

Avocado impact assessments 2019

During 2018/19, Hort Innovation engaged independent consultants to evaluate the impact of avocado research and development over the five years ending 30 June 2018. Assessment provided insