

What happened in the Mango Fund last year?

Annual Report 2021/22



About Hort Innovation and the Mango Fund

Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australia's horticulture sector. We work closely with industry to invest the mango R&D and marketing levies, together with Australian Government contributions, into key initiatives for growers, through the Mango Fund. We're proud of the work we do to help drive productivity, profitability, and demand for mango growers and the horticulture sector.

Read on for an overview of what Hort Innovation delivered in the Mango Fund during the year.

We also encourage you to download a copy of the overarching Hort Innovation Annual Report 2021/22 at www.horticulture.com.au/annual-report-portal to see how Hort Innovation worked to benefit the horticulture sector during the year.

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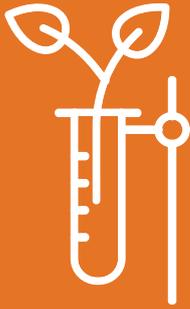
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\$1.03M

invested in R&D



\$481,021

invested in marketing



\$1.23M

in levies collected
by the Government and passed on to
Hort Innovation for investment

Industry facts



\$167.4M

In 2020/21, 51,528 tonnes of mangoes were produced with a production value of \$167.4 million



9%

Some nine per cent of Australia's mangoes are exported, valued at \$25 million



54%

The majority of mangoes are grown in the Northern Territory (54 per cent), followed by Queensland (43 per cent)

These facts and more can be found in the Australian Horticulture Statistics Handbook, which is delivered by Hort Innovation each year. The handbook is packed with horticulture statistical information and analysis for some 75 categories. See www.horticulture.com.au/horticulture-statistics-handbook.

Consumer insights



5.4

Australian households purchase an average of 5.4 mangoes per year



5.7 million

5.7 million Australian households purchased mangoes in the last year (an increase of 310,000 from the previous year)

These insights were made available through the Harvest to Home platform (www.harvesttohome.net.au) delivered as part of an investment providing regular consumer behaviour data and insight reporting.

Just some of the things delivered for you during the year



New industry communication and extension programs, delivering a range of communication channels (see hortinn.com/mg21001) and industry development activities (see hortinn.com/mg21002) to support growers in adopting best management practices



Access to consumer insights through multi-industry investments to understand consumer behaviours, attitudes and purchase intentions – see www.horticulture.com.au/mango



Support for the National Bee Pest Surveillance program to help safeguard honey-bee and pollinator-dependent industries in Australia – read more at hortinn.com/mt21008



Research into orchard intensification through a Hort Frontiers Investment for tree crop industries such as almond, avocado, citrus, macadamia and mango – see hortinn.com/as18000



The mango Harvest to Home dashboard providing regular household purchase data and insight reporting at www.harvesttohome.net.au



A domestic marketing campaign – read more on [p10](#)



Investments in the Hort Frontiers strategic partnership initiative to address longer-term and often complex issues and opportunities critical to the future of Australian horticulture – see www.horticulture.com.au/hort-frontiers*



Projects supported by grants secured by Hort Innovation, ranging from cross-sector Rural R&D for Profit initiatives to horticulture-specific work to aid in access to crop protection products – see the Hort Innovation Annual Report 2021/22 for more details*

You can visit www.horticulture.com.au/mango at any time to access information on new, ongoing and completed projects, and to download resources produced by your levy investments.

*These initiatives were delivered outside of the Hort Innovation Mango Fund and, in most instances, did not involve the industry levy

Here's how your R&D levy was invested over the year



The mango Strategic Investment Plan (SIP) guides investments specific to the Hort Innovation Mango Fund. The SIP features priority outcome areas identified and agreed upon by the industry. Hort Innovation works to invest in R&D and marketing initiatives aligned to these.

The above chart shows how project expenditure in the Mango Fund during 2021/22 was aligned to the SIP. We have allocated each project to a SIP outcome based on its primary objective.

Which projects were in each of the SIP outcome areas?

Outcome 1: Demand creation

Demand creation supports the Australian mango industry to develop existing and future domestic and international markets.

Marketing activities during 2021/22 also contributed towards the demand creation outcome. You can read more about this year's mango marketing campaign on [p10](#).

Project title and code	2021/22 investment	Status	More information
Mango export strategy (MG21000)	\$69,998	Completed	hortinn.com/mg21000
Mango export strategy support (sub-project of MG21000)	\$3,500	Completed	
Essential market access data packages (MT14052)	\$148,553	Ongoing	hortinn.com/mt14052
Australian horticulture international demand creation (ST21007)	\$2,438	Ongoing	hortinn.com/st21007

Outcome 2: Industry supply, productivity and sustainability

The Australian mango industry has increased profitability, efficiency and sustainability through innovative R&D, sustainable BMPs and pollination.

Project title and code	2021/22 investment	Status	More information
National Fruit Fly Council Phase 4 (FF20000)	\$8,000	Ongoing	hortinn.com/ff20000
Plant Biosecurity Research Initiative – Phase 2 (HA19007)	\$813	Ongoing	
Building best management practice capacity for the Australian mango industry (MG17000)	\$350,000	Completed	hortinn.com/mg17000
Review of national biosecurity plans (avocado and mango) (MT17003)	\$8,543	Ongoing	hortinn.com/mt17003
Across horticulture support for export MRL compliance (MT19006)	\$3,388	Ongoing	hortinn.com/mt19006
Regulatory support and coordination (pesticides) (MT20007)	\$3,250	Ongoing	hortinn.com/mt20007
Strategic Agrichemical Review Process (SARP) – Updates (MT21005)	\$4,750	Ongoing	hortinn.com/mt21005

Investments

Outcome 3: Extension and capability

Improved capability and an innovative culture in the Australian mango industry will maximise investments in productivity and demand.

Project title and code	2021/22 investment	Status	More information
National mango industry communication program (MG17004)	\$229,425	Completed	hortinn.com/mg17004
Mango industry communications program (MG21001)	\$68,004	Ongoing	hortinn.com/mg21001
Extension to build innovative culture and capability in the Australian mango industry (MG21002)	\$60,000	Ongoing	hortinn.com/mg21002

Outcome 4: Business insights

The Australian mango industry is more profitable through informed decision-making using consumer knowledge and tracking, trade data, benchmarking, production statistics and forecasting, and independent reviews.

Project title and code	2021/22 investment	Status	More information
Horticulture trade data (MT19005)	\$6,025	Ongoing	hortinn.com/mt19005
Consumer demand spaces for horticulture (MT21003)	\$3,158	Ongoing	hortinn.com/mt21003
Consumer behavioural data program (MT21004)	\$15,418	Ongoing	hortinn.com/mt21004
Seasonal horticulture labour accommodation study (MT21007)	\$1,107	Ongoing	
Economic contribution of Australian horticulture (MT21010)	\$3,390	Ongoing	hortinn.com/mt21010
Pilot program: Consumer usage, attitude and brand tracking (MT21201)	\$755	Completed	hortinn.com/mt21201
Consumer usage and attitude tracking 2022/23 (MT21202)	\$12,894	Ongoing	hortinn.com/mt21202



Financial operating statement

Mango Fund Financial operating statement 2021/22

	R&D (\$)	Marketing (\$)	Total (\$)
	2021/22 July – June	2021/22 July – June	2021/22 July – June
OPENING BALANCE	174,865	117,497	292,362
Levies from growers	526,498	701,996	1,228,493
Australian Government money	598,828	—	598,828
Other income*	616	953	1,569
TOTAL INCOME	1,125,941	702,949	1,828,890
Project funding	1,029,847	481,021	1,510,868
Consultation with and advice from growers	573	223	795
Service delivery	167,236	99,321	266,557
TOTAL EXPENDITURE	1,197,655	580,565	1,778,220
CLOSING BALANCE	87,762	219,347	307,109
Levy collection costs	15,389	20,534	35,923

* Interest, royalties

Levy collection costs – These are the costs associated with the collection of levies from industry charged by Levy Revenue Services (LRS)

Service delivery – Also known as Corporate Cost Recovery (CCR), this is the total cost of managing the investment portfolio charged by Hort Innovation

Making sure that levy investment decisions align with industry priorities

What will be the Mango Fund's focus over the next five years?



