

Leading a Coordinated Fight Against Fruit Spotting Bugs

Hort Innovation

Fruit spotting bugs are a familiar and frustrating problem for many growers across Australia's east coast, affecting many horticultural crops including avocado, custard apple, lychee, macadamia, papaya, and passionfruit.

Both adults and nymphs of these pests inflict substantial economic damage by piercing and sucking on developing fruits, shoots, and terminal buds of crop plants. These pests can cause up to 90 per cent crop loss in avocados and over \$20 million annual losses in macadamia due to factory rejection.

The good news is that a strong research program is underway to better understand these pests and give growers effective, practical tools to manage them. Through levy funds and Frontiers co-investment, Hort Innovation is leading a multi-pronged approach that brings together universities, technology experts and industry to tackle fruit spotting bugs from several angles at once.

Together, this research is improving how fruit spotting bugs are monitored and managed through better information, smarter tools and longer-term control options.

Agronomist Jarrah Coates from Coates Horticulture in Cooroy Queensland said the 2026 macadamia season has seen high levels of late fruit spotting bug damage.

"This year we have seen high pressure sites struggling with late season fruit spotting bug management. Once macadamia nut shells have hardened, fruit spotting bug populations become very difficult to accurately monitor."

"The industry has long needed effective monitoring tools for this gap to improve management and returns for growers. Developing effective fruit spotting bug "smart traps" may assist improving late season fruit spotting bug management"



Adult Female



Adult Male Photos credit: Alana Govender

Smarter monitoring using artificial intelligence

A team at Macquarie University, working closely with technology company Elegant Media, is developing a new generation of smart pest traps.

Funded through Hort Innovation Frontiers, Macquarie University's research is focused on:

- Identifying better attractants (lures) for fruit and banana spotting bugs
- Improving existing lures by studying plant volatiles that also attract the pests
- Developing long lasting lure delivery systems that work reliably in the field

At the same time, Elegant Media is building traps that use artificial intelligence (AI) to automatically identify and count spotting bugs caught in traps.

This project combines chemistry, insect behaviour, materials science and field testing. The goal is to give growers accurate, near real-time information about spotting bug numbers, without the need to constantly check traps by hand.

In the longer term, growers could have access to traps that are easier to use, last longer, and may even be monitored remotely. Better trap data will help growers know when spotting bug populations are building and when action is really needed.

More information on the project 'Using artificial intelligence to develop automated monitoring systems for the banana and fruit spotting bugs (BY23000)' is available at bit.ly/TPV-BY23000

Unlocking the genetics of spotting bugs

Queensland University of Technology is looking at the genetic make-up of fruit spotting bugs. Understanding the genetics of these pests opens the door to new, highly targeted control options in the future. While this work is longer term, it could eventually lead to alternative control tools that reduce reliance on conventional insecticides and fit neatly into IPM systems.

Funded through Hort Innovation Frontiers, this research is:

- Building foundational genetic information for fruit and banana spotting bugs
- Identifying species-specific genetic targets
- Testing control methods based on RNA

More information on the project 'Revolutionising management of fruit and banana spotting bugs through genome empowerment (BY23003)' is available at bit.ly/TPV-BY23003

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Fruit spotting bugs feeding on green fruit shows distinctive markings *Photo credit: Jane Richter*



The third, fourth and fifth instars all have a distinctive pair of black spots on their abdomen

Photos credit: Alana Govender

Improving traps and “lure and kill” approaches

Through levy investment, the avocado and macadamia industries are working with the Queensland Department of Primary Industries to:

- Test new sticky trap materials to improve bug capture and durability
- Explore “lure and kill” options that attract bugs and kill them once trapped
- Develop a pheromone lure for fruit spotting bug.

Laboratory testing has confirmed that male fruit spotting bugs produce a pheromone that attracts females. Researchers are now working to identify the exact chemicals involved.

This work aims to deliver more effective traps that not only attract spotting bugs but also hold or kill them once they arrive, improving control and monitoring accuracy.

More information on the project ‘Improving fruit and banana spotting bug control (MT21017)’ is available at bit.ly/TPV-MT21017

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A coordinated path forward

Fruit-spotting bugs are a tough pest, but research is building a clearer picture of how they behave and how best to manage them.

By combining better monitoring, smarter traps, genetic research and integrated management, Hort Innovation is helping lay the groundwork for more reliable, cost-effective and sustainable fruit-spotting bug control.

For growers, this means better decisions, fewer unnecessary sprays and stronger protection for crops into the future.

Current Resources

Visit the resources available at the Passionfruit Australia Resource Library at bit.ly/PAI-RL to find these useful resources

- Pest Posters Banana & Fruit Spotting Bugs to assist you in identifying this pest
- Managing Fruit Spotting Bug article from the Spring 2019 edition of The Passion Vine
- NSW DPI Management Guide 2016: Fruit spotting bugs