

A close-up photograph of an almond tree branch. The branch is dark brown and textured, with several green, serrated leaves. Three fuzzy, light green almonds are hanging from the branch, their surfaces covered in fine hairs. The background is a soft, out-of-focus green.

# Almond Fund

Annual Report 2018/19

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**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.**



## Just some of the things your fund delivered in 2018/19:

- ✓ **Industry communication and development programs**, delivering *In A Nutshell* emails, the industry website and events including workshops, study tours, the annual R&D forum and field days (see more from p13)
- ✓ **The almond Harvest to Home dashboard** providing regular consumer behavioural data and insight reporting, at [www.harvesttohome.net.au](http://www.harvesttohome.net.au)
- ✓ Ongoing breeding and evaluation work, which has seen the **commercialisation of six new varieties** (p9)
- ✓ Information and assistance for improved orchard hygiene practices through multiple projects, which supported a **significant reduction in pest populations and crop damage** in 2019 (p13)
- ✓ A range of **orchard management resources**, including phenology and flowering tools (p11)
- ✓ **New final research reports and grower resources**, with 40+ now available from [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond)

### 2018/19 SNAPSHOT

**\$4.18**  
**MILLION**

INVESTED  
IN R&D

**28**

ACTIVE R&D  
INVESTMENTS

## Welcome

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Hort Innovation is the grower-owned, not-for-profit research and development corporation (RDC) for Australia's horticulture sector. It's our job to work with industry to invest the almond R&D levy, together with Australian Government contributions, into key initiatives for growers.

The 2018/19 financial year was another great year of growing better, together – with strong investments, closer connections and critical collaborations being forged.

There was some \$4.18 million invested into R&D through the Hort Innovation Almond Fund across the year, to support the industry in being as productive and profitable as possible. This included the establishment of five new investments, including work allowing the almond industry to join forces with other horticulture industries for maximum efficiency and impact across shared issues and opportunities.

Read on to learn more about all of the projects undertaken. And remember to take advantage of the Hort Innovation website at [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond), where you can search and find information relating to investments, past and present, at any time. The new site and its Almond Fund section were launched in 2018/19.

During the year there were also many opportunities for Hort Innovation to connect with you, the growers. A big thank you in particular to everyone who came to our early-2019 regional roadshows to feed into the development of the new Hort Innovation Strategy 2019-2023 (read more at [www.horticulture.com.au/strategy-2019-2023](http://www.horticulture.com.au/strategy-2019-2023)).

You can reach out to us at any time to learn more about our work, to submit ideas for investments, or to simply have a chat about your industry. You'll find details of specific staff at [www.horticulture.com.au/get-in-touch](http://www.horticulture.com.au/get-in-touch), or can otherwise email [communications@horticulture.com.au](mailto:communications@horticulture.com.au) or call our general line on 02 8295 2300.



## Additional value in the year

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During 2018/19, Hort Innovation was proud to deliver extra value to the almond industry, outside of levy-funded initiatives within the Almond Fund. Here's a quick look at just some examples.

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### The new Hort Innovation website, with dedicated Almond Fund section

You can now visit [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond) to quickly search and find almond investment information and updates, project resources, and growing tips and advice from Hort Innovation's R&D work. You can also download full final research reports direct from the site, access key contact information, share your ideas and feedback, and so much more.

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### The Australian Horticulture Statistics Handbook

Each year Hort Innovation delivers an *Australian Horticulture Statistics Handbook* packed with horticulture statistical information and analysis for use by specific industries and the wider sector. The handbook combines all available data on production, international trade, processing volumes and fresh market distribution for some 75 categories. The 2017/18 edition, released in early 2019, is available from [www.horticulture.com.au/horticulture-statistics-handbook](http://www.horticulture.com.au/horticulture-statistics-handbook).

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### Hort Frontiers projects

With seven investment areas, Hort Innovation's Hort Frontiers strategic partnership initiative is about collaborative, cross-industry work to address longer-term, complex issues and opportunities identified as critical for the future of Australian horticulture. While industry levies can be invested into Hort Frontiers projects upon the advice of the relevant Strategic Investment Advisory Panels, the bulk of funding comes from broad-reaching funding relationships that are secured by Hort Innovation, plus support from the Australian Government. Learn about all of the projects and what they're delivering for you at [www.horticulture.com.au/hort-frontiers](http://www.horticulture.com.au/hort-frontiers).

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### Grant funding

In 2018/19, Hort Innovation delivered \$6.7 million worth of investments involving grant funding across the horticulture sector. To do so, we applied for and secured a range of competitive grants on behalf of industry, including through the Australian Government's Rural R&D for Profit program, Improved Access to AgVet Chemicals initiative, and Agricultural Competitiveness White Paper. With projects across everything from biosecurity to pollination, there's plenty in there to directly and indirectly benefit the almond industry.

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## Making investments in 2018/19

Hort Innovation is dedicated to making the right investments at the right time and in the right areas, in line with identified priorities for the industry.

### Where the funding comes from

The almond industry's grower-raised statutory R&D levy is collected by the Australian Government and entrusted to Hort Innovation as the RDC for Australian horticulture. In June 2018, the industry also established a voluntary R&D levy for additional investment into major strategic programs. The voluntary levy is collected by the Almond Board of Australia and passed on to Hort Innovation under a collective industry fund (CIF) arrangement.

It's Hort Innovation's responsibility to work with the industry to invest these levies – together with Australian Government contributions – into strategic initiatives for the benefit of almond growers.

Additional funding streams can also come into play, such as co-investment dollars from sources including project partners, and grant funding that Hort Innovation secures on behalf of industry.

### How decisions are made

Investment decisions in the Hort Innovation Almond Fund are guided by the industry's Strategic Investment Plan (SIP). This document was developed through close consultation with growers and other industry stakeholders, and outlines specific investment priorities, strategies and themes. An at-a-glance version can be found at [www.bit.ly/almond-plan](http://www.bit.ly/almond-plan), or find the full version at [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond).

The SIP is currently used like a 'roadmap' by the almond Strategic Investment Advisory Panel (SIAP) – a panel made up of growers and other industry representatives that's tasked with providing advice to Hort Innovation on potential levy investments.

### Turning ideas into investments

Great investments start with great ideas, and Hort Innovation encourages all growers and other industry participants to share their thoughts and suggestions for the work they want to see. Ideas can be submitted any time via Hort Innovation's investment idea form at [www.bit.ly/concept-form](http://www.bit.ly/concept-form).

Ideas that are selected for investment are worked into project proposals by Hort Innovation. These are then made public for potential delivery partners to submit responses. Current opportunities are always listed at [www.horticulture.com.au/delivery-partners](http://www.horticulture.com.au/delivery-partners).

Responses are assessed, often with the assistance of industry, and the best delivery partner for the work is chosen. A contract is then issued and the work begins.

### Keeping track of investments

All investments in the Hort Innovation Almond Fund are detailed on the 'Your investments' page at [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond). We also send news and alerts to Hort Innovation members and contacts – if you haven't already, you can sign up for free at [www.horticulture.com.au/sign-up](http://www.horticulture.com.au/sign-up).

Importantly, the industry's levy-funded communications program is tasked with providing growers with regular information on levy-related activity. See p13 for more.



### New investment analysis

You can now clearly see how investments in the Hort Innovation Almond Fund align to the industry's SIP, with new and interactive investment analysis information available from [www.bit.ly/almond-investment](http://www.bit.ly/almond-investment). The analysis currently shows the allocation of funding against each of the almond SIP outcomes from the start of the SIP (2016/17) to the end of 2018/19, and gives an indication of the projects that are aligned to each outcome.



## **Signing a Statement of Commitment**

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**To ensure a strong, cooperative and clear working relationship, in May 2019, Hort Innovation came together with the Almond Board of Australia to sign a Statement of Commitment. The purpose of this document is to mutually define, acknowledge and cement our agreed roles, responsibilities, shared objectives and engagement expectations – all so we can work effectively in the best interests of growers and the wider industry. Learn more and see the signed document at [www.horticulture.com.au/statements-of-commitment](http://www.horticulture.com.au/statements-of-commitment).**

## R&D project list 2018/19

### NEW INVESTMENTS IN 2018/19

AL17004	Almond irrigation best practice management
AL17005	National almond breeding and evaluation program
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 2018/19 – we encourage you to find the full details at [www.horticulture.com.au/mt18011](http://www.horticulture.com.au/mt18011)

### ONGOING INVESTMENTS IN 2018/19

AL13009	Better tree performance and water use efficiency through root system resilience
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	Australia almond industry innovation and adoption program
AL16002	Almond minor use permit program
AL16003	Almond industry statistics and data collection 2017-2019
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
AL16010	Market development program – Europe
AL16700	Australia almond industry conferences and field days 2017-2021
AL16701	Almond study tour
MT16005	Enhanced National Bee Pest Surveillance Program
MT16010	Horticultural trade data 2017-19
MT17015	Consumer behavioural and retail data for fresh produce
ST16008	AgVet collaborative forum



### INVESTMENTS COMPLETED IN 2018/19

AL12003	Advanced processing of almonds
AL12015	Australian almond variety evaluation and commercialisation program
AL14006	Managing almond production in a variable and changing climate
AL16004	Development of high health status mother plantings for new Australian almond varieties
MT17022	10th Australasian Soilborne Disease Symposium sponsorship

During the 2018/19 financial year, all levy paying horticulture industries also contributed to a small selection of across-industry projects addressing issues that affect horticulture as a whole. Details of all investments that Hort Innovation manages can be found at [www.horticulture.com.au](http://www.horticulture.com.au).



**But wait, there's more. To see what Hort Innovation delivered across the entire horticulture sector in 2018/19, download the full Hort Innovation Annual Report 2018/19 from [www.horticulture.com.au/annual-report-portal](http://www.horticulture.com.au/annual-report-portal).**



## R&D report

Take a closer look at some of the key investments in the Hort Innovation Almond Fund during 2018/19. Any resources from these and other levy-funded projects – such as fact sheets, guides and more – are published on your grower page at [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond) as they become available.

### ***Australian almond variety evaluation and commercialisation program (AL12015) and National almond breeding and evaluation program (AL17005)***

**NOW COMPLETE (AL12015)**

**NEW IN 2018/19 (AL17005)**

**Key research provider:** The University of Adelaide

The almond industry's ongoing breeding program is working to deliver new almond varieties with higher kernel yield and quality, self-fertility, improved disease tolerance, and desirable visual and eating qualities.

Running between 2013 and 2018, project AL12015 led to the commercialisation of six new varieties, which were found to out-perform the industry standard variety, Nonpareil. These new varieties are Carina, Capella, Maxima, Mira, Rhea and Vela. They are now registered with IP Australia (Plant Breeders Rights) and US Plant Patents have been issued.

Full details can be found in the project's final research report, which can be downloaded from [www.bit.ly/al12015](http://www.bit.ly/al12015).

Project AL17005 picks up where investment AL12015 left off. It is continuing to run a targeted breeding program to develop new almond varieties with improved production characteristics, while progressing the evaluation of varieties from earlier iterations of the program and from overseas breeding programs.

### ***Development of high health status mother plantings for new Australian almond varieties (AL16004)***

**NOW COMPLETE**

**Key research provider:** Almond Board of Australia

This investment ran from 2017 to 2019 to help provide the almond industry with the earliest possible access to varieties evaluated and released through the industry's breeding and evaluation work, described above.

It established new mother plantings of virus-tested and true-to-type trees, to allow high-health-status budwood material to be provided to nurseries for grafting.



Until this project, the industry relied on two mother plantings to supply budwood. Plantings are now spread across multiple sites – reducing the risk of damage to budwood from factors such as virus contamination or seasonal bud damage by frost, hail or severe winds. The additional supply also meets the industry's increasing need for budwood due to rapid industry expansion and the replanting of older orchards.

The project saw 740 trees of the industry's six new levy-funded varieties and promising selections planted across two additional mother planting sites. Full details can be found in the project's final research report, which can be downloaded from [www.bit.ly/al16004](http://www.bit.ly/al16004).