Hort Innovation developed the mango Strategic Investment Plan (SIP) in 2021 to reflect current priorities for the mango industry, involving extensive consultation with mango growers and industry stakeholders, including the Australian Mango Industry Association. The SIP is the roadmap that helps guide Hort Innovation's oversight and management of individual levy industry investment programs.

The mango SIP lays the foundation for decision-making in levy investments and represents the balanced interests of the mango industry. The most important function of the SIP is to make sure that levy investment decisions align with industry priorities.

The mango SIP identifies four outcome areas that will contribute to the productivity and profitability of the sector. They are:

- Industry supply, productivity and sustainability
- Demand creation
- Extension and capability
- Business insights.

What projects will the Fund be investing in next year?

The mango Annual Investment Plan (AIP) 2022/23 details how Hort Innovation spends levy funds over 12 months. The mango industry SIP guides investment decisions, and our consultation process prioritises investments based on potential impact and levy fund availability.

Hort Innovation publishes Annual Investment Plans each year over the lifespan of the SIP and advises industry stakeholders via various communication channels.

Hort Innovation will continue to report on fund performance regularly, focusing on outcomes and the impact of investments.



Visit www.horticulture.com.au/mango-fund-management to view both documents and better understand how Hort Innovation invests your levy.

A tool we now couldn't see our operation operate without

A program to develop, trial and extend technology-based crop mapping and monitoring tools for growers

The investment *Multi-scale monitoring tools for managing Australian tree crops* is a collaborative piece of work funded through the Australian Government's Rural R&D for Profit initiative.

The overarching program is continuing the development, trial and extension of technology-based crop mapping

and monitoring tools to help growers in predicting fruit quality and yield, and monitoring tree health – including in the early detection of pest and disease outbreaks.

This multi-scale monitoring tools project involves some nine sub-projects sitting under an overarching project, with a variety of teams all being led by Hort Innovation.

Meet Raymond, mango grower from Dimbulah, North Queensland

Raymond Courtice is a second-generation mango grower from Dimbulah, north Queensland who works at his family business, Ontario Group, with his father David.

Ontario Group is a family-run business, revolving around the production of Calypso® mangoes as well as citrus to diversify and utilise their staff and equipment throughout the year. David was one of the first commercial growers on Calypso® mangoes in the late 1990s and they've stuck with the variety ever since. The Ontario mango orchards are spread across two locations of 400ha.

Why did you participate in this program?

When Kerry Walsh from Central Queensland University told me he was working on creating a unit that would count your crop load and give you an accurate result of every location within your farm, my ears pricked. Standard practice is manual fruit counts averaging across the block to give you your expected crop load for the season.

During the 2019/20 season, we had experienced frost with temperatures dipping to minus five degrees, damaging 70 per cent of our crop. At this point we had frost protection fans installed within the orchard which usually gave 100 per cent protection for short stints between zero to minus three degrees, but at minus five degrees this wasn't the case.

So, when the opportunity was presented to trial crop forecasting using the machine vision rig on my orchard, I was 100 per cent in for using technology to give me accurate data on how much damage the frost had done to my crop load. Accurate crop forecasting data is invaluable for planning for harvest and marketing.



Ray Courtice, mango grower, Dimbulah, north Queensland.

Continued

How does the technology work?

The machine vision rig, which is linked to GPS, is mounted on a vehicle and the whole orchard can be ‘photographed’. We’ve found that every three rows is the intensity vs accuracy “sweet spot”. Data is calibrated with manual fruit counts – a similar requirement to previous yield forecasting, and then the location and imagery data is processed to generate a ‘heat map’ of yield across the orchard.

What did you learn?

What this technology offers over other yield estimation tools and forecasting strategies, is a picture of spatial variability in yield across the orchard. We could clearly see where our frost protection couldn’t reach or protect and there was no fruit, ranging to close to the frost fans where the loss was only about 25 per cent.

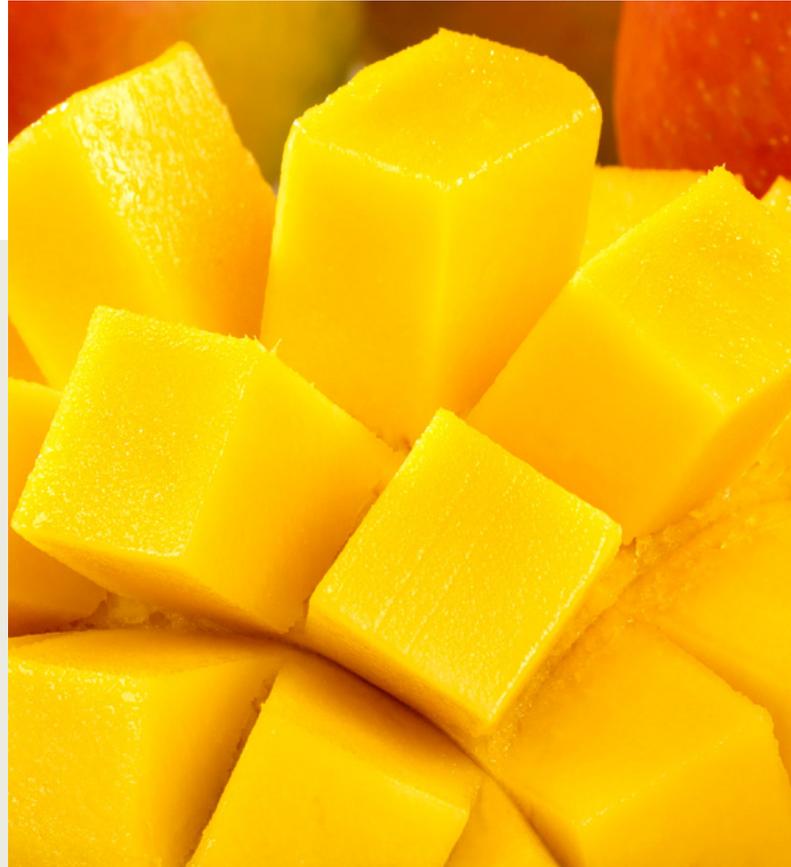
While my initial interest in trialling the equipment was to understand the scale of the frost damage, the experience showed me that the technology could provide useful data that was impossible to get with manual forecasting practices.

For example, you can make the wrong calls on fruit profile – and then your water and nutrition management can result in fruit ballooning. The production forecast maps generated using this equipment, give information not otherwise available to manage the orchard to optimise production.

“

Being able to have this sort of tool becomes an advantage in this era of farming. Participating in this project has given us a tool we now couldn’t see our operation operate without.”

Meet Raymond, mango grower from Dimbulah, North Queensland



What this now allowed me to see and understand was instead of treating whole zones in the orchard, I was able to tailor nutrition and irrigation to target certain blocks for domestic and export markets as I had a full understanding of predicted yield, size, profile and entire orchard expected fruit count.

What has been the benefit?

The immediate benefit of using this technology is that we can now tailor our management practices to ensure we’ve “got it right” for the fruit that survived the frost and minimise further losses due to fruit quality. It also gave us information that enabled us to increase the number of frost protection fans we needed to have to five full coverage of the orchard.

Using the imaging rig is now an operation that I have adopted post-fruit drop and pre-harvest to monitor and manage crop load, nutrition and water, and pre-forecast for our marketers, exporter, freight, carton and labour companies. It gives me assurance that what I believe we are looking at harvesting is actually on the farm. Being able to have this sort of tool becomes an advantage in this era of farming. Participating in this project has given us a tool we now couldn’t see our operation operate without.

Taste the sunshine with Aussie mangoes

Hort Innovation is responsible for investing the mango marketing levy into a range of activities to drive awareness and consideration. Here's a quick look at some of the activities and achievements in 2021/22.

In 2021/22, the Australian Mangoes marketing program promoted mangoes as an indulgent treat to enjoy regularly through campaign activities that provided inspiration, education and connection. The primary aim was to encourage Australians to include mangoes in their weekly shopping basket, with the fruit being perceived as a convenient and regular treat, rather than only a treat for special summer occasions.

The media strategy focused on maximising reach and frequency across the campaign period of September 2021 to March 2022. Across the marketing program for Australian Mangoes, the key message was *'taste the sunshine.'* The sentiment of the slogan was that with every delicious mouthful of mango, consumers are tasting pure happiness, positive vibes, and all the glorious brightness of Australian sunshine.

