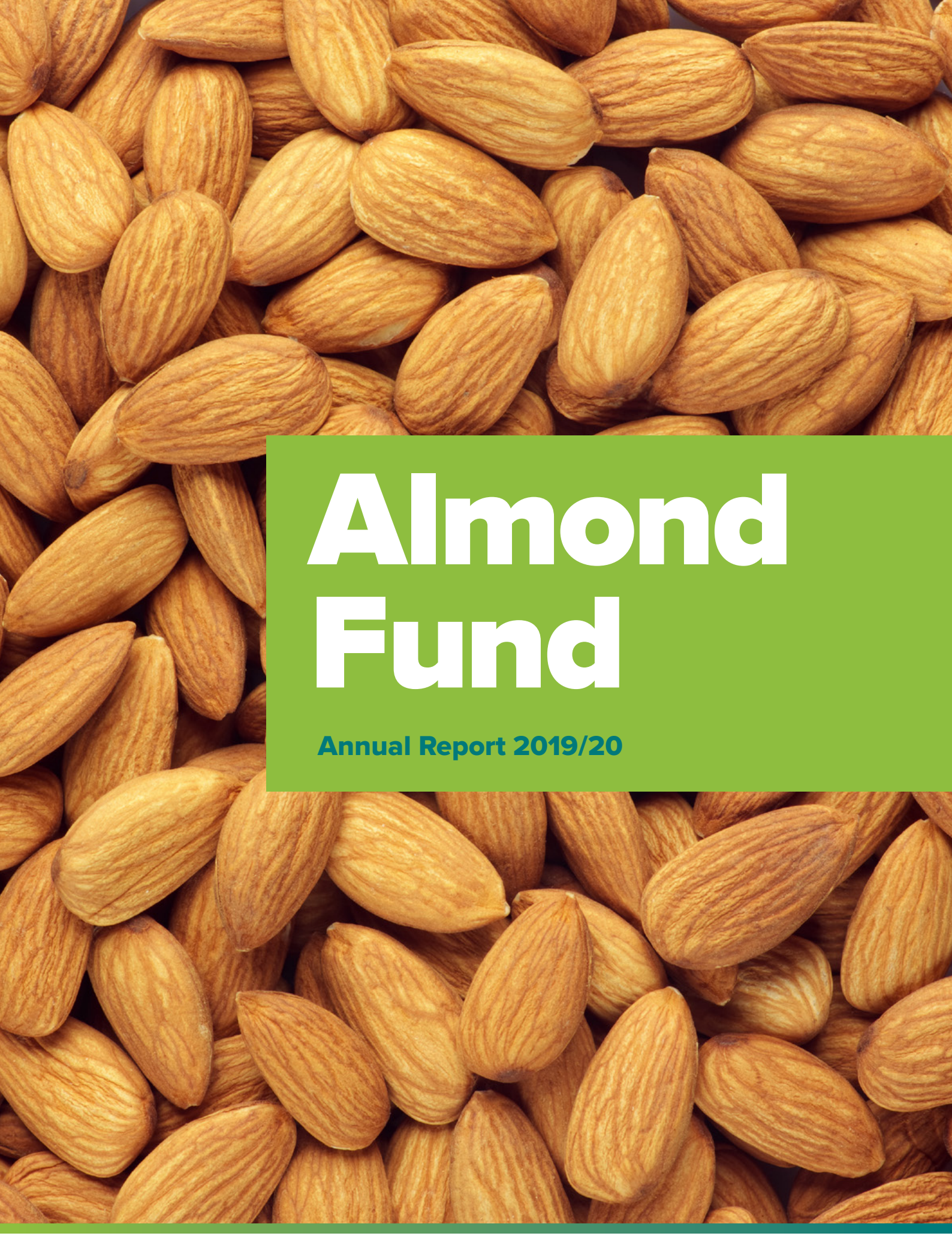
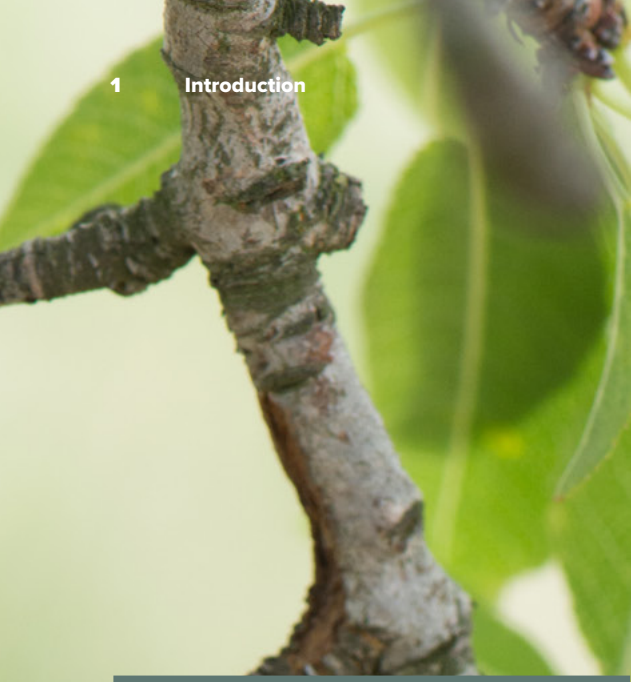


