social media channels (Facebook and Instagram) with credit provided to the producer.

The content doesn't need to be too professional, good quality phone photos are great! Send your photos to [isabelle@bitecom.com.au](mailto:isabelle@bitecom.com.au) to be featured and help encourage consumers to eat more Australian papaya.

Find some content examples and ideas on the Papaya Australia Instagram account, [@papayaaustralia](https://www.instagram.com/papayaaustralia)



# UPDATE ON PAPAYA BREEDING PROGRAM

DR CHAT KANCHANA-UDOMKAN AND ZIWEI ZHOU, GRIFFITH UNIVERSITY

**C**reating new papaya varieties with improved eating quality to drive future marketability and profitability for the Australian papaya industry has become a key target for a Hort Innovation papaya levy funded project.

The 'National papaya breeding and evaluation program' (PP18000), run by a project team at Griffith University, is working to characterise in-depth the key flavour type preferences within the whole papaya chain and to develop a library of chemical fingerprints that will be used as a tool to differentiate flavour types.

The project team have worked to select and stabilise new breeding lines to obtain varieties that will thrive and support continued growth of the industry.

At present, generation 5 (F5) for both red papaya and yellow papaw has been achieved, with a target to produce F7 by 2022 and additional hybrid varieties by 2023.

The new genetic stable lines that suit each growing climate will be used

to create new F1 hybrid varieties for the industry.

The selected advanced breeding lines have been evaluated based on all agronomic and fruit quality traits, as well as flavour and aroma.

The key traits of new breeding lines are fruit set lower to the ground for ease of harvest, cylindrical fruit shape for the efficiency of packing, high Brix level to suit the demand of the market and consumer, and comparable yield to the standard commercial varieties (RB1 or 1B).

The weighted selection index was developed and implemented in the selection process in a total of four trial sites on the Tablelands and Innisfail.

The project team has also uncovered flavour-associated genes between RB1 (sweet caramelised and sweet aftertaste flavour) and 1B (strong aroma intensity with citrus aroma) at different fruit maturity stages using RNA sequencing technology. A total of 230,859 RNA sequences (transcripts) were detected among all samples.

Interestingly, the team discovered that

some genes are up-regulated in ripe fruit but down-regulated in the unripe ones. However, there are many genes differentially expressed in samples analysed and some may not relate to the trait of interest, so they need to be narrowed down by searching against the database.

The identified genes associated with key flavour and aroma attributes: sugar; acid; and chemical compounds, will be developed further to help with the selection in the breeding program in the future.

The 'National papaya breeding and evaluation program' (PP18000) is expected to conclude in August 2023.

For more information, please contact Dr Chat Kanchana-udomkan, [c.kanchana-udomkan@griffith.edu.au](mailto:c.kanchana-udomkan@griffith.edu.au).

*The 'National papaya breeding and evaluation program' (PP18000) project is funded by Hort Innovation using papaya industry levies and funds from the Australian Government.*

**Hort Innovation**  
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Figure: comparison between advanced breeding line (F5) and commercial variety (RB1)

# New papaya pollination brochure

In July 2020, a Papaya pollination brochure was released as part of the Hort Innovation funded, ‘Strengthening and enabling effective pollination for Australia’ (PH15000) project. The brochure summarises current best practice for pollination management, and new and ongoing research on the topic.

Delivered by research provider Plant & Food Research, this project is a Hort Frontiers Pollination Fund investment, seeking to achieve more sustainable pollination services for Australian crops by improving the understanding of pollination requirements.

The Papaya pollination brochure equips growers with information they need to maximise yields of papaya crops through better pollination, including a checklist for developing an orchard pollination plan.

As outlined in the brochure, here’s what you need to know:

- Papaya and pawpaw pollination depends on the cultivar.
- Orchards with separate male and female trees need male plants inter-planted among female plants to ensure enough pollen is available.
- Papaya and pawpaw pollen can be moved by wind, but generally not enough to ensure pollination.
- For plantings with male and female plants, hawk moths are probably the most important pollinators.
- Hawk moths depend on particular native host plants for their development.

- The role of honey and stingless bees in strengthening pollination for mixed sex flowers of papaya is not fully understood.
- Weather extremes and plant management can affect pollen viability.

Find out more and download your copy of the Papaya pollination brochure, here: [horticulture.com.au/globalassets/hort-innovation/resource-assets/ph15000-papaya-pollination-brochure.pdf](http://horticulture.com.au/globalassets/hort-innovation/resource-assets/ph15000-papaya-pollination-brochure.pdf)



Brian Cutting, Plant & Food Research Australia

*The ‘Strengthening and enabling effective pollination for Australia’ (PH15000) project is funded by Hort Frontiers Pollination Fund; part of the Hort Frontiers strategic partnership initiative developed by Hort Innovation and Plant & Food Research.*

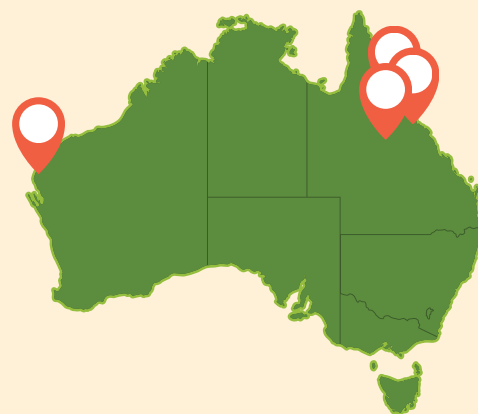


**POLLINATION  
FUND**



Lisa Evans, Plant & Food Research

# REGIONAL ROUND-UP



## INNISFAIL, QLD – JOE ZAPPALA

Production in the last month has increased as weather conditions have warmed up. Fruit quality from the coastal areas is high with production remaining high as we head into the new year.

Spring plantings in the wet tropics are well underway. High production from all growing areas has flooded the market, with the prices back to the growers falling to below cost of production.

Competition from mangoes and summer fruits has added to the fall in prices. Predictions of a La Nina has growers looking to the next few months with a stronger wet season and more cyclones. This has growers on edge as we can tolerate a bigger wet season, but a cyclone would be catastrophic.

## TULLY, QLD – TAYLA MACKAY

Weather in the area is starting to warm up heading into summer, with the heat bringing with it some showers and the potential for storms and severe weather beginning to form. Extreme weather events are always a threat to farming in North Queensland, particularly in summer.

Winter freckle this season has not been as prominent with above average temperatures experienced in the Tully region. What is remaining of the winter freckle will soon disappear in the next few weeks.

Sugar levels in papaya will start to increase in the coming weeks, and customers can expect a sweeter tasting fruit through summer! Crop growth is also accelerating with the help of warmer and longer days, increasing fruit harvest numbers significantly, compared to winter months.

## CARNARVON, WA – ANNIE VAN BLOMMESTEIN

Weather conditions in Carnarvon have been perfect for crop production over the last few months. Plantings in Carnarvon have remained unchanged and supply from the district is steady.

As we approach the warmer weather and peak supply of our many fruit crop lines, like other districts, we are faced with low available labour numbers. In a year such as this, the importance of a local workforce is highlighted. We need to attract more of our children to consider careers in the primary industries, let's spread the word of the opportunities that the primary industries sector presents!

## TABLELANDS, QLD – GERARD KATH

Papaya production on the Tablelands continues at a steady pace. In the last 6 months, there has been no major weather events that have greatly affected production. There was the one week in July that experienced low and some minus temperatures. There was also some reported frost damage, however this hasn't impacted main production.

The September and October months have been at record or close to record production, with most fruit being of sound quality with good feedback on eating quality. We're likely to see a large volume of fruit continue through November and early December.

The last month has been typical hot and very dry conditions. This will likely have some bearing on fruit set which will impact the February to March harvest. There is currently no rain or storms on the horizon.

The general feel is that investment in new plantings is continuing at similar levels to last year, with no major change to grower numbers or size. As always, production will be mainly determined by major weather events.

**WANT TO SUBMIT AN UPDATE FROM YOUR GROWING REGION?**

Email Industry Strategic Partner, Georgia Sheil: [georgia.sheil@horticulture.com.au](mailto:georgia.sheil@horticulture.com.au)



# Minor use permits for the papaya industry

The Hort Innovation Papaya Fund's 'Papaya industry minor use program' (PP16000), supports the submission of applications for new and renewed minor use permits for the industry, as well as data generation activities to support chemical permits and registrations, and strategic

agrichemical reviews.

All current permits are listed in the table below. Before use, it is recommended that you confirm the details of the permits through the APVMA website at: <https://portal.apvma.gov.au/permits>.

Get the latest information on minor use permits in this extract from the Hort Innovation Papaya Fund 2019/20 Annual Report. You can access the full document at: <https://www.horticulture.com.au/hort-innovation/funding-consultation-and-investing/investment-documents/fund-annual-reports/>

## CURRENT PERMITS: MINOR USE PERMITS CURRENT AS OF 21 SEPTEMBER 2020.

Permit ID	Description (chemical / crop / pest or use)	Original date of issue	Expiry date	Permit holder
PER12592 Version 2	Chlorothalonil and difenoconazole / Papaya / Black spot and brown spot	14-Aug-11	30-Apr-25	Hort Innovation
PER13076 Version 2	Propamocarb / Papaw or papaya (seedlings) / Damping off	05-Apr-12	31-Mar-22	Papaya Australia C/Hort Innovation
PER87164 Version 2	Dimethoate / Specified citrus and tropical and sub-tropical inedible peel fruit commodities – post-harvest dip or flood spray / Various fruit fly species	01-Mar-19	31-Mar-24	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	03-Oct-13	30-Jun-23	Papaya Australia
PER14097 Version 3	Abamectin and fenbutatin oxide / Papaya / Two-spotted mite <i>Please note: Abamectin use now registered on various labels</i>	31-Oct-13	30-Jun-23	Papaya Australia
PER12450 Version 6	Trichlorfon / Specified fruit crops / Fruit fly	06-Oct-11	31-Jan-21	Growcom
PER14417 Version 2	Copper as hydroxide / Papaya / Papaya fruit rot (Phytophthora)	28-Feb-14	31-Dec-24	Hort Innovation
PER14490 Version 2	Metalaxyl-M (Ridomil Gold), metalaxyl (Zee-mil) + phosphorous acid / Papaya / Phytophthora root rot and pythium	04-Apr-14	31-Mar-22	Papaya Australia C/Hort Innovation
PER13859	Dimethoate / Orchard clean-up – fruit fly host crops following harvest / Fruit fly	09-Feb-15	31-Jul-24	Growcom
PER80746 Version 2	Ethephon / Papaya / Fruit de-greening	18-Aug-15	31-Aug-25	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
Emergency use permit PER89170	Fludioxonil (Scholar Fungicide) / Papaya / Anthracnose and stem end rot (post-harvest dip or overhead treatment)	12-Feb-20	28-Feb-21	Hort Innovation
PER89241	Spinetoram / Tropical inedible peel / Fall armyworm	06-Mar-20	31-Mar-23	Hort Innovation
PER89870	Spinosad (Entrust organic) / Various including tropical and sub-tropical fruit crops (inedible peel) / Fall armyworm	21-Jul-20	31-Jul-23	Hort Innovation

All efforts have been made to provide the most current, complete and accurate information on these permits, however you should always confirm all details on the APVMA website at [portal.apvma.gov.au/permits](https://portal.apvma.gov.au/permits). Details of the conditions of use associated with these permits can also be found on the APVMA site.

Minor use permit updates are circulated in Hort Innovation's *Growing Innovation* eNewsletter. Sign up for updates at: [www.horticulture.com.au/sign-up](https://www.horticulture.com.au/sign-up).

# HORT INNOVATION UPDATES

## PAPAYA FUND ANNUAL REPORT RELEASED

Hort Innovation has recently released the 2019/20 Papaya Fund Annual Report. Be sure to check it out for all the latest insights on industry levies and activities for 2019/20.

While some activities were impacted by COVID-19, there continued to be a solid stream of investment across the 2019/20 financial year for the Papaya Fund. This included the delivery of the *Maximising pollination in papaya orchards guide*, the new sensory work to support the development of premium papaya varieties and more.

### AT A GLANCE: 2019/20 PAPAYA FUND

- \$225,000 invested in R&D
- \$108,000 invested in marketing
- 10 active R&D investments
- \$382,000 in levies collected

Over the past financial year, Hort Innovation continued to track investment expenditure and look towards new investments against the Papaya Strategic Investment Plan (SIP) 2017-21.

As the SIP is due for renewal in 2021, Hort Innovation will be undertaking a performance analysis to see how the industry has progressed against the current plan, which will be used to help guide future investment priorities.

In 2020/21 Hort Innovation will be implementing new ways of obtaining advice and setting priorities for industry investments. Growers – be sure to keep an eye out for these changes, to have your say and help drive greater outcomes for industry.

View the Papaya Fund annual report for the 2019/20 financial year, at: <https://www.horticulture.com.au/globalassets/hort-innovation/levy-fund-financial-and-management-documents/fund-annual-report-pdfs-201920/hort-innovation-annual-report-2019-20-papaya-fund.pdf>

You can also access Hort Innovation's Company Annual Report 2019/20, at: <https://www.horticulture.com.au/globalassets/hort-innovation/corporate-documents/hort-innovation-company-annual-report-2019-20.pdf>



## THE GOOD MOOD FOOD: EAT FRESH, EAT AUSTRALIAN

It's no secret that COVID-19 has presented challenges across all areas of horticulture, impacting access to the export market, food service and the way consumers behave when purchasing and consuming papaya and pawpaw.

Acknowledging these pressures on the industry, Hort Innovation launched 'The Good Mood Food' campaign to support growers by promoting the benefits of eating good quality, fresh fruit, vegetables and nuts in that 'when you eat better, you feel better'.

Using television advertising, public relations, social media and a range of partnerships, the campaign has been able to focus on both season and occasion, showcasing the versatility of Australia's horticulture sector.

In July, 56 per cent of surveyed consumers said The Good Mood Food campaign had positively influenced their shopping habits, and by the end of campaign's run, 98 per cent of all Australians were expected to be reached.

Understanding that consumer behaviour has dramatically shifted, with price, quality and accessibility being a greater focus, the campaign highlighted the importance of provenance and support of locally grown produce but also how foods can boost one's mood and therefore overall health and wellbeing.

This would present an opportunity for the papaya marketing program, funded through industry marketing levies, to draw upon the message of The Good Mood Food campaign and access a platform for industry to explore ways to inspire Australians to reach for papaya this summer by highlighting the fruit's provenance and nutritional benefits.

You can find out more about The Good Mood Food campaign by visiting: <https://www.horticulture.com.au/the-good-mood-food/>

For more information, contact the Hort Innovation team at, [thegoodmoodfood@horticulture.com.au](mailto:thegoodmoodfood@horticulture.com.au)