



AVOCADO FUND



About Hort Innovation and the Avocado 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 avocado R&D and marketing levies, together with Australian Government contributions, into key initiatives for growers, through the Hort Innovation Avocado Fund. We're extremely proud of the work we do to help drive productivity, profitability and demand for avocado growers, and for the horticulture sector at large.

About the year

An intense and unpredictable year, 2019/20 certainly dealt challenges for the world, for Australian horticulture, and for Hort Innovation. There was ongoing drought, a devastating bushfire season, intense floods, the biosecurity threat of fall armyworm and, of course, the global and ongoing COVID-19 pandemic.

We encourage you to download a copy of the overarching Hort Innovation Annual Report 2019/20 at www.horticulture.com.au/annual-report-portal to better understand Hort Innovation's responses to these events, and how the company was able to change its plans and priorities to best serve the sector.

Through it all, though, activity in the Hort Innovation Avocado Fund remained strong. While some activities inevitably changed under COVID-19, it was still a record year of investment. There was some \$3.28 million invested in R&D for the industry (including into 10 new projects), and another \$3.21 million in marketing. Read on for an overview of what was delivered.

2019/20 Avocado Fund snapshot



\$3.28M

invested in R&D



\$3.21M

invested in marketing



39

active R&D investments



in levies collected

by the government and passed on to Hort Innovation for investment

Did you know?



12%

The avocado industry is growing and maturing, with production growing at an average annual rate of almost 12 per cent over the five years to 2018/19



8.4%

The value of the industry is also growing, at an average annual rate of 8.4 per cent over the five years to 2018/19



3

Avocado production occurs in three key states: Queensland, Western Australia and New South Wales

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, for use by individual industries and the wider sector. The 2018/19 edition was released in early 2020 and, for the first time, features an interactive dashboard format for desktop users. See www.horticulture.com.au/horticulture-statistics-handbook.



Just some of the things delivered for you during the year:

- ✓ Commercialisation of a new rootstock to provide Phytophthora root rot resistance, developed through earlier levy-funded work – see www.bit.ly/avocado-rootstocks
- ✓ A guide to maximising pollination in avocado orchards, available at www.bit.ly/avocado-pollination*
- ✓ Information and data to assist through COVID-19, including the new Hort Innovation Insights podcast (www.horticulture.com.au/webinars) and regular consumer attitude and behaviour information (www.horticulture.com.au/impact-monitor)*
- ✓ Preparation support for fall armyworm, including emergency minor use permits and an educational podcast series, www.bit.ly/armyworm-podcast*
- ✓ **Industry communication and extension programs**, delivering *Guacamole* and *Avo Alert* emails, the *Talking Avocados* magazine, the Best Practice Resource online portal, forums and more access and sign up direct at www.avocado.org.au
- ✓ The avocado Harvest to Home dashboard providing regular household purchase data and insight reporting, at www.harvesttohome.net.au
- ✓ A multi-pronged domestic marketing campaign and, launched during COVID-19, The Good Mood Food across-horticulture campaign* (www.horticulture.com.au/ the-good-mood-food)
- ✓ 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 2019/20 for more*

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

Making investments in 2019/20

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



Horticulture levies

are raised by growers for investment in R&D*, marketing or both



Levy funds are entrusted to Hort Innovation for management



Statutory levies are paid to the Australian Government

Hort Innovation uses **industry-specific investment plans** to determine the projects an industry's levy will fund, guided by consultation and prioritisation advice from that industry





For each R&D project established,
Hort Innovation accesses **government contributions** to support the work as project
expenditure is incurred (marketing investments
are not eligible for government funding)

Throughout project lifecycles, **information is delivered** to the funding industries, including through industry communication and extension projects, and through Hort Innovation channels. Each piece of work is intended

to help growers and industries be more productive, competitive, profitable and sustainable.



* Encapsulating extension and international trade

To learn more about funding specific to the Hort Innovation Avocado Fund, visit www.horticulture.com.au/avocado. 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 reserves.

Investment planning and performance

During 2019/20, Hort Innovation continued to track investment expenditure against the Avocado Strategic Investment Plan, while looking towards new developments in 2021. Access an at-a-glance copy of the current investment plan at www.bit.ly/avocado-plan.

A performance analysis is coming

The industry's investment plan outlines key goals and outcomes for levy investment. With the plan due for renewal in 2021, Hort Innovation is undertaking a performance analysis to see how the industry has progressed against the current plan's ambitions. This will also help guide ongoing priorities for investment. Look for information to be published at www.horticulture.com.au/avocado in 2021.

See how your levy investments align to the industry's current plan

You can see how investment expenditure in the Hort Innovation Avocado Fund aligns to the industry's current strategic

New ways of obtaining advice and setting priorities

In 2020/21, Hort Innovation will be implementing new ways of obtaining advice and setting priorities for industry investments. Renewed industry investment plans, plus new yearly (or as needed) program plans and new ways of consulting more broadly will mean more efficient investment and better outcomes for industry. Watch this space.



R&D project list 2019/20



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AV19000	Investigation into citrus blossom bugs in avocados
AV19001	Review and extension of avocado pests and their management
AV19002	Management of six-spotted mite in WA avocado orchards – phase 2
AV19003	Monitoring avocado quality in retail
AV19004	Improved fruit robustness and quality in avocado supply chains (mineral nutrition)
AV19005	Understanding the mode of action of phosphite in avocado for enhanced management of Phytophthora root rot
AV19006	Carbohydrates monitoring to predict yield and understanding fruit set
MT19005	Horticulture trade data
MT19008	Strategic Agrichemical Review Process (SARP) updates
PH16002	Managing flies for crop pollination

ONGOING	INVESTMENTS IN 2019/20
AV16002	Avocado industry minor use program
AV16005	Maximising yield and reducing seasonal variation
AV16006	Avocado industry and market data capture and analysis
AV16007	Improving avocado orchard productivity through disease management
AV16010	Avocado industry biosecurity capacity building
AV17000	Avocado export readiness and market access
AV17005	Avocado industry development and extension
AV17006	Avocado industry capacity building – Western Australia
AV18000	Implementing best practice of avocado fruit management and handling practices from farm to ripening
AV18002	Implementing precision agriculture solutions in Australian avocado production systems
AV18003	National avocado industry communications program
AV18007	Avocado sunblotch viroid survey
AM17010	Taste Australia trade shows*
MT14052	Essential market access data packages
MT16005	Enhanced National Bee Pest Surveillance Program
MT17003	Review of national biosecurity plans
MT17006	Improving preparedness of the Australian horticultural sector to the threat potentially posed by <i>Xylella fastidiosa</i> (a severe biosecurity risk)

MT17006 Xylella coordinator

Continued >>

ONGOING	S INVESTMENTS IN 2019/20 (continued)
MT17015	Consumer behavioural and retail data for fresh produce
MT18001	Foodservice syndicated market reports
MT18011	Ex-post impact assessment
MT18017	Taste Australia retail program
MT18019	Development and implementation of protocols to enable importation of improved honey bee genetics to Australia
ST16006	Generation of residue, efficacy and crop safety data for pesticide applications in horticulture crops 2017
ST17000	Generation of data for pesticide applications in horticulture crops 2018

* This investment is a parent program, under which further event-specific	
Taste Australia investments may sit	

INVESTMENTS COMPLETED IN 2019/20			
MT16010	Horticultural trade data 2017-19		
MT17012	Generation of residue data for permit applications 2017		
MT18009	Ex-post impact assessment – industry specific		
ST16008	AgVet collaborative forum		



R&D report

Take a closer look at some of the key investments in the Hort Innovation Avocado Fund during 2019/20. You can also visit www.horticulture.com.au/ avocado at any time to access information on new, ongoing and completed projects, and to download resources produced by levy investments, such as fact sheets and guides.

Investigation into citrus blossom bugs in avocados (AV19000)

NEW IN 2019/20

Key research provider: The Queensland Department of Agriculture and Fisheries

Beginning in 2019, this investment is developing an understanding of the biology and ecology of citrus blossom bug and its impact on the Australian avocado industry. While the pest is currently seen to reduce floral production on citrus trees, an increasing number of avocado growers are also reporting poor crops due to the bug.

When complete, this project will deliver a guide for growers to help protect crops from citrus blossom bug, monitor for the pest and manage any infestations.

Review and extension of avocado pests and their management (AV19001)

NEW IN 2019/20

Key research provider: IPM Technologies

To help avocado growers in adopting effective integrated pest management (IPM) approaches, this project is exploring potential barriers to IPM uptake and delivering practical information and resources for incorporating IPM on farm. The goal is to help growers improve productivity, reduce fruit losses, improve fruit quality and, where possible, limit pesticide applications.

Following surveys of current grower practices and industry understanding of IPM, the project team is extending clear information and instruction around IPM through a series of workshops (temporarily put on hold due to the COVID-19 pandemic), articles and industry fact sheets. Keep an eye out in industry channels for updates and resources.

Management of six-spotted mite in WA avocado orchards - phase 2 (AV19002)

NEW IN 2019/20

Key research provider: The Department of Primary Industries and Regional Development, Western Australia

This investment is delivering effective options for the integrated management of six-spotted mite in avocado orchards. Beginning in 2019, it follows previous levyfunded industry work to assist growers in monitoring mite populations and implementing appropriate management techniques, which also investigated the role that beneficial, predatory mites can play. Through the initial work, the project team produced the Monitoring for six-spotted mite in avocado orchards guide (find a copy at www.bit.ly/miteguide) and laid the groundwork for this phase two investment to further industry understanding of how to manage the pest.

The researchers are currently working to develop a comprehensive integrated pest management plan for sixspotted mite, and further investigating areas including the mass-rearing of predatory mites for pest management, the role of naturally occurring predators, the application of crop protection products and more.

Understanding the mode of action of phosphite in avocado for enhanced management of Phytophthora root rot (AV19005)

NEW IN 2019/20

Key research provider: The University of Queensland

Beginning in 2020, this project is improving industry understanding of how the fungicide phosphite is metabolised by avocado trees infected with Phytophthora root rot, so

that applications of phosphite can become more targeted and effective, resulting in healthier and more productive orchards. Its work is complementing ongoing research into Phytophthora root rot in the project *Improving avocado orchard productivity through disease management* (AV16007), described on the next page.

Carbohydrate monitoring to predict yield and understanding fruit set (AV19006)

NEW IN 2019/20

Key research provider: CSIRO

This investment is examining the methods and tools needed to monitor carbohydrate status in avocado orchards, as a way of predicting yield and understanding fruit set. A recommendation will be made to industry on a viable pathway for the development of a method to rapidly assess avocado carbohydrate status at scale in the field.

It's work is linked to existing project *Maximising yield and* reducing seasonal variation (AV16005), described on p10, which is conducting trials into the link between carbohydrate status and flowering and fruit set – providing an ideal opportunity to begin identifying a non-destructive system to evaluate the carbohydrate status of avocado trees.

Managing flies for crop pollination (PH16002)

NEW IN 2019/20

HORT FRONTIERS

Key research provider: Western Australian Agriculture Authority

An initiative of the Hort Frontiers Pollination Fund (www.horticulture.com.au/hort-frontiers), this investment is exploring the potential to use flies as alternative pollinators across a range of crops, including avocados.

Potential benefits of flies as alternate pollinators to bees include:

- » Different fly species mean that flies can be present all year round
- » Flies have a high sugar demand and naturally visit flowers for nectar
- » Flies are hairy and so can pick upZ and move pollen
- » Flies can be readily mass-reared with reasonable minimal inputs and do not sting workers.

Learn more about the work in our news article at www.bit.ly/fly-pollination.

Improved fruit robustness and quality in avocado supply chains (mineral nutrition) (AV19004)

NEW IN 2019/20

Key research provider: The Queensland Department of Agriculture and Fisheries

This investment, new in 2019/20, will help improve the robustness and quality of avocados entering the supply chain. With a focus on pre-harvest mineral nutrition and the effect it has on post-harvest fruit quality, the goal is to provide avocado growers with proven methods to ensure that their fruit reaches consumers in consistent high quality.

