

Almond impact assessments 2020

During 2019/20, Hort Innovation engaged independent consultants to evaluate the impact of almond research and development over the five years ending 30 June 2019. Assessment provided insights into the type and magnitude of impacts generated from Almond Fund investments.

The evaluation revealed a range of economic, environmental and social benefits being generated for almond growers, supply chain participants and the community at large.





How the impact assessments were made

Project population defined



A pool of Almond Fund research and development (R&D) projects was identified, with the criteria of being completed between 1 July 2014 and 30 June 2019 and with a Hort Innovation managed investment value of at least \$80,000 – met by a total of 21 project investments with a Hort Innovation investment value of \$10.78 million (whole population).

Projects sampled



The final stratified, **random sample of nine** Hort Innovation Almond Fund RD&E projects had a total Hort Innovation managed investment value of approximately \$5.84 million (nominal dollars) representing 54.2% of the overall Hort Innovation managed investment in the population (\$10.78 million). Further, for the SIP Outcome area criterion, one was selected for SIP Outcome area 1 (IPM and IDM), one for Outcome area 2 (Pollination), three for Outcome area 3 (Production), two for Outcome area 4 (Capacity) and two for Outcome area 5 (Demand).

Projects evaluated



Each of the nine projects was evaluated using a framework approach, looking at project objectives, activities, outputs and impacts. Some of the impacts identified were also valued in monetary terms.

The approach for evaluating the impacts was performed in line with impact assessment guidelines defined by the Council of Rural RDCs. The impact assessment consultants engaged with researchers, Hort Innovation staff and industry stakeholders to support the evaluations.

The results

The results demonstrated that the benefits of research and development (R&D) investments in the Almond Fund represent a sound return on investment for growers, with the benefit-cost ratio of the eight sampled projects coming out at between **1.69** to **4.26 to one**, with an aggregated benefit-cost ratio average of **3.61 to one**. Together, the benefits of the eight projects are expected to deliver some **\$36.54 million** in additional value to the industry and community over the next 30 years (considering the present value of their benefits, minus the present value of their project costs). Keeping in mind that while some impacts were valued, other benefits weren't quantifiable – meaning these results give a conservative estimate of the true benefits that will be realised.

Across all nine projects assessed there were 46 individual impacts identified. Of these, approximately 33% were identified as economic (15), 11% environmental (5) and 56% social (26).

3.61:1 *
BENEFIT-COST RATIO

\$36.54
MILLION
NET PRESENT VALUE

Economic impacts

Increased profitability/productivity for Australian almond growers

Example: *Food safety in almonds – Stage 2 (AL11009)* contributed to a reduction in additional handling costs and value lost from Australian almond exports that fail to meet strict EU aflatoxins regulations.

Increased profitability/productivity for Australian almond processors

Example: *Advanced processing of almonds (AL12003)* contributed to an increase in almond processor profit associated with a reduction in processing costs

Maintained and/or improved market access

Example: *Almond international networking (AL12701)* contributed to additional sales due to improved market access and market insights.

Environmental impacts

Reduced risk of chemical export to the off-farm environment

Example: *Protecting pollination for the Australian horticultural industry – Stage 3 (MT13002)* resulted in Miticides for Varroa and other honey bee pests not required, leading to fewer chemicals in honey, beeswax, and the farm environment.

Enhanced biodiversity

Example: *Managing Carob Moth in almonds (AL12004)* resulted in increased ability to run effective no/low chemical IPM programs with less need to apply insecticides to control carob moth.

Social impact

Productivity/ profitability benefits having a flow-on effect to support improved regional community wellbeing

Projects that resulted in additional profitable almond sales will generate flow-on income and employment opportunities in almond growing areas.

For full details of the impact assessments including detailed reports on each project, visit www.horticulture.com.au/mt19012

* Aggregated benefit-cost ratio

Reporting against the almond Strategic Investment Plan 2017-2021

Impact assessment results can also be used to understand the impacts achieved by the SIP Outcome area. The results provide an assessment of indicative impacts by project but are not representative of all investments undertaken in each outcome area.

Project code	Project title	Present value of benefits (\$m)	Present value of costs (\$m)	Net present value (\$m)	Benefit-cost ratio
Strategic Investment Plan Outcome 1: Pest and disease damage to almonds has been reduced through enhanced IPM and IDM					
AL12004	Managing Carob Moth in almonds	1.32	0.71	0.61	1.86
Strategic Investment Plan Outcome 2: A major productivity gain in almond pollination in 2022 through a major reduction in bee stocking rates with no loss in pollination efficiency (nut set)					
MT13002	Protecting pollination for the Australian horticultural industry – Stage 3	0.60	0.21	0.39	2.85
Strategic Investment Plan Outcome 3: An almond industry crop production system that supports further efficiencies in Horizon 1 orchards and the development of Horizon 3 orchards and has lifted average industry yield from 3 to 4 tonnes per hectare					
AL12003	Advanced processing of Almonds	5.74	1.43	4.31	4.02
AL14006	Managing Almond production in a variable and changing climate	2.32	0.59	1.73	3.93
AL16004	Development of high health status mother plantings for new Australian almond varieties	0.21	0.12	0.09	1.69
Strategic Investment Plan Outcome 4: An informed industry that adopts R&D outcomes and has the capacity to support current and future industry needs					
AL12000	Australian Almond Industry – Liaison and Extension Project	7.13	2.09	5.05	3.42
AL12701	Almond International Networking	0.63	0.16	0.48	4.06
Strategic Investment Plan Outcome 5: – Increased domestic consumption from 16,000 tonnes in 2016 to 27,500 tonnes in 2022 – Increased export sales from 64,000 tonnes in 2016 to 110,000 tonnes in 2022 – European Union inspections reduced from one in 20 containers to one in 100 containers at destination by 2022					
AL11009	Food Safety in Almonds – Stage 2	15.62	3.67	11.95	4.26
AL12001	Research and Education of health professionals relating to the health benefits of almond consumption	5.70	1.93	3.76	2.95



Glossary of economic terms

The following economic terms have been used in the above table, illustrating the cost-benefit analysis results by project sampled:

- **Present value of benefits:** The discounted value of benefits to 2019/20 terms.
- **Present value of costs:** The discounted value of investment costs to 2019/20 terms.
- **Net present value:** The discounted value of the benefits of an investment, less the discounted value of the costs – that is, present value of benefits minus value of costs.
- **Benefit-cost ratio:** The ratio of the present value of investment benefits to the present value of investment costs.