Almond Fund

Annual Report 2019/20

Hort Innovation
Strategic levy investment

ALMOND FUND



Contents

About Hort Innovation and the Almond 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 statutory and voluntary almond R&D levies, together with Australian Government contributions, into key initiatives for growers, through the Hort Innovation Almond Fund. We're extremely proud of the work we do to help drive productivity, profitability and demand for almond 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 Almond Fund remained strong. While some activities inevitably changed under COVID-19, it was still a record year of investment. Some $6.24 million was invested in R&D for the industry – up from $4.18 million last year – including into 11 new projects. Read on for an overview of what was delivered.

2019/20 Almond Fund snapshot

$6.24M
invested in R&D

35
active R&D investments

$3.35M
in levies collected
by the government and almond collective industry fund and passed on to Hort Innovation for investment

Did you know?

12.4%
Almond production value grew at an average annual rate of 12.4 per cent over the five years to 2018/19 to reach $835 million – making almond the second largest horticulture industry by value

58%
Almond exports have driven recent growth, with 58 per cent of total production volume exported in 2018/19

½
Victoria is responsible for around half of Australia's total almond production volume, with New South Wales, South Australia and Western Australia also contributing

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.

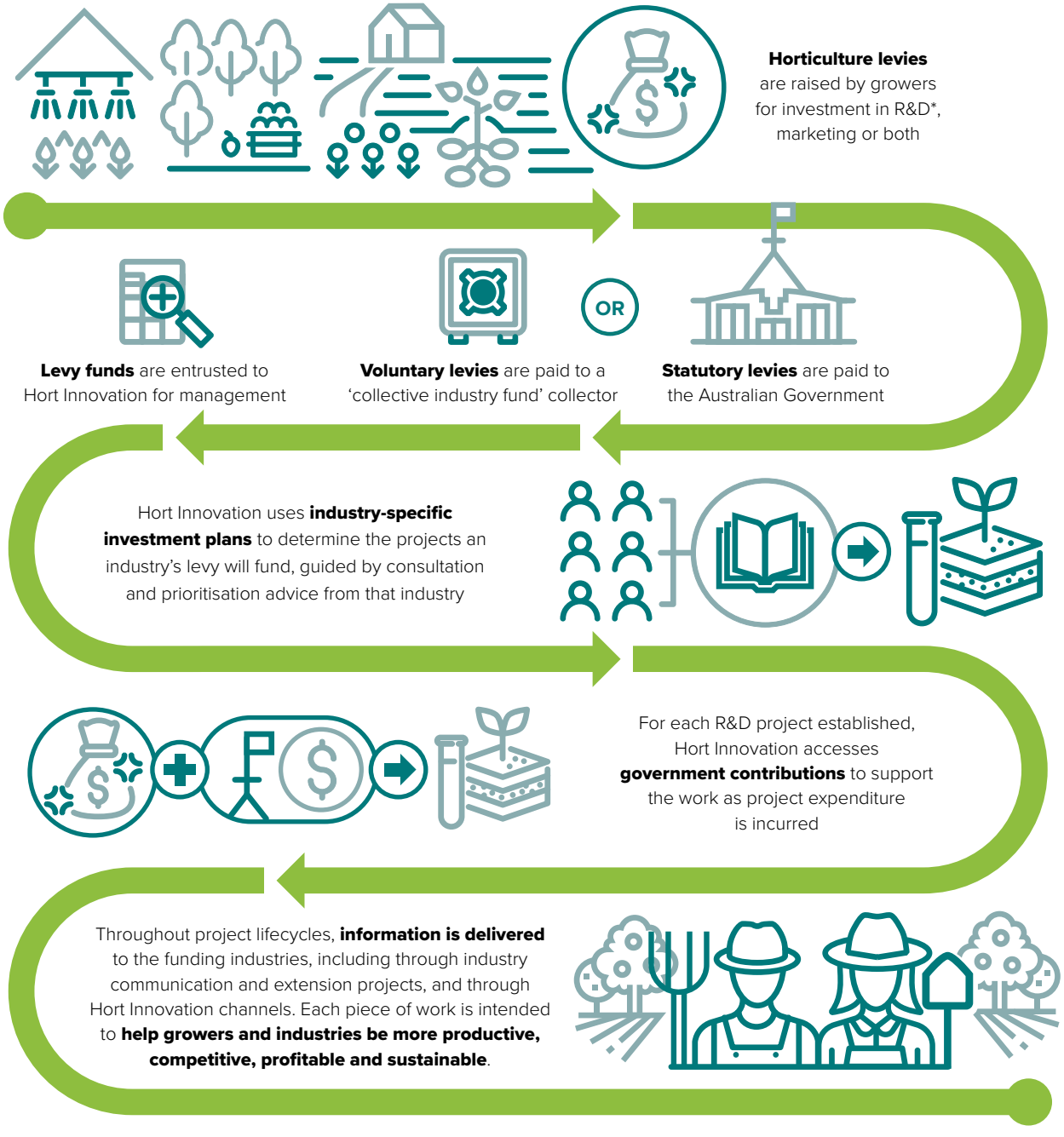
Just some of the things delivered for you during the year:

- ✓ **Access to new, self-fertile almond varieties**, developed through the industry's long-running breeding and evaluation program – read more at www.bit.ly/self-fertile
- ✓ **The 2018/19 *Almond Insights* publication**, providing an up-to-date assessment of the industry, annual crop forecast and more at www.bit.ly/almond-insights
- ✓ **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 *In a Nutshell* emails, the industry website, events and more – see industry.australianalmonds.com.au or p8
- ✓ **The almond Harvest to Home dashboard** providing regular household purchase data and insight reporting, at www.harvesttohome.net.au
- ✓ **The Good Mood Food** across-horticulture campaign to support industries through the effects of recent times (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 Almond 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 almond statutory and voluntary R&D levies were invested this way during the year, guided by the Almond Strategic Investment Plan and advice from the industry's investment advisory panel.



* Encapsulating extension and international trade

To learn more about funding specific to the Hort Innovation Almond Fund, visit www.horticulture.com.au/almond. During the year, other sources of funding were also used to support activities for the industry, including 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 Almond 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/almond-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/almond in 2021.

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

You can see how investment expenditure in the Hort Innovation Almond Fund aligns to the industry's current strategic investment plan with the interactive analysis information available from www.bit.ly/almond-investment. The analysis shows the allocation of funding against each of the almond plan's outcomes, and gives an indication of the projects that are aligned to each outcome.

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

NEW INVESTMENTS IN 2019/20	
AL17008	Market access, maintenance and development program
AL18001	Australian almond industry communications program
AL19000	Almond Centre of Excellence experimental and demonstration orchard
AL19001	Almond industry innovation and adoption program
AL19002	Market access, maitenance and development program
AL19004	Economic analysis of the almond industry
AL19005	Australian almond industry statistics and data collection 2020-2022
MT19005	Horticulture trade data
MT19008	Strategic Agrichemical Review Process (SARP) updates
MT19012	Industry-specific impact assessment program
PH17001	Development of non-destructive methods and systems for the assessment of hive health

ONGOING INVESTMENTS IN 2019/20	
AL13009	Better tree performance and water use efficiency through root system resilience
AL16002	Almond minor use permit program
AL16005	An integrated disease management program for the Australian almond industry
AL16006	Evaluation of potential prunus rootstocks for almond production – stage 2
AL16007	Educating health professionals
AL16009	An integrated pest management program for the Australian almond industry
AL16700	Australia almond industry conferences and field days 2017-2021

ONGOING INVESTMENTS IN 2019/20 *(continued)*	
AL17005	National almond breeding and evaluation program
LP16001	Engaging leaders in the Australian horticulture industry
MT16005	Enhanced National Bee Pest Surveillance Program
MT17015	Consumer behavioural and retail data for fresh produce
MT18011	Ex-post impact assessment*
MT18018	Generation of data for pesticide permit applications in horticulture crops 2019/20
MT18019	Development and implementation of protocols to enable importation of improved honey bee genetics to Australia

* This multi-industry project was a key monitoring and evaluation investment during 2019/20 – we encourage you to find the full details at www.horticulture.com.au/mt18011

INVESTMENTS COMPLETED IN 2019/20	
AL14005	Identifying factors that influence spur productivity in almond
AL14007	Almond productivity: Tree architecture and development of new growing systems
AL16000	Australian almond industry communications program
AL16001	Australian almond industry innovation and adoption program
AL16003	Almond industry statistics and data collection 2017-2019
AL16010	Market development program – Europe
AL16701	Almond study tour
AL17004	Almond irrigation best practice management
MT16010	Horticultural trade data 2017-19
ST16008	AgVet collaborative forum

R&D report

Take a closer look at some of the key investments in the Hort Innovation Almond Fund during 2019/20. You can also visit www.horticulture.com.au/almond 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.

Almond Centre of Excellence experimental and demonstration orchard (AL19000)

NEW IN 2019/20

Key research provider: Almond Board of Australia

This investment is funding the infrastructure and maintenance needed for the Almond Centre of Excellence experimental and demonstration orchard, a collaboration between Hort Innovation and the South Australian Government for the almond industry. This includes items such as irrigation systems, machinery, shed facilities, orchard preparation, trees, training aids for plantings, labour and water.

Under the project, the experimental orchard will come to have plantings covering traditional varieties and tree densities that can be used to investigate how to improve current commercial practices, as well as high-density new genotypes and tree architectures that will offer the potential for new methods to be explored.

Almond industry innovation and adoption program (AL19001)

NEW IN 2019/20

Key research provider: Almond Board of Australia

Following earlier industry development investment ***Australian almond industry innovation and adoption program*** **(AL16001)**, which ended in early 2020, this latest iteration of the program continues to identify and develop initiatives to address the capacity-building requirements of the almond industry.

The new program has a particular focus on delivering information and extension services at a regional level to meet local issues and opportunities, while also being part of a national approach that is strategic and coordinated based on whole-of-industry needs. It continues to support the roles and activities of the Almond Board of Australia's industry development team, which includes an Industry Development Manager, a Senior Industry Development Office and an Industry Development Officer.

While project AL16001 also supported an entomologist to work with the development team, and to provide a point of contact for researchers and industry regarding pest research, the new version of the innovation and adoption program supports a farm manager for the Almond Centre of Excellence experimental orchard.

At a broad level, as in project AL16001, the project team's work under AL19001 continues to include:

- Industry fields days, workshops, tours and training initiatives, which are advertised in industry channels
- Input into the industry communications program
- Production of fact sheets to take knowledge from projects to growers
- Global scans of relevant R&D to keep industry aware of international developments
- Face-to-face and other direct engagements with industry participants
- Establishment and management of demonstration plantings at the Almond Centre of Excellence, in conjunction with other projects, to promote best practise
- Support for and participation in other industry R&D projects as required
- Engagement across a range of R&D and industry committees.

For a summary of past project AL16001 activities, and to access the project's resources and final research report, visit www.bit.ly/al16001.

As a result of COVID-19, face-to-face activities normally conducted by this project have temporarily ceased due to restrictions. Grower tours and regional meetings have been replaced with webinars and videos, and one-on-one liaison with growers has been conducted via phone calls, Zoom meetings and emails.

Almond industry communications program (AL18001)

NEW IN 2019/20

Key research provider: Almond Board of Australia

This program follows the now-concluded ***Australian almond industry communications program*** **(AL16000)**. It continues to provide a broad range of timely information to Australian almond growers and other industry stakeholders, to keep the almond community well informed and in a place to make improved business decisions.

Like its predecessor, the latest communications program continues to produce and maintain the *In A Nutshell* quarterly industry newsletter, with the latest editions available at www.bit.ly/nutshell-newsletter, as well as the industry website (www.australianalmonds.com.au) and its grower/levy payers' portal (industry.australianalmonds.com.au).

The project is also responsible for producing media releases promoting key research findings and events, plus it uses Facebook (www.facebook.com/AlmondBoardofAustralia) and Twitter (www.twitter.com/AusAlmonds) as well as video and face-to-face communications.

For a summary of previous project AL16000's activities, and to access the project's resources and final research reports, visit www.bit.ly/al16000.

Australian almond industry statistics and data collection 2020-2022 (AL19005)

NEW IN 2019/20

Key research provider: Almond Board of Australia

This project continues the collection of industry statistics, and makes them readily available to almond growers and other industry stakeholders. This information is intended to allow almond businesses and the broader industry to make timely and effective decisions in planning and resource prioritisation.

Specific activities include ongoing collection of domestic and international almond statistics, annual crop forecasts, monthly export position reports and the production of the annual *Almond Insights* statistics report. These resources are available from the Almond Board of Australia website at industry.australianalmonds.com.au.

With the previous iteration of this work, ***Almond industry statistics and data collection 2017-2019*** **(AL16003)**, coming to an end in the financial period, you can read about its achievements and how they were used for the benefit of the Australian almond at www.bit.ly/al16003.

Economic analysis of the almond industry (AL19004)

NEW IN 2019/20

Key research provider: RMCG

To help demonstrate the economic contribution of the almond industry to rural communities and Australia as a whole, this project is collecting data across the almond supply chain to form a picture of expenditure, production patterns and also performance against environmental indicators.

This information will provide almond growers and other supply chain stakeholders with up-to-date knowledge of how the industry supports regional economic activity and employment, as well as its impact on the environment. This knowledge will allow the almond industry to make better business decisions as a result of clearer understanding of how it uses resources and what economic benefits it provides.

Market access, maintenance and development program (AL17008 and AL19002)

NEW IN 2019/20

Key research provider: Almond Board of Australia

Projects AL17008 and AL19002 work together to support the continued development of export markets for Australian almonds by facilitating industry representation in key international markets. This includes representation at trade exhibitions plus in-market missions, trade education programs overseas, and other activities such as communications with nut importers, wholesalers, retailers and food manufacturers.

A major challenge for the almond industry is to develop markets for the next large surge in production, which has been forecast at an additional 20,000 tonnes by 2027. Broadly, these projects contribute to the development of almond export programs in response to these growing export demands. They include work in emerging markets including Thailand and Chile, as well as in China, Japan, Indonesia, India and New Zealand.

Identifying factors that influence spur productivity in almond (AL14005)

NOW COMPLETE

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

This project, which ran from 2015 to 2019, investigated the effects of key environment and management factors on spur productivity and yield in almond trees, including the effects of irrigation, nitrogen levels and light interception. The study looked at Nonpareil and Carmel cultivars and was conducted on a commercial orchard at Lindsay Point in Victoria.

Irrigation and nitrogen reductions increased yield

The researchers reduced water irrigation levels at the trial site from 14 to 10ML/ha per season, equating to a 30 per cent reduction, and nitrogen levels were reduced from 300 to 180kg/ha per season, or a reduction of 44 per cent. They found the reduced volumes were still high enough to sustain the requirements of the trees and did not have overall negative effects on the trees, yield or spur productivity.

Instead, a reduction of water decreased the canopy density due to overall leaf fall, allowing for more light to reach the lower spurs. The enhanced light exposure increased the fertility of buds in the internal and lower regions and was found to be a key factor in spur fertility and productivity. Lower water supply increased the total percentage of spurs that carried fruit by seven per cent on Nonpareil trees and five per cent on Carmel trees.

Meanwhile, applying less nitrogen increased the percentage of Carmel spurs that bore fruit by five per cent, but only had a minor effect on fruiting spur numbers in Nonpareil.

Light interception

Spurs need to be exposed to sufficient light to influence the likelihood of flower bud initiation and development, and fruit retention. Spurs were generally more likely to be reproductive when located in the upper parts of the canopy due to the increase in light exposure in this zone. This highlights the importance of enhancing light exposure to the mid to lower tree areas – largely through reduced irrigation.

Consumer taste testing

Kernels from the trial site's harvest were tasted by some 300 consumers to see if the nuts from the Nonpareil trees in the trial were perceived as different to nuts from a control group. Around a third of the tasters could detect differences, showing that irrigation and fertiliser supply treatments changed the properties of kernels somewhat – however the initial testing didn't provide an indication what the basis of distinction might be, or whether there was preference for one lot of kernels over the other.

Full details can be found in the project's final research report, available at www.bit.ly/al14005.

Almond productivity: Tree architecture and development of new growing systems (AL14007)

NOW COMPLETE

Key research provider: Plant & Food Research Australia

This investment ran from 2014 to 2019 to help growers in intensifying almond orchard operations across south-east Australia. The work evaluated a low-cost pruning system to produce almond trees with narrower, more light efficient canopies that, with minimal additional cost, could be used to increase orchard productivity. Here's what it found:

- Narrow pruning of trees at two years of age (as a once-off practice) was tested as a new approach to create light efficient and narrower canopies suitable for high density orchards. It proved a low-cost option for managing trees in rows planted closer together than is traditional, thus enabling higher orchard yields.
- Planting 'unpruned' central leader trees was also an effective step in producing narrow tree canopies. Other benefits of planting central leader trees were the notable resilience to wind damage and ease of maintaining a narrow canopy.
- Trunk girdling on young trees as a means to promote flowering and increase cropping was unsuccessful, however the long-term response to girdling was a reduction in tree size with no adverse effect on yield, which may be of interest to growers as an alternative to growth-controlling rootstocks.

Continued >>

- While selective limb removal pruning and reflective ground covers enhanced light and increased cropping in the lower canopy of mature cropping trees in conventional orchards, it did not increase total yield over the four-year duration of the study. Fruit in these lower zones were not ready for harvest until two to three weeks after the main crop, causing potential issues downstream for harvesters and processors. The researchers noted that different solutions will be required to ensure higher productivity and uniform crop maturity.
- Regarding varieties, high yields were seen on young trees of the new self-fertile cultivars Carina and Shasta. However, high yields put a strain on young trees to support large crops. Narrow pruning with a combination of dormant and in-season pruning starting in year two helped mitigate some of these problems.
- Further identification of successful tree architecture was explored with almond breeders in Australia, California and Spain. This promoted discussion on how breeders might change selection criteria when choosing breeding parents and when screening large seedling populations.

The project team ultimately developed a model system for intensification of almond orchards. Based on trees planted in rows 4.5m wide, with 2m between trees along the rows, it will allow for trees to grow to 5m tall and still be suitable for shake harvesting with uniform crop maturity. View full details in the project's final research report at www.bit.ly/al14007.

Almond irrigation best practice management (AL17004)

NOW COMPLETE

Growing almonds requires large amounts of water. This contributes significantly to operating costs, particularly for orchards that are required to lease their water. Efficient water use guards against periods of water scarcity and helps growers minimise production costs while maximising yield.

Australian almond farms predominantly use drip irrigation systems which are believed to be more efficient than sprinklers and work well with tree-shaking harvest practices. General information about irrigation management and maintenance procedures is readily available, however many almond irrigation systems do not perform to the expected standards. A key problem is the flow rate from individual drippers within an irrigation valve unit.

This project was designed to:

- Scope the extent of the problem, and provide general feedback to the whole industry
- Provide tools so that individual almond growers can assess and audit the performance of their own irrigation systems
- Direct almond growers to relevant information sources to help improve on-farm irrigation efficiency.

Through conducting an audit of drip irrigation systems in almond orchards across the Northern Adelaide Plains, Riverland, Sunraysia and Riverina districts, the research team found that the two most important management factors for good drip irrigation system performance are dripline age and flushing frequency.

To address these, the team have recommended businesses conduct regular system performance assessments to monitor for a decline in valve unit performance, which may indicate the need for dripline replacement. They also recommended drip irrigation systems be flushed frequently, to prevent gradual build-up of debris in the system.

A Drip Irrigation Evaluation Tool was developed by the team for growers to test and compare the performance of their systems' irrigation valve units against industry audit data. This tool, together with further project information, is available from irrigation.australianalmonds.com.au.

Almond study tour (AL16701)

NOW COMPLETE

Key research provider: Almond Board of Australia

This investment, which ran from 2017 to 2019, facilitated interaction between the Australian almond industry and researchers and other industry experts in the United States and Spain, through study tours, international conference attendance and other engagements.

Australia's almond industry significantly benefits from the sharing of knowledge and technologies with the international almond community – for example, our production systems and processing capacity have been enhanced by technology developed in California and research into rootstocks and growing systems from Spain.

From this iteration of the study tour program, insight was gained for the development and implementation of an industry sustainability program (the Australian Sustainable Almond Program); updates were shared on the development of new varieties, rootstocks and harvesting equipment technologies; the industry found support in working through market access and other trade issues; and more.

Full details can be found in the project's final research report at www.bit.ly/al16701.

Market development program – Europe (AL16010)

NOW COMPLETE

Key research provider: Almond Board of Australia

From 2018 to early 2020, this investment worked to strengthen the European export market for Australian almonds through a coordinated and collaborative schedule of international trade exhibitions, seminars and communications.

It supported the Australian almond industry presence at major European food trade exhibitions including the Anuga trade fair in Germany in 2017 and 2019, and SIAL Paris in 2018. These events saw Australian growers and exporters co-exhibiting under the Australian Almonds brand, promoting Australian nuts and strengthening relationships with new and existing buyers.

The project also delivered regular industry updates to overseas audiences, including the Guide to Australian Almonds.

Full details, including the project's final research report, are available at www.bit.ly/al16010.

National almond breeding and evaluation program (AL17005)

Key research provider: The University of Adelaide

This investment continues the almond industry's targeted breeding program to develop new varieties with improved production characteristics, while progressing the evaluation of varieties from earlier iterations of the program and from overseas breeding programs.

The aim is to provide industry access to new varieties that are high-yielding, with self-fertility, improved disease tolerance, closed shells and desirable visual and eating qualities.

In early 2020, Hort Innovation released a news article providing an update on the self-fertile almond varieties released by the program to date. Read more at www.bit.ly/self-fertile.

Better tree performance and water use efficiency through root system resilience (AL13009)

Key research provider: CSIRO

Established in 2014 and ongoing through 2019/20, this project is being conducted as part of a coordinated research program into boosting almond productivity and profitability. It aims to support more informed rootstock choice, more efficient irrigation strategies and more efficient use of nutrition. There are a range of ongoing studies and trials, from looking at the use of soil amendments in altering tree nutrient uptake to screening rootstocks for their performance under soil water deficit.

Evaluation of potential prunus rootstocks for almond production – stage 2 (AL16006)

Key research provider: Almond Board of Australia

Beginning in 2018, this project carries on from earlier industry work to evaluate a range of potential new almond rootstocks – assessing their compatibility with the common almond cultivars grown in Australia, and their performance under the country's various growing conditions. The earlier work saw 14 rootstocks, including Nemaguard, planted for evaluation at a trial site in Lindsay Point, Victoria. The current project is continuing these evaluations and building upon the research, including through the introduction of new technologies and the establishment of further trials.

An integrated pest management program for the Australian almond industry (AL16009)

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

This investment is tasked with helping growers tackle the problem of insect pests and the damage they cause almond crops both in the orchard and after harvest. With a focus on integrated pest management, the program is developing a toolkit of practices, technologies and guidelines to help growers reduce insect populations, with areas of investigation including:

- Improved orchard hygiene and mummy management
- New 'attract and kill' technologies that target damaging Carpophilus species and female carob moths
- Improved mating disruption for carob moths
- Pesticide options that are more compatible with an integrated pest management approach
- Improved understanding of pest species and their natural enemies (biological controls)
- Improved post-harvest disinfestation and monitoring.

An integrated disease management program for the Australian almond industry (AL16005)

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

Complementing the work of the industry's integrated pest management program, described above, this program is tasked with helping growers improve the on-farm management of key almond diseases. It will culminate in the development of integrated disease management guidelines for use in almond production.

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

Key research provider: CSIRO

This multi-industry 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 Varroa-tolerant genetics in Australia's honey bee population. See www.bit.ly/mt18019 for more.

Development of non-invasive methods and systems for the assessment of hive health (PH17001)

NEW IN 2019/20

HORT FRONTIERS

Key research provider: Queensland University of Technology

The strength and health of bee colonies used for pollination need to be assured both on delivery to the grower, for their capacity to pollinate crops, and on return to the beekeeper. Current practice includes the inspection of colonies by opening a sample of the hives on delivery and return. This task can be expensive and time-consuming and may increase the risk of spreading or exposing the colony to disease.

This project is developing knowledge about the characteristics of a colony that will deliver effective pollination across different horticulture crops, to enable quality assurance models to be developed for growers and beekeepers alike. The project is also set to test available hive sensing technologies to evaluate if they are fit for purpose.

Field work will be conducted almonds as well as avocados and blueberries, with the project part of the Hort Frontiers Pollination Fund.

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

Australia almond industry conferences and field days 2017-2021 (AL16700)

Key research provider: Almond Board of Australia

Ongoing since 2017, this project supports industry events to help almond growers and supply chain participants improve knowledge, adopt new practices and ultimately enhance their businesses. These events include:

- The biennial Australian Almond Conference – a three-day event with participants from across the supply chain, along with researchers, international delegates and service providers
- The annual Australian Almond R&D Forum and Field Day for growers, providing information on past and current research (postponed from 2020 to 2021 due to COVID-19)
- Information on these events is circulated in levy-funded communication channels, including the *In A Nutshell* newsletter and on the Almond Board of Australia website.

Educating health professionals (AL16007)

Key research provider: Almond Board of Australia in collaboration with The Australian Nutrition Foundation, Victorian Division (Nutrition Australia)

Beginning in 2018, this collaborative investment is collating and communicating the scientific evidence surrounding almonds and the role they play in health to a key audience of Australian health professionals and to industry. New and emerging research is being used to create a range of educational resources and opportunities for the health audience, who can in turn communicate almonds as an important 'nutritional solution' to their patients, clients and the wider public. This work follows from similar levy-funded initiatives. The education program has three key sub-programs, including:

- The Australian Almonds Lifestyle Nutrition Program, focusing on issues including heart health, diabetes and weight
- The Australian Almonds Fitness and Sports Nutrition Program, focusing on sports nutritionists and fitness trainers
- The Australian Almonds Industry Nutrition Program, focusing on general health claims available for industry stakeholders to use.

Consumer behavioural and retail data for fresh produce (MT17015)

Key research provider: Nielsen

This multi-industry investment provides regular consumer behaviour 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 almonds, 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.

Almond minor use permit program (AL16002)

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 almond 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 also searchable at portal.apvma.gov.au/permits, while permit updates are circulated in Hort Innovation's *Growing Innovation* e-newsletter, which you can sign up for at www.horticulture.com.au/sign-up.

Generation of data for pesticide permit applications in horticulture crops 2019/20 (MT18018)

Key research provider: Peracto

The generation of pesticide residue, efficacy and crop safety data is required to support label registration and minor use permit applications and renewals made to the APVMA.

This multi-industry project is generating the data needed to support a range of existing minor use permits across a variety of horticulture crops, including almonds, to ensure growers have continued access to safe and effective chemicals for the management of pests, weeds and diseases.

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 almond industry. Providing an updated view of current priorities and gaps regarding pest, disease and weed control, the completed almond 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.

Impact assessment work

During 2019/20, Hort Innovation engaged independent consultants to evaluate the impact of our R&D investments. This included looking across a random sample of all Hort Innovation R&D projects completed in the 2018/19 financial year, plus a specific look at the impact of work within the Hort Innovation Almond Fund. The assessments revealed a range of economic, social and environmental benefits being generated for growers, supply chain participants and the community at large. The results also highlighted the value of these benefits in monetary terms.

Results and information on the whole-of-R&D impact assessment, facilitated through the project ***Ex-post impact assessment* (MT18011)**, can be found at www.horticulture.com.au/mt18011. The work specific to the Almond Fund took place through the ***Industry-specific impact assessment program* (MT19012)**. Information on the results, plus the full assessment documents, will soon be available via www.horticulture.com.au/almond.

Minor use permits

The Hort Innovation Almond 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-almond.

Permits in 2019/20

During the 2019/20 financial year, successful renewals for PER11121 (issued as PER88702) and PER87311 were prepared by Hort Innovation and submitted to the APVMA, facilitated through the ***Almond industry minor use program*** **(AL16002)**.

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 almond industry, PER89259 was 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 almond industry, current as of 21 September 2020.

PERMIT ID	DESCRIPTION	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER
PER88702	Simazine / Almonds / Broadleaf weeds and grasses	10-Mar-20	31-Mar-25	Hort Innovation
PER12989 Version 3	Propiconazole / Almonds / Blossom blight, anthracnose	01-Sep-11	31-Aug-21	Almond Board of Australia (ABA) C/Hort Innovation
PER13642 Version 2	Chlorpyrifos and Maldison / Tree nuts / Australian plague locust	01-Sep-12	30-Jun-25	Australian Nut Industry Council (ANIC) C/Hort Innovation
PER14310 Version 2	Clofentezine (Apollo) / Almonds / Two-spotted mite and brown almond mite *Please note: As use now registered and covered by the Campbell Apollo label, permit has been surrendered*	05-Aug-13	31-Jul-23	ABA C/Hort Innovation
PER14866	Carpophilus Catcha Trapping System / Almonds / Carpophilus beetles	29-Mar-15	29-Mar-25	ABA C/Hort Innovation
PER87216	Bifenthrin (Talstar) / Almonds / Carpophilus beetle or dried fruit beetle	01-Apr-19	31-Mar-22	Hort Innovation
PER87311 Version 2	Clothianidin (Samurai) / Almonds / Carpophilus beetle and carob moth	14-Nov-18	30-Nov-22	Hort Innovation
PER89259	Chlorantraniliprole (Coragen, Altacor and Altacor Hort Insecticide) / Almonds / Fall armyworm	06-Mar-20	31-Mar-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.

Financial statement

Financial operating statement for the statutory almond levy fund (2019/20)

	R&D ($)	TOTAL ($)
	2019/20 July – June	2019/20 July – June
OPENING BALANCE	**21,585**	**21,585**
Levies from growers (net of collection costs)	1,965,566	1,965,566
Australian Government money	2,095,448	2,095,448
Other income*	44,246	44,246
TOTAL INCOME	**4,105,260**	**4,105,260**
Project funding	3,707,050	3,707,050
Consultation with and advice from growers	8,582	8,582
Service delivery – base	165,939	165,939
Service delivery – shared	238,271	238,271
Service delivery – fund specific	135,000	135,000
TOTAL EXPENDITURE	**4,254,843**	**4,254,843**
Levy contribution to across-industry activity	–	–
CLOSING BALANCE	**(127,998)**	**(127,998)**
Levy collection costs	8,221	8,221

* Interest, royalties

Financial operating statement for the almond collective industry fund (2019/20)

	R&D ($)	TOTAL ($)
	2019/20 July – June	2019/20 July – June
OPENING BALANCE	**59,252**	**59,252**
Voluntary levies from growers	1,387,910	1,387,910
Australian Government money	1,429,373	1,429,373
Other income*	–	–
TOTAL INCOME	**2,817,283**	**2,817,283**
Project funding	2,537,165	2,537,165
Consultation with and advice from growers	–	–
Service delivery – base	111,491	111,491
Service delivery – shared	160,090	160,090
Service delivery – fund specific	50,000	50,000
TOTAL EXPENDITURE	**2,858,746**	**2,858,746**
Levy contribution to across-industry activity	–	–
CLOSING BALANCE	**17,789**	**17,789**

* Interest, royalties

THE GOOD MOOD FOOD

BONUS ACTIVITY: 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.

The projects in this report have been funded by Hort Innovation using sources including the almond levy, Australian Government contributions and, in some instances, co-contributions from a variety of sources.

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