Monitoring avocado quality in retail (AV19003)

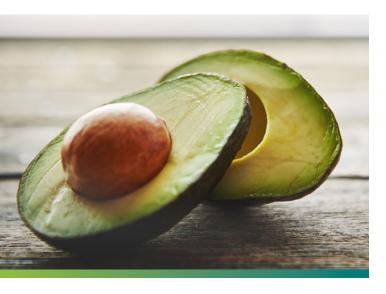
NEW IN 2019/20

Key research provider: Applied Horticultural Research

Beginning in 2019, this project is monitoring avocado fruit quality in retail stores across the country and providing detailed, timely feedback to packhouses and the industry. Fruit quality has been identified as a challenge for the avocado industry, with surveys of fruit quality in recent years finding that up to a quarter of avocados at retail have significant levels of bruising, internal rot or other disorders.

The project team is conducting regular assessments at supermarkets, independent and specialty retailers in Sydney, Melbourne, Brisbane, Perth and Adelaide over three years — providing some 600 separate quality assessments each year. Information is being recorded on factors such as quality of store displays, fruit age, pricing and potentially the difference in fruit quality between displays in the back and front of stores. Passing quality information on specific batches of fruit to packhouses is intended to help businesses identify improvement opportunities and help address any inefficiencies or issues in their operations. De-identified data from the sampling is also being analysed to monitor industry performance overall.

Keep up to date by signing up for communications on the Avocados Australia website at www.avocado.org.au.



Implementing best practice of avocado fruit management and handling practices from farm to ripening (AV18000)

Key research provider: The Queensland Department of Agriculture and Fisheries

This ongoing project is helping the avocado industry achieve further improvements in fruit quality, by facilitating the adoption of better practices – from what happens on the farm through to dispatch from the ripener.

The project team is looking at the current level of quality-related best practice adoption in the industry and where improvements can be made, with a focus on those practices that are known to impact on fruit quality, as revealed by recent and earlier levy-funded R&D. These insights are then being used to deliver knowledge and technical support to growers, packhouse operators, transporters and ripeners. This is occurring through training activities and supply chain case studies.

Maximising yield and reducing seasonal variation (AV16005)

Key research provider: CSIRO

Ongoing through 2019/20, this project is developing the knowledge and tools needed to manipulate and maximise avocado tree yields, to help improve production and profitability in the industry.

Specifically, it's looking at resource competition between shoots and fruits, potentially opening the door for new methods of reducing fruit drop. Because vegetative shoot growth coincides with fruit development in avocado trees, competition exists for carbohydrates, other nutrients and hormones necessary for maintaining growth. This competition can impact on the early stages of fruit development, resulting in fruit growth cessation followed by abscission – a key event that limits avocado production.

The research is also looking at how high, sustainable production can be achieved from year to year, through progressing the understanding of high-yielding tree development.

Implementing precision agriculture solutions in Australian avocado production systems (AV18002)

Key research provider: The University of New England

This investment is refining and working towards commercialising technologies and innovations to help the avocado industry improve production and efficiency. There is a particular focus on delivering solutions to help growers predict yield, look at yield variability and map factors such as disease, to in turn support on-farm decision making.

The work builds on the *Multi-scale monitoring tools for managing Australian tree crops* initiative, supported by Hort Innovation under the Australian Government's Rural R&D for Profit program.

Specific project activities include, but are not limited to:

- » Keeping the Australian Tree Crop Rapid Response map (www.bit.ly/rapid-response-map) and its associated app (www.bit.ly/rapid-response-app) updated with information on commercial avocado orchards. This mapping tool was a key output of the multi-scale monitoring tools program. At a top level it's designed to assist with natural disaster recovery efforts and biosecurity work, but when combined with other innovations such as remote sensing and analytic technologies, it can be used to support on-farm decision making.
- » Developing a mobile app to provide avocado growers with up-to-date, high-resolution satellite imagery and other capabilities to support pre-harvest yield forecasts plus mapping of tree health and vigour, yield parameters including fruit size, and disease with a focus on Phytophthora.

Improving avocado orchard productivity through disease management (AV16007)

Key research provider: The University of Queensland

Beginning in 2017 and ongoing through 2019/20, this project is conducting research into Phytophthora root rot as well as other diseases including phellinus brown root rot, nectriaceous black root rot, stem end rot and branch and graft dieback. It is identifying strategies to minimise the effects of these diseases in avocado orchards and in fruit as it progresses through the supply chain – helping the avocado industry increase orchard productivity and fruit quality.

The dedicated Phytophthora component involves the work of a Murdoch University team, whose work includes a closer look at phosphite treatments, including the issue of residues, potential for Phytophthora pathogens to develop tolerance, alternatives and more.



Avocado sunblotch viroid survey (AV18007)

Key research provider: The University of Queensland

This investment is surveying for avocado sunblotch viroid in growing regions across Australia, to provide evidence to support declarations of regional or national freedom from the pathogen. A declaration of 'pest freedom' – whether at a farm, region or national level – will facilitate export to countries that have their own domestic industry and may be concerned about the introduction of avocado sunblotch viroid, such as New Zealand.

Understanding any current distribution of the viroid will also allow a better assessment of the risk of importing avocados to Australia from countries where the pathogen is common. Importantly, the work and protocols this investment is establishing – such as its use of databases, its surveillance approaches and its analytical techniques – will have broad applicability across a number of biosecurity threats relevant to the Australian avocado industry, now and into the future.

Avocado industry biosecurity capacity building (AV16010)

Key research provider: The University of Queensland

Running since late 2017, this project is developing new diagnostic protocols for high-risk biosecurity threats to the industry, such as avocado scab fungus *Sphaceloma perseae*, and maintaining existing diagnostic protocols for quarantinable pests and pathogens. The project is also monitoring emerging biosecurity threats to allow rapid responses to any incursions that arise, and providing diagnostic support for other levyfunded avocado plant health projects.

As part of the work, the researchers are also looking at the diversity of scolytid beetles and associated fungi affecting avocados in Australia.

Review of national biosecurity plans (MT17003)

Key research provider: Plant Health Australia

Beginning in late 2017, this five-year project is for and funded by both the avocado and mango industries. It is responsible for reviewing and updating the industries' biosecurity plans. These plans are top-level documents that identify high-priority endemic and exotic pests, diseases and weeds, along with the risk mitigation activities required to reduce their biosecurity threat, and surveillance and diagnostic activities. They provide a strategic framework for industry and government to work together to improve preparedness for and response to these potential threats.

The current avocado biosecurity plan is available from Plant Health Australia at www.planthealthaustralia.com.au/avocados.

National avocado industry communications program (AV18003)

Key research provider: Avocados Australia

This investment continues to ensure Australian avocado growers remain up to date with the industry's latest R&D and marketing, plus emerging information, trends and issues both in Australia and overseas. By providing a consistent flow of relevant information, it supports informed business decisions and best-practices changes.

The communications program produces and maintains several communication channels, including but not limited to:

- » The industry's quarterly Talking Avocados magazine, which is distributed in hard copy and uploaded to the Avocados Australia website, with editions available at www.bit.ly/talking-avocados
- » Fortnightly e-newsletter *Guacamole*, with editions available at www.bit.ly/guacamole-edm
- » The Avocados Australia website (www.avocado.org.au), including maintenance of the industry's Best Practice Resource (BPR), the online portal that includes training programs and other industry management content (www.avocado.org.au/best-practice-resource)
- » Industry social media channels
- » Video content highlighting levy-funded R&D and how it's being used on farm
- » Media releases and other industry articles.

Avocado industry development and extension (AV17005)

Key research provider: The Queensland Department of Agriculture and Fisheries

This extension project is responsible for delivering a range of resources and events to help the avocado industry access, understand and implement best practice information. This includes information from current and previous Hort Innovation Avocado Fund R&D investments. The goal is to help improve orchard productivity, fruit quality and overall profitability.

Project activities include:

- » Delivery of face-to-face events, spanning regional forums, workshops for new growers and resellers, advanced management workshops, and study tours (as a result of COVID-19, recent regional forums have been replaced by a webinar series and other events have been postponed)
- » Engagement with wholesalers to extend information on fruit handling best practice and other industry information
- » The supply of information to industry consultants, for further distribution to industry
- » Reviewing of key industry practices and scientific literature.

The project is also responsible for delivering hard copy and online resources for growers, including:

- » Avo Alert emails monthly reminders sent to all growers, specific to each major production region, providing prompts about the orchard activities that should be considered in that particular month and the month ahead (subscribe by emailing admin2@avocado.org.au)
- » New and updated content for the industry's Best Practice Resource (BPR), as well as a new online forum for Q&As within the BPR (www.avocado.org.au/best-practice-resource)
- » Instructional posters and videos
- » Information on phenological cycles for new varieties and production regions
- » Updating of the Avocado Problem Solver Field Guide.

Avocado industry capacity building – Western Australia (AV17006)

Key research provider: The Department of Primary Industries and Regional Development, Western Australia

This investment supports the role and activities of a Western Australia Avocado Research Officer, to help develop the capacity and productivity of the state's avocado industry. The officer is tasked with delivering best practice management information to growers and other industry participants in Western Australia, supporting national development activities within the region, and helping address identified orchard productivity issues in the state through research activities.

Consumer behavioural and retail data for fresh produce (MT17015)

Key research provider: Nielsen

This multi-industry investment provides regular consumer behavioural data and insight reporting to a range of industries, through the Harvest to Home platform (www.harvesttohome.net.au).

The platform has a dedicated dashboard for avocados, making data and reporting easily accessible for industry participants. The information is intended to assist growers and supply chain partners in decision-making for their businesses and, for the wider industry, the data and insights are available to support strategic activities, as well as Hort Innovation Avocado Fund marketing plans.

Avocado industry and market data capture and analysis (AV16006)

Key research provider: Avocados Australia

Key activities this ongoing investment include:

- » Maintenance of Infocado, the industry's system for monitoring volumes of avocados dispatched and forecast to be supplied, with weekly and quarterly reporting (www.avocado.org.au/infocado)
- » Maintenance of OrchardInfo, which is used to monitor industry productive capacity and inform medium- to long-term production outlooks, with reports distributed to contributors (www.avocado.org.au/orchardinfo)
- » Other relevant local data collection, analysis and reporting for the industry, including to identify and understand trends, supply, demand and price relationships – publications include the yearly 'Facts at a glance' fact sheet (download from www.bit.ly/av16006)
- » Global trade data analysis.

Avocado export readiness and market access (AV17000)

Key research provider: Avocados Australia

Running since late 2017, this project acknowledges that a rapid increase in avocado production in Australia has been creating a need for the industry to access and develop new markets. The project is tasked with ensuring the industry is prepared to export and that there is capacity to pursue new and improved market access. It will also provide the necessary support for government negotiations with intended markets as required.

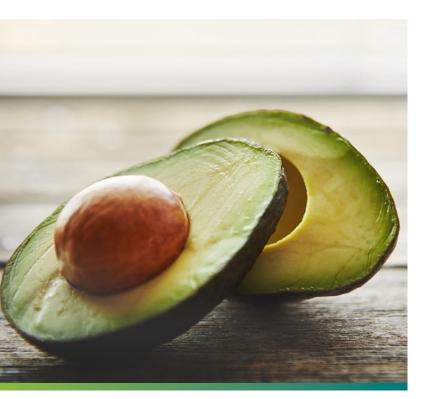
Taste Australia retail program (MT18017)

Key research provider: Produce Marketing Australia (PMA)

While activity was paused in 2020 due to COVID-19, this multi-industry investment has been targeting key international retailers with training and educational resources about selecting, storing, handling and displaying Australian fresh produce in store, including apples and pears.

Its work is an R&D component of Hort Innovation's Taste Australia retailer engagement efforts in international markets. Other R&D work under the Taste Australia banner includes *Taste Australia trade shows* (AM17010) — a parent program that supports attendance at relevant international trade shows, to further develop export opportunities in key Asian and Middle Eastern markets.

Taste Australia is the whole-of-horticulture brand used to increase the profile, sales and consumption of premium Australian horticulture products in export markets, and is a central component of Hort Innovation's Hort Frontiers Asian Markets Fund. Learn more at www.horticulture.com.au/hort-frontiers.



Enhanced National Bee Pest Surveillance Program (MT16005)

HORT FRONTIERS

Key research provider: Plant Health Australia

This investment is delivering a nationally coordinated bee pest surveillance program to help safeguard honey bee and pollinator-dependent industries in Australia. It builds on previous industry work, and includes upgrading sentinel hive arrays, strengthening relationships with surveillance operators, the introduction of new elements such as Asian hornet screening and more. The surveillance is designed to enable the early detection of high-priority pest incursions that can impact on honey bees, providing the best opportunity for successful pest eradication.

The avocado industry is one of several contributors to the work, and the program is part of the Hort Frontiers Pollination Fund.

Development and implementation of protocols to enable importation of improved honey bee genetics to Australia (MT18019)

Key research provider: CSIRO

This investment is laying the groundwork to allow the first importation of desirable honey bee germplasm into Australia, with a focus on sourcing genetic material from bees with a tolerance to Varroa mite and its associated viruses.

Import of and access to this material for breeding purposes will allow both the honey bee and horticulture industries to prepare for the threat of Varroa, by pre-emptively establishing Varroatolerant genetics in Australia's honey bee population. See www.bit.ly/mt18019 for more.

Xylella coordinator (MT17006)

Key research provider: Wine Australia

Xylella fastidiosa is an exotic and potentially devastating bacteria that impedes the movement of rising sap in plants. While it hasn't yet appeared in Australia it has proven catastrophic overseas and, were it to enter the country, it could threaten more than 350 commercial, ornamental and native plant species.

This multi-industry and multi-sector investment supports the role and activities of a national coordinator as part of a three year program to improve Australia's readiness for any potential incursion of the disease. This is a joint initiative between Hort Innovation and Wine Australia, through the Plant Biosecurity Research Initiative (PBRI). The PBRI is a collaboration between Australia's seven plant-focused Rural RDCs, Plant Health Australia, the Department of Agriculture and other contributors, to coordinate plant biosecurity RD&E funding and efforts. You can learn more at www.pbri.com.au.

Improving preparedness of the Australian horticultural sector to the threat potentially posed by Xylella fastidiosa (a severe biosecurity risk) (MT17006)

Key research provider: The Victorian Department of Jobs, Precincts and Regions

Adding to the PBRI's xylella work, this multi-industry investment will allow Australia to adopt world's best practice methods for detecting and identifying strains of the *Xylella fastidiosa* bacteria, should it come to our shores. As well as developing state-of-the-art diagnostic tools, technologies and protocols to screen plant material entering the country and to support active surveillance programs, it will provide associated training to technical staff in diagnostic laboratories.

The project's work will ultimately allow for quick and effective detection of what is considered to be the number one plant biosecurity threat to Australia and New Zealand, to facilitate a swift and sure response.

Avocado industry minor use program (AV16002)

Key research provider: Hort Innovation

Through this project, levy funds and Australian Government contributions are used to submit renewals and applications for minor use permits for the avocado industry as required. These submissions are prepared and submitted to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

For more on minor use permits, including a list of permits, see p15.

All current minor use permits for the industry are searchable at portal.apvma.gov.au/permits. Permit updates are also circulated in Hort Innovation's *Growing Innovation* e-newsletter, which you can sign up for at www.horticulture.com.au/sign-up.

Various data generation investments (ST17000, ST16006 and MT17012)

NOW COMPLETE (MT17012)

Key research providers: Peracto and Eurofins

The generation of pesticide residue, efficacy and crop safety data is required to support label registration and minor use permit applications made to the APVMA which, when approved, provide access to safe and effective chemicals for the management of pests, weeds and diseases.

These multi-industry projects continue to generate the data needed to support a range of label registrations and minor use permit applications and renewals across a variety of horticulture crops, including avocados. They include *Generation of data for pesticide applications in horticulture crops 2018* (ST17000) and *Generation of residue*, *efficacy and crop safety data for pesticide applications in horticulture crops 2017* (ST16006), both of which are supported by grant funding through the Australian Government's Access to Industry Priority Uses of AgVet Chemicals program.



Meanwhile, the project *Generation of residue data for permit applications 2017* (MT17012) drew to a close in 2019/20, with its work being used to support the renewal of a permit for the use of Paramite Selective Miticide in avocados, for the control of six-spotted spider mite.

Strategic Agrichemical Review Process (SARP) updates (MT19008)

NEW IN 2019/20

Key research provider: AGK Services

This short investment is facilitating a 2020 Strategic Agrichemical Review Process (SARP) for several horticulture industries, including the avocado industry. Providing an updated view of current priorities and gaps regarding pest, disease and weed control, the completed avocado SARP report will assist in directing ongoing efforts to ensure the availability of and access to effective chemical controls. This may relate to pursuing chemical registrations with agrichemical companies, or minor use permits.

Ex-post impact assessment – industry specific (MT18009)

NOW COMPLETE

Key research provider: AgEconPlus

During 2018/19, Hort Innovation engaged independent consultants to evaluate the impact of our R&D investments. This included a specific look at the impact of work within the Hort Innovation Avocado Fund, with a focus on projects completed within the five years to 30 June 2018, aligned to the current industry strategic investment plan. Seven random projects were assessed, revealing a range of economic, social and environmental impacts being generated for growers, supply chain participants and the community at large. The projects had an upper-bound benefit-cost estimated at 3.78 to one, and were expected to deliver some \$8.39 million in additional value to the industry and community over the next 30 years. Specific impacts identified ranged from additional profitability due to improved fruit quality, through to increased knowledge relating to pests and flow-on effects for communities in avocado growing regions.

Explore the full details at www.horticulture.com.au/mt18009.