Key messages were promoted through a complementary mixture of media channels, including out of home advertising, online videos, public relations, social media and export retail marketing activity.

Out of home

The objective of out of home advertising was to drive purchase intent through reaching shoppers on their path to purchase. The creative concept showed how eating a mango transports consumers to a world of good vibes, sunny nostalgia, and feelings of joy—a sweet escape. The silhouette of the iconic mango teardrop shape was used as a visual device to transport everyday Aussies to escape and taste the sunshine—a tropical, delicious, mango world.

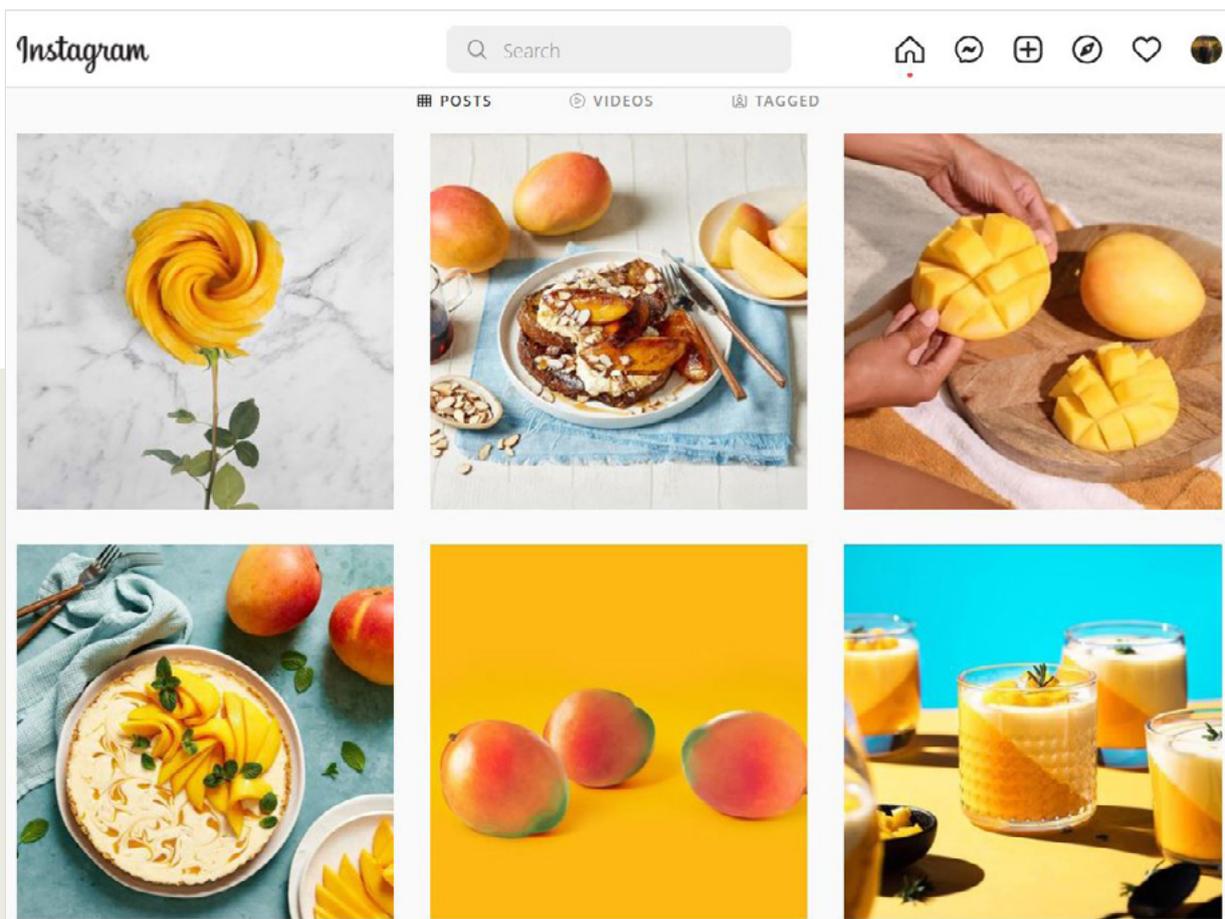
In total, 78 per cent of grocery buyers in the panels' vicinity aged 25 to 54 saw the advertisement an average of 13 times, achieving more than double the target KPI of an average six times. Additional panels were negotiated as part of the campaign, which increased the total media value by more than 23 per cent.