### ***Almond irrigation best practice management (AL17004)***

**NEW IN 2018/19**

**Key research provider:** South Australian Research and Development Institute (SARDI)

This investment is all about improving irrigation system performance across the Australian almond industry. A key component of the work is an audit of current irrigation system performance across major almond production regions, including through on-farm testing of irrigation valves and surveys with growers about irrigation maintenance schedules and their implementation. This information will be used to deliver a picture of potential issues, opportunities for improvement, and best practice management when it comes to implementing suitable and rigorous maintenance schedules and activities.

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

NEW IN 2018/19

**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 Varroa-tolerant genetics in Australia's honey bee population. See [www.bit.ly/mt18019](http://www.bit.ly/mt18019) for more.

## Advanced processing of almonds (AL12003)

NOW COMPLETE

**Key research provider:** University of South Australia

Beginning in 2013 and ending in late 2018, this project involved:

- » Research into effective aeration and dehydration of bulk almonds in silos, bunkers and sheds
- » Research into the effective hulling of almonds in-field and during processing, as well as the improved cracking of almonds
- » Work into technologies to sense temperatures of almonds and their waste in stockpiles; to yield map almond pick-up in the orchards; to compare methods of storing bulk almonds; and to develop almond hulling, cracking and cleaning equipment.

The project team noted that there are many factors that can lead to quality downgrades in almonds, such as pests and weather damage (rain = staining; hot and humid = concealed damage; hot and dry = skin flaking and split cotyledons; humid = mould). For these reasons, the researchers recommended looking at harvesting the fruit after hull split but before it is fully dry, so it can come out of the elements.

Their related research showed that early harvest and dehydration preserves the micro-nutrients in the almond kernels at their maximum status. It also found that the hulls are easier to remove from the shells before they are fully dried. The researchers noted that this indicates a move toward shake and catch harvest systems for almonds – which doesn't decrease yields or quality – has many advantages when combined with in-field hulling and hull separation.

With a patent pending, equipment was subsequently developed that can undertake hulling and separation of detached hulls in the field on mobile equipment, and at storage facilities and factories. The researchers noted that

if only in-shell almonds are brought in from the orchards, the volume of almonds can be halved – thus reducing both transport and storage costs – and the nutrients that are in the hulls will remain in the orchard.

Other work in the investment included:

- » Work towards a retrofittable yield mapping system for almond harvesters, based on lasers, to provide growers with a map of their almond harvest yields. The data collected from such a system could be used for future orchard management, though further development is required on this technology.
- » Research and trials that have shown that temperature and humidity sensors placed into an almond stockpile can provide accurate in-situ measures of kernel moisture content – whether the almonds are in-hull, in-shell or kernel forms. This relies on the almonds being at their equilibrium condition and a calibration being formed between moisture content and relative humidity/temperature readings. The system was used effectively with on-farm stockpiles before dispatch to a processor; whilst in transit to give an automated moisture reading upon arrival at the receipt weighbridge; in silos as the almonds moved past the sensors to go into the processing line; and in finished product while it was stored in a warehouse.
- » Looking at controlled aeration conditions to precisely control kernel moisture content, using a combination of an evaporative air conditioner and a heater to regulate the air going into bulk almonds to the desired equilibrium moisture content. The project concluded that there are three critical times for moisture content to be controlled and altered:
  - For long-term storage, kernels should be held at a four per cent kernel moisture content to protect the micro-nutrients from degradation.
  - For processing of the almonds, to take the kernels out of the shell without any kernel damage, the kernel moisture content should be around seven to 10 per cent and multiple impacts used, as per the patent pending technology from the project. Using the existing rolls-over-belt technology there is another ideal moisture content of between five to 5.5 per cent to minimise kernel damage to approximately 20 to 30 per cent chipped and scratched.
  - For the consumer that likes the crunch of an almond, moisture content should be in the range of five to 5.5 per cent.

Full details can be found in the project's final research report, which can be downloaded from [www.bit.ly/al12003](http://www.bit.ly/al12003).

## Managing almond production in a variable and changing climate (AL14006)

NOW COMPLETE

**Key research provider:** South Australian Research and Development Institute

High quality almond production is sensitive to weather and climate risks including insufficient chill units, heat waves, drought and untimely rainfall. This project, which ran from 2015 to 2019, sought to identify and rank risks to almond production that can be expected due to climate change, as well as adaptations that can be put in place.

The team undertook orchard trials and pot trials to investigate the effects of climate on almond production and also researched current climates in almond production areas as well as future climate predictions.

These are some of the key findings relating to future temperatures and risks:

- » Climate analysis of the three main growing regions (Riverland, Sunraysia and Riverina) showed a trend of increasingly warm conditions in all locations, with the Riverina being the warmest but also having the highest summer rainfall. Generally warmer conditions are likely to favour growth but also pests.
- » Risks associated with climate change were considered in some detail, and then ranked according to the amount of damage and likelihood. Rain at harvest was considered the most economically damaging risk, followed by heatwaves, non-synchronous flowering, and rain and humidity leading to disease. The supply of irrigation water was ranked as a major risk in the Riverland and Sunraysia.
- » The researchers noted that some climate change predictions, such as increased temperature, are more certain than others, such as changes in rainfall, so these risks will need to be recalculated in time.

Field trials were carried out to examine the impact of climate and weather on almond tree physiology. The team made use of sites with different climates to simulate the effects of changing climate on crop development and yield. To make sure they could compare development effectively, they developed a photo-standard and assessment protocol to maximise consistency of measurement at the various sites – a world first – that almond growers can use to assess crops.

Ultimately the team developed an interactive crop calendar that predicts key crop development (phenological) growth stages and associated weather and climate risks. This Australian almond phenology model incorporates predictions of time of flowering, time of fruit maturity and hull-split and time of harvest. Growers can use it to plan orchard activities in the current year, to assess climate and weather risks in new production areas, or to assess the likely impact of a warmer and more water constrained future on current orchards.

This tool can be found at [www.bit.ly/al14006](http://www.bit.ly/al14006). Here you can also find a host of other resources produced by the project, including six booklets with key information on climate strengths and challenges for locations within Australia's main almond-producing regions, the link to a flowering observation tool, and the investment's full final research report.

Specific grower recommendations from the project included:

- » With a gradual rise in mean temperature, and the number and severity of heatwaves very likely to increase, growers could find benefit in exploring the suitability of management options used in other crops such as overhead/within canopy evaporative cooling, altered canopy management for shading, as well as netting or reflective sprays to reduce sunlight. Higher density orchards could also assist, since they were found in this study to have fewer extreme hot days, which can reduce bud development.
- » With rain at harvest being the top-rated risk to future production, growers could find benefit in exploring the use of mechanised shake and catch methods of harvest to avoid soil moisture. Improved drying practices of nuts and kernels should also be explored. These might include tarpaulin covers and powered driers.

## 10th Australasian Soilborne Disease Symposium sponsorship (MT17022)

NOW COMPLETE

**Key research provider:** Plevin and Associates

This multi-industry investment, also involving the Hort Innovation Vegetable and Onion Funds, supported the Soilborne Diseases Symposium, held in Adelaide from September 4 to 7, 2018. To strengthen industry knowledge and approaches, the event brought together researchers and industry representatives to review current research into soilborne diseases, and to identify new strategies and techniques with applications across a range of crops.

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

**Key research provider:** CSIRO

Established in 2014, 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.

### ***Identifying factors that influence spur productivity in almond (AL14005)***

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

Established in 2015, this is another project being conducted as part of a coordinated research program into boosting almond productivity and profitability. Because spurs bear the vast majority of nuts on almond varieties used in Australia, spur population dynamics are of interest in understanding yield fluctuations and trying to maintain high yields from season to season. To this end, this project is investigating the behaviour of fruiting spurs of Nonpareil and Carmel almond cultivars under different management conditions, with the goal of developing better ways to manage orchards.

### ***Almond productivity: tree architecture and development of new growing systems (AL14007)***

**Key research provider:** Plant & Food Research Australia

Established in 2014 and due for completion during 2019, like AL13009 and AL14005, this project is also part of a broader research program into boosting almond productivity and profitability. It has a specific focus on tree architecture and the development of new, high-density growing systems. Like all investments detailed here, updates can be found on the project's page on the Hort Innovation website, which you can find by searching the project code at [www.horticulture.com.au](http://www.horticulture.com.au) or browsing the 'Your investments' page at [www.horticulture.com.au/almond](http://www.horticulture.com.au/almond).



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

**Key research provider:** Almond Board of Australia

Beginning in February 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

Beginning in December 2017, 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.

### **Australian almond industry communications program (AL16000)**

**Key research provider:** Almond Board of Australia

Ongoing throughout 2018/19, this program continued 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.

Communication channels that were produced and maintained by the program included the *In A Nutshell* quarterly industry newsletter, plus the industry website ([www.australionalmonds.com.au](http://www.australionalmonds.com.au)) and its grower/levy payers' portal ([industry.australionalmonds.com.au](http://industry.australionalmonds.com.au)). It was also responsible for producing media releases promoting key research findings and events, and utilised social media, video and face-to-face communications.

This investment drew to a close early in the 2019/20 period, with industry communications work continued by the new *Almond industry communications program* (AL18001), which was established in September 2019.

### **Australia almond industry innovation and adoption program (AL16001)**

**Key research provider:** Almond Board of Australia

Contracted in early 2017, this project is helping to deliver technical advice to growers, promoting best practice and facilitating the adoption of R&D. It is tasked with identifying and developing initiatives to address the capacity-building requirements of the industry.

Specifically, the investment continues to support the roles and activities of Almond Board of Australia industry development officers (IDOs) as well as a part-time entomologist, who is working with the IDOs and providing a point of contact for researchers and industry regarding pest research.

At a broad level, project work for the IDOs has and will continue to include:

- » Industry fields days, workshops, tours and training initiatives, which are advertised in industry channels
- » Input into the industry communications program, described above
- » Production of fact sheets and videos to take knowledge from projects to growers
- » 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 practice
- » Support for and participation in other industry R&D projects as required
- » Engagement across a range of R&D and industry committees.

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

**Key research provider:** Almond Board of Australia

Established in 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 & Field Day for growers, providing information on past and current research.

Information on these events are circulated in levy-funded communication channels as they become available, including the *In A Nutshell* newsletter and on the Almond Board of Australia website.

## Almond study tour (AL16701)

**Key research provider:** Almond Board of Australia

This investment began in 2017 to support industry relationship building, knowledge sourcing and collaboration with international almond industries by funding study tours for key industry representatives.

## Almond industry statistics and data collection 2017-2019 (AL16003)

**Key research provider:** Almond Board of Australia

This project collects industry statistics and makes them readily available to 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:

- » Production of the annual statistics report, *Almond Insights*, incorporating the project's annual planting surveys (these can be downloaded via [www.bit.ly/al16003](http://www.bit.ly/al16003))
- » Annual crop forecasts distributed through industry channels
- » Monthly export position reports, with the latest export reports available on the industry website at [www.bit.ly/almond-export-position-reports](http://www.bit.ly/almond-export-position-reports)
- » The ongoing collection of domestic and international almond statistics, disseminated through the *In A Nutshell* industry newsletter.



## Consumer behavioural and retail data for fresh produce (MT17015)

**Key research provider:** Nielsen

This multi-industry investment is tasked with providing regular consumer behaviour data and insight reporting to a range of industries, through the Harvest to Home platform ([www.harvesttohome.net.au](http://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.

## Educating health professionals (AL16007)

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

Contracted in May 2018, this collaborative investment for the Hort Innovation Almond Fund 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 as well.

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.



### Market development program – Europe (AL16010)

**Key research provider:** Almond Board of Australia

Between 2008 and 2016, Australian almond exports to Europe grew by 370 per cent, and in 2016 almonds heading to Europe represented 42.6 per cent of total Australian almond exports.

This investment is supporting the continued growth of exports to this key market, facilitating the Australian almond industry's presence at major trade shows held biennially in Cologne, Germany (the Anuga trade fair) and in Paris, France (the SIAL trade fair). It is also tasked with providing Australian industry updates to key European customers via e-newsletters along the way.

### 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 upon the previous *National Bee Pest Surveillance Program* (MT12011), 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.

### 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 p16.

All current minor use permits for the industry are searchable at [portal.apvma.gov.au/permits](http://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](http://www.horticulture.com.au/sign-up).

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

NEW IN 2018/19

**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.



**To keep up to date with the latest information on new, ongoing and recently completed R&D investments throughout the year – and to search and find resources and reports from these investments – visit [www.horticulture.com.au/almond](http://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](http://www.bit.ly/minor-use-almond).

### Permits in 2018/19

During the 2018/19 financial year, a successful renewal for PER82138 (issued as PER87216) and a successful new emergency permit application for PER87311 were prepared by Hort Innovation and submitted to the APVMA, facilitated through the *Almond industry minor use program* (AL16002).

Meanwhile, a successful renewed permit PER14310 was also issued during 2018/19, with the application submitted through the industry minor use program in the previous financial year.

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 19 September 2019.

PERMIT ID	DESCRIPTION	DATE ISSUED	EXPIRY DATE	PERMIT HOLDER
PER11121	Simazine / Almonds / Broadleaf weeds and grasses	01-Jan-09	31-Mar-20	Almond Board of Australia (ABA) C/Hort Innovation
PER12989 Version 3	Propiconazole / Almonds / Blossom blight, athracnose	01-Sep-11	31-Aug-21	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	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	Clothianidin (Samurai) / Almonds / Carpophilus beetle and carob moth	14-Nov-18	30-Nov-20	ABA C/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](http://portal.apvma.gov.au/permits). Details of the conditions of use associated with these permits can also be found on the APVMA site.

**Minor use permit updates are circulated in Hort Innovation's e-newsletter, *Growing Innovation*. Don't yet receive it? Sign up for free at [www.horticulture.com.au/sign-up](http://www.horticulture.com.au/sign-up).**

## Financial statements

### Financial operating statement for the statutory almond levy fund (2018/19)

	R&D (\$)	TOTAL (\$)
	2018/19 July – June	2018/19 July – June
<b>OPENING BALANCE</b>	<b>431,306</b>	<b>431,306</b>
Levies from growers (net of collection costs)	1,643,256	1,643,256
Australian Government money	1,977,899	1,977,899
Other income*	15,527	15,527
<b>TOTAL INCOME</b>	<b>3,636,681</b>	<b>3,636,681</b>
Project funding	3,435,195	3,435,195
Consultation with and advice from growers	27,713	27,713
Service delivery – base	138,453	138,453
Service delivery – shared	229,436	229,436
Service delivery – fund specific	125,000	125,000
<b>TOTAL EXPENDITURE</b>	<b>3,955,797</b>	<b>3,955,797</b>
Levy contribution to across-industry activity	90,605	90,605
<b>CLOSING BALANCE</b>	<b>21,585</b>	<b>21,585</b>
Levy collection costs	13,776	13,776

\* Interest, royalties

## Financial operating statement for the almond collective industry fund (2018/19)

	R&D (\$)	TOTAL (\$)
	2018/19 July – June	2018/19 July – June
<b>OPENING BALANCE</b>	<b>243,797</b>	<b>243,797</b>
Voluntary levies from growers	269,634	269,634
Australian Government money	434,284	434,284
Other income*	–	–
<b>TOTAL INCOME</b>	<b>703,918</b>	<b>703,918</b>
Project funding	741,376	741,376
Consultation with and advice from growers	–	–
Service delivery – base	30,400	30,400
Service delivery – shared	50,377	50,377
Service delivery – fund specific	46,415	46,415
<b>TOTAL EXPENDITURE</b>	<b>868,568</b>	<b>868,568</b>
Levy contribution to across-industry activity	19,894	19,894
<b>CLOSING BALANCE</b>	<b>59,252</b>	<b>59,252</b>

\* Interest, royalties

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