Minor use permits

The Hort Innovation Avocado 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 for the management of pests, weeds and diseases.

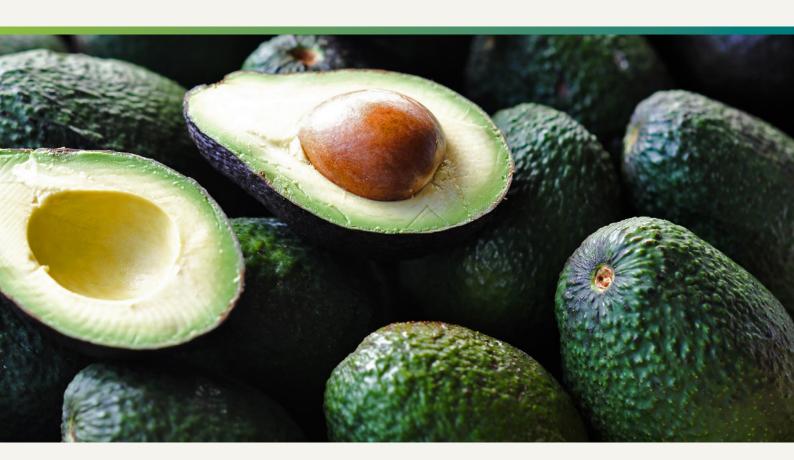
For full details on these activities and links to relevant information, visit www.bit.ly/minor-use-avocado.

Permits in 2019/20

During the 2019/20 financial year, a successful renewal for PER14618 was prepared by Hort Innovation and submitted to the APVMA, facilitated through the *Avocado industry minor use program* (AV16002).

Meanwhile, fall armyworm – an incredibly destructive exotic pest – was detected on Australian shores for the first time in 2020. To support readiness and protect the horticulture sector, Hort Innovation was involved in securing emergency permits for crop protection chemicals, with all horticulture industries having at least one effective option available to them by the end of 2019/20. For the avocado industry, PER89241, PER89291, PER89293 and PER89870 were obtained for this reason.

Details for these and all other permits can be found in the following table.



Current permits

Below is a list of minor use permits for the avocado industry, current as of 21 September 2020.

PERMIT ID	DESCRIPTION	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER
PER12450 Version 6	Trichlorfon / Specified fruit crops / Fruit fly	06-Oct-11	31-Jan-21	Growcom
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
PER14597 Version 2	Methomyl (Lannate L) / Avocado / Ectropis looper. (NSW and QLD only)	01-Apr-14	31-Mar-22	Hort Innovation
PER14618 Version 4	Abamectin / Avocado / Tea red spider mite and six-spotted mite (All states and territories except Vic) Please note: The use for tea red spider mite is now registered on various labels including Imtrade, Abamectin, Campbell Apollo, Ambush and others	09-Feb-15	30-Jun-25	Hort Innovation
PER13859	Dimethoate / Orchard cleanup – fruit fly host crops following harvest / Fruit fly	09-Feb-15	31-Jul-24	Growcom
PER81560	Chlorantraniliprole (Dupont Altacor Hort Insecticide) / Avocado / Lepidopteran pests including Ectropis looper and avocado leaf roller	13-May-16	30-Apr-21	Avocados Australia Limited (AAL)
PER85167 Version 2	Etoxazole (ParaMite) / Avocados / Six-spotted mite (WA only)	26-Sep-17	30-Sep-21	AAL C/Hort Innovation
PER85877	Paclobutrazol (soil drench application) / Avocado orchards (high density plantings only) / Vegetative growth management	29-Aug-18	31-Aug-23	AAL C/Hort Innovation
PER89241	Spinetoram / Various including avocado / Fall armyworm	06-Mar-20	31-Mar-23	Hort Innovation
PER89281	Chlorantraniliprole (Coragen/Altacor Hort Insecticide) / Avocado / Fall armyworm	13-Mar-20	31-Mar-23	Hort Innovation
PER89293	Methomyl / Avocado / Fall armyworm	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

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.

Marketing report

Hort Innovation is responsible for investing the avocado marketing levy into a range of activities to drive awareness and consumption, under the Hort Innovation Avocado Fund. Here's a quick look at some of the activities and achievements of 2019/20.

The avocado marketing program aims to increase domestic demand for Australian avocados by at least 20 per cent by 2021. There is a focus on reminding consumers of the health benefits of avocados, inspiring them with delicious meal ideas, and building their confidence in selecting, storing and ripening avocados at home.

Television

In 2019/20, television played a key role in driving mass awareness of avocados and ensuring key messages for Australian Avocados were established in both metro and regional markets. The goal was to reach 30 per cent of the target audience (grocery buyers aged 25 to 54) at least twice with the ad, across several key metro and regional networks, including Seven, Nine, Ten, WIN, Southern Cross Austereo (SCA) and Prime. Across both metro and regional areas, the campaign successfully reached this goal. Australian Avocados also received over 1,400 bonus placements across the campaign across regional channels.

The Australian Avocados TV campaign launched in market in early March 2020, securing a spot in Channel 9's Married at First Sight and aligning with the top peak programming the networks had on offer such as My Kitchen Rules, Australian Survivor and Channel Seven's Doctor Doctor. Driving efficiencies through daytime TV, Australian Avocados featured in general entertainment programming such as Home and Away, First Dates, GoggleBox and Dancing with the Stars, which proved to be a consistently rating hit with the target audience. Finally, the Avocados TV buy was underpinned by the news and current affair programming slate of the networks including Seven News, Nine News, A Current Affair and The Project.

Digital

Supporting the television campaign, there was Australian Avocados digital activity from July to December 2019 and March to May in 2020. This consisted of Australian Avocados' standard 15-second video ad placed across catch-up television and six-second



ads across YouTube. This campaign delivered strongly against its target of a 70 per cent completion rate (videos being watched the whole way through) and 70 per cent viewability rate (videos that are seen by the consumer). The catch-up television strategy had an overall completion rate of 99 per cent and a viewability rate of 92 per cent, while serving out more than 660,000 opportunities for people to see the content. YouTube had a completion rate of 92 per cent across more than 4.4 million opportunities for people to see, and more than 850,000 opportunities to see with a 95 per cent completion rate.

Cinema

The Australian Avocados 15-second ad was also shown in cinemas to drive consideration for avocados and reinforce the creative message. The activity was split over two periods. The first ran from July to October 2019 and the second from January to February 2020. Each period was intended to have two bursts of a four-week period. However, in 2020, the activity drew to a close early due to COVID-19, with the remaining funds reinvested into digital activity. The ad was shown ahead of movies ranging from Toy Story 4, Pets 2 and The Lion King, to Fast & Furious, Dr Doolittle, Birds of Prey, Jumanji and Boys for Life. The activity was supported by digital screens in the cinema foyer providing an additional touchpoint.

Out of home

To extend reach and drive the frequency of key messages, Australian Avocado ads were placed on panels on large format billboards, street furniture and retail panels across two bursts of activity, with the first burst from August to November 2019 and the second burst from February to April 2020. The objective of out of home activity is to drive top of mind awareness along the path to purchase.

australian avocados ripe and ready to eat australian avocados avocados www.australianavocados.com.au

Across the retail channel Australian Avocados were featured on 804 screens nationwide across a variety of shopping centres to target grocery buyers aged 25 to 54. This activity reached more than 3.5 million people an average of 4.9 times for the landscape panels and 12.2 times for the portrait panels. These placements were crucial as a last point of contact for buyers on their path to purchase.

Large format panels ran in NSW, VIC, QLD and SA in high traffic areas on the path to purchase. A total of 13 were bought with an added 13 bonus panels. Street furniture was also leveraged as an important medium along the path to purchase. This activity reached over 3.5 million people on average 4.7 times. 548 panels were bought as part of the media buy and there were 62 added bonus panels.

Social media

Social media was used to consistently remind target audiences to buy Australian avocados by delivering reasons why avocados make everything better. The 'always on' approach to this activity ensured avocados remained top of mind for consumers throughout the year.

Australian Avocados delivered more than 30 million impressions via social media in 2019/20 via the campaign's Facebook

(www.facebook.com/AustralianAvocados) and Instagram (@AustralianAvocados) pages. These activities exceeded all key performance indicators and generated over 4.8 million engagements including 3.7 million video views.

Despite a seven per cent decrease on media spend compared to last financial year, the 2019/20 campaign delivered a 13 per cent increase in impressions and a 25 per cent increase in engagements. Instagram stories were used for the first time during this campaign and this move drove strong results and was the most cost-effective social channel for reach. There were more than twice as many links to recipes (75k) in 2019/20 compared with 2018/19, partly as a result of the introduction of Instagram stories advertising.

The Australian Avocados Facebook page maintained its audience size of 194,910 in 2019/20. Highlights included securing 13 million impressions and 2.7 million engagements at an engagement rate of six per cent, up from two per cent in 2018/19. Instagram went from strength to strength with a 39 per cent growth in fans in 2019/20. Highlights included 17.2 million impressions and 2.1 million engagements at an engagement rate of nine per cent, up from two per cent in 2018/19.

The use of social media influencers ensured Australian Avocados produced new and relevant content throughout the year and produced more than 19 million opportunities for people to see and nearly 4.5 million engagements. Two top tier foodie and health influencers were engaged this year: Lyndi Cohen (dietitian, TV nutritionist and author) and Luke Hines (trainer, author and clean eating foodie) to create and share avocado recipes. Recipes were amplified through traditional media channels and Australian Avocados owned channels, coinciding with the public relations campaigns Avotherapy and Varieties (see p20). Three micro influencer campaigns were held to create user-generated content which also coincided with the public relations campaigns.

Public relations (PR)

The objective of the PR campaign was to reach out to media to in turn educate Australians on the similarities and differences between Hass and Shepard avocado seasons. The aim was to drive awareness of how to select avocados and provide inspiration on how to use the two varieties to ultimately turn Hass lovers into Shepard lovers as well, and Shepard lovers into Hass lovers too. The campaign targeted the traditional dip in sales during the transition period between Shepard and Hass avocados. Between February and May 2020, 159 pieces of media and social media coverage were secured across a variety of platforms including TV, radio, print, online and social media resulting in a total of 30.3 million opportunities to see.

Two bursts of media activity were planned to announce the seasons for Hass and Shepard avocados underpinned by research that identified gaps in consumers knowledge about Shepard avocados. The PR campaign leveraged the high profile of the influencer Luke Hines to be a spokesperson for the brand and to create a new suite of recipes.

Taste.com.au partnership

Australian Avocados partnered with Taste.com.au to feature Australian Avocados in recipe content, Taste TV videos, gallery content and competitions. Avocados featured in three Taste TV videos which were viewed over 614,000 times. They were also featured in two recipe galleries, which had over 45,000 page views and showcased a variety of inspiring recipes, and two recipe collections which were viewed over 75,000 times. The best performing recipe was the 'Healthier Snickers Dessert Cups' recipe which overdelivered in video views by 332 per cent at 332,365 views.

The Australian Avocados website

The Australian Avocado website (www.australianavocados.com.au) is growing in popularity with 278,217 users in 2019/20, up 62.36 per cent from 2018/19. From a demographic point of view, 75 per cent of users are female and 25 per cent male. Over 494,000 pages were viewed this year, up 63.42 per cent from last year. The highest traffic was to the recipe page with 45,000 visitors and the Guacamole recipe page which saw 42,702 visitors. There is consistent traffic

to the website between 10am – 8pm. However, there is a spike between 3pm – 6pm when people are looking for recipes and meal inspiration.

COVID-19 response

In response to the changing consumer landscape as a result of COVID-19 and restrictions in place across the country, Australian Avocados moved quickly to reevaluate marketing activities in 2020. This ensured that the campaign was timely, relevant, and remained impactful among shoppers and consumers during such a unique period. Where relevant, existing assets were used to support key messages of health, simplicity and taste to align with consumer interests and preferences during COVID-19 restrictions.

Due to the impacts of food service closures, Australian Avocados responded with a campaign to dial up communications encouraging more in-home consumption of avocados. This included identifying two immediate needs for Australian Avocados to drive in-home consumption:

 Ensuring consumers understand how and why avocados can positively benefit them and their health during the COVID-19 lockdown



 Educating consumers on how to use avocados at home, Shepard avocados and the differences from Hass (and the change in season), and the versatility of the product across a range of meals/occasions.

A review of the mix and approach to media ensured approaches were still fit for purpose off the back of COVID-19 and to ensure top of mind awareness of Australian Avocados and drive demand for in-home consumption.

Television: The investment from the final week of scheduled TV activity was shifted into digital channels (where people were spending their time and results were being seen) to further engage with consumers and drive in-home consumption.

Radio: More radio spots were shifted into breakfast and afternoon programming (when more people were engaged), and investment was also moved into streaming services, to capture both those at home and those essential workers still travelling to work and using their cars.

Out of home activity: Street furniture, large format, train station billboards and transit outdoor media had been in market for some time already and as the activity could not be cancelled it continued as planned. It remained an effective channel while there were people still active. Retail panels remained an important part of the campaign as supermarkets became important sources of inspiration for consumers.

Cinema: With cinemas closing during lockdown, all cinema activity was cancelled. These funds were reinvested into a partnership with Taste.com.au.

Taste.com.au: A partnership was entered into with Taste.com.au, as described on p19.

Varieties campaign: The varieties education campaign had begun when COVID-19 started to have an impact in Australia and the messaging was shifted slightly in response to include





australian avocados.com.au



a greater focus on health and simple recipe inspiration. Further, an exclusive avocado cooking segment with Luke Hines scheduled for Studio 10 changed from an in-studio appearance to socially distanced filming in his kitchen.

Social media: Social media content was reviewed to ensure communication of correct messages and appropriateness of the tone of voice during this time. Messaging was shifted more strongly towards health benefits of avocados and simple cooking inspiration at home, tapping into the love of smashed avo on toast and guacamole as avo staples. Specifically, campaign changes included additional posts focussed on the #smashanavoathome activity, including videos from Australian avocado growers sharing how they #smashanavoathome.

#smashanavoathome campaign:

Extending beyond social media, in April this new campaign was launched, also involving public relations and paid influencers to support the purchase of avocados given food service closures due to COVID-19. The #smashanavoathome campaign focused on health, consumption occasions including breakfast, and messaging around the simplicity and versatility of the avocado. The campaign included:



- Media outreach that encouraged Australians to engage in 'Broadband Brunching' and #smashanavoathome, supported by new avocado on toast recipes utilising simple ingredients and pantry staples
- » Two partnerships to make it easier for consumers to order in their avocado staples, including partnerships with Sonoma Bakery and alcohol delivery service Boozi.

EXPORT MARKETING

Australian Avocados were showcased under the Taste Australia program in Malaysia during 2019/20. This included included in-store sampling and point of sale materials, media events, retailer advertisements, retailer social media collaborations, ready to eat food collaborations with retailers' in-store restaurants and lastly a 'Eat Now, Eat Soon, Eat Later' supermarket display program. In total, 107 sampling sessions were held across Jaya Grocer, AEON and Village Grocer, with popular recipes for shoppers being avocado smoothies and guacamole. The participating

retailers reported an uplift in sales between 17 per cent and 122 per cent. Under the Eat Now, Eat Soon, Eat Later merchandising program, a total of 32 stores took part between Jaya Grocer and Village Grocer, reporting a sales uplift of 72 per cent and 51 per cent respectively.

Other activities in export markets during the financial year:

» In July 2019, the 'Tasty & Nutritious' Australian Avocado campaign was launched to announce the start of the new season as well as the versatility and health benefits of Australian Avocados. More than 30 key media

- figures attended this event, achieving 61 pieces of media coverage across print and online.
- » Social media was used to educate consumers on the health benefits of Australian avocados and to provide fun and engaging content to further their understanding of the farm to plate story. The Taste Australia Facebook and Instagram platforms were used as a promotions tool, as well as partnering with Village Grocer and Jaya Grocer on their own channels. In total, a reach of 80,000 was achieved.







GOOD MOOD FOOD

THE GOOD MOOD FOOD

In 2019/20, Hort Innovation created The Good Mood Food campaign to deliver an immediate and enduring behaviour-change message to motivate more Australians to eat more fruit, vegetables and nuts.

With the central message that these Aussie horticulture products are natural mood boosters, the campaign was developed to support the sector through the impacts of recent challenges including bushfires, drought, floods and of course COVID-19 – the effects of which continue to be felt in consumer spending and purchasing behaviour.

Initially running between May and November 2020, The Good Mood Food has been seen across the country on TV; in newspapers; on radio and music streaming services; online (including on YouTube and TV catch-up services); on social media; and via retail partnerships and advertising screens near supermarkets.

In July, 56 per cent of surveyed consumers said The Good Mood Food 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.

Learn more at www.horticulture.com.au/the-good-mood-food.

Financial statement

Financial operating statement 2019/20

	R&D (\$)	MARKETING (\$)	TOTAL (\$)
	2019/20 July – June	2019/20 July – June	2019/20 July – June
OPENING BALANCE	2,697,042	2,253,701	4,950,743
Levies from growers (net of collection costs)	2,919,647	4,503,978	7,423,625
Australian Government money	1,943,591	_	1,943,591
Other income*	40,375	34,695	75,070
TOTAL INCOME	4,903,613	4,538,673	9,442,286
Project funding	3,279,715	3,206,926	6,486,641
Consultation with and advice from growers	23,788	12,217	36,005
Service delivery – base	151,411	147,344	298,755
Service delivery – shared	222,268	211,571	433,840
Service delivery – fund specific	210,000	200,000	410,000
TOTAL EXPENDITURE	3,887,182	3,778,058	7,665,240
Levy contribution to across-industry activity	_	_	_
CLOSING BALANCE	3,713,473	3,014,316	6,727,789
Levy collection costs	22,137	32,782	54,919

^{*} Interest, royalties

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