Online videos

The objective of the online videos was to drive reach (the total number of people who see the content) and awareness across YouTube and Teads media (an advertising platform). This saw Australian Mangoes feature on 7news.com.au, womensweeklyfood.com.au and newideafood.com.au.



Marketing spotlight



The campaign resulted in 2.68 million impressions (number of times an advertisement or content has been displayed), exceeding the online video target KPI by 44 per cent. The main contributor of the strong performance was the short six-second video, which was most efficient in capturing consumer attention, particularly on mobile devices.

Public relations

The objective and strategy for public relations was to develop a campaign that leveraged the start of the season and the first day of summer, to position mangoes as an escape and an everyday accessible food, through earned media coverage.

As the season began to pick up momentum (in terms of volume) Australian Mangoes partnered with Brisbane Produce Market's Mango Auction, which was held online in mid-September 2021. The auction has raised a cumulative total of \$1 million for charity and achieved significant media coverage. Australian Mangoes teamed up with industry and growers, including Jenko's Mangoes, to produce a fun film that featured the Jenkins family. Total coverage achieved more than 105 mentions across broadcast, print and online media.

To celebrate the first day of summer, Hort Innovation developed the ultimate summer starter kit with everything

consumers need to 'taste the sunshine.' The program partnered with renowned summer influencers, lifeguards Trent Maxwell and Dominique Elissa to feature in a content shoot which displayed the summer starter kit. Simultaneously, a competition was announced, offering Australians a chance to win the kit alongside a summer's supply of Australian mangoes.

The target KPI was exceeded, securing 33 pieces of coverage for public relations across TV, news, lifestyle, and radio media.

Social media

The Australian mango season was activated on social media via three content pillars:

1. Entertaining: Announcing key moments throughout the season and encouraging the consumption of mangoes where topically relevant (for example, the start of summer and long weekends).
2. Educating: Highlighting different mango varieties, giving each variant its moment to shine. This content also promoted the flavour and health credentials of mangoes.
3. Inspiring: Recipe content was used to inspire audiences to consume mangoes and try them in new and unique ways.

Continued



Overall, the activity achieved 109,000 impressions, 5,000 engagements (people interacting with the social media content with reactions such as likes, comments, or saves) and an engagement rate of 5.32 per cent, exceeding the industry average of 1.41 per cent. Content which performed best included culturally relevant and reactive content, such as:

- Valentine’s Day posts
- Recipes which provided usage inspiration
- Images which showcased different mango varieties
- The consumer competition which encouraged consumer engagement
- A short six second video.

Export marketing initiatives

Throughout the 2021/22, Australian Mangoes were promoted in four key export markets, New Zealand, South Korea, the United States of America (USA), and Hong Kong, with the intention of building a stronger relationship between stakeholders and leveraging the quality an Australian mango has to offer.

Key activity included:

- 73 out of home advertising panels in New Zealand, which were displayed in close proximity to stores
- Public relations
- Live commerce at Naver shopping live channel
- A recipe video
- A Manna Mall event (online fruit market)
- Home shopping promotion in South Korea
- In the USA, a display store incentive program and shelf signage in-store with Giumarra, within Gelson’s supermarkets (Southern California supermarket chain)
- A social media advertising campaign in Hong Kong, which achieved a strong result reaching 546,000 people.

In 2021/22 the Hort Innovation Marketing function underwent a significant shift in their approach to investing marketing levies. You can read more about this in the 2021/22 Hort Innovation Company Annual Report at www.horticulture.com.au/annual-report-portal.

Minor use permits

The Hort Innovation Mango Fund 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.

Together these efforts provide industry access to safe, relevant and effective chemicals to manage pests, weeds and diseases.

For full details on these activities and links to relevant information, visit hortinn.com/mango-minor-use.

Current permits

Below is a list of minor use permits for the mango industry, current as of 15 August 2022.

Permit ID	Description	Date issued	Expiry date	Permit holder
PER12450 Version 7	Trichlorfon / Specified fruit crops / Fruit fly	06-Oct-11	30-Nov-25	Hort Innovation
PER80374 Version 3	Beta-cyfluthrin (Bulldock) / Custard apple, lychee, mango and persimmon / Various insect pests	01-Oct-15	31-Aug-25	Hort Innovation
PER13484 Version 3	Carbaryl / Mango / Mango leafhoppers	01-Jul-12	30-Apr-25	Hort Innovation
PER14743 Version 3	Trichlorfon / Custard apple, lychee, mango and persimmon / Flatid planthopper, flower eating caterpillar, looper and yellow peach moth Suppression only: fruit-spotting bug, banana spotting bug, green vegetable bug and lychee stink bug	01-Jun-14	30-Jun-25	Hort Innovation
PER13859	Dimethoate / Orchard clean-up – fruit fly host crops following harvest / Fruit fly	09-Feb-15	31-Jul-24	Growcom
PER91560	Ethephon / Mangoes / To manage seasonal vegetative flushes in mango trees	19-Nov-21	30-Nov-26	Hort Innovation
PER14830 Version 3	Chlorothalonil (Bravo Weather Stik fungicide) / Mango trees / Anthracnose	04-Feb-15	30-Nov-25	Hort Innovation
PER87232 Version 2	Etoxazole / Mango trees / Tea red spider mite	16-Jan-19	30-Nov-26	Hort Innovation
PER87799	Clothianidin 200g/L (Sumitomo Shield Systemic insecticide) / Mango / Mango seed weevil soil drench	06-Jun-19	30-Jun-24	Hort Innovation
PER83944 Version 3	Clothianidin 500g/L (Sumitomo Samurai Systemic insecticide) / Mango / Med fly, Queensland fruit fly and other fruit fly species	27-Nov-17	31-Mar-24	Hort Innovation

Continued

Minor use permits

Current permits (continued)

Permit ID	Description	Date issued	Expiry date	Permit holder
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
PER83998 Version 3	Maldison / Mango / Fruit fly	15-Aug-17	30-Jun-23	Hort Innovation
PER84427 Version 2	Methomyl / Mango / Red banded thrips, chilli thrips, banana flower thrips and tomato thrips	20-Nov-17	28-Feb-24	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
PER89241	Spinetoram / Various including mango / Fall armyworm	06-Mar-20	31-Mar-23	Hort Innovation
PER89293	Methomyl / Mango / Fall armyworm (<i>Spodoptera frugiperda</i>)	10-Apr-20	30-Apr-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
PER90367	Tetraniliprole (Vayego 200 SC insecticide) / Mango / Mango seed weevil (NSW, NT and QLD only)	23-Nov-20	30-Nov-23	Hort Innovation
PER91798	Methoxyfenozide (Prodigy insecticide) / Mango, lychee and longan / Mango shoot looper (<i>Perixera illepidaria</i>)	18-Nov-21	30-Nov-24	Hort Innovation
PER92133	Tetraniliprole (Vayego 200 SC insecticide) / Mango and lychee / Mango shoot looper (post-flowering only) (NSW, NT and QLD only)	10-Aug-22	31-Aug-25	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. Details of the conditions of use associated with these permits can also be found on the APVMA site.

Keep up to date!

Find monthly minor use permit updates in our *Growing Innovation* e-newsletter.

Sign up for free at www.horticulture.com.au/sign-up.

How strategic levy investments are made in the Mango Fund

The below diagram shows how Hort Innovation makes strategic levy investments on behalf of horticulture industries. The mango R&D and marketing levies were invested this way during the year, guided by the mango Strategic Investment Plan 2022-2026 and advice from the industry's investment advisory panel.



* Encapsulating extension and international trade

To learn more about funding specific to the Hort Innovation Mango Fund, visit www.horticulture.com.au/mango. During the year, other sources of funding were also used to support activities for the benefit of Australian horticulture, including grant funding secured by Hort Innovation, co-investment dollars brokered through our Hort Frontiers initiative and centralised strategic levy reserve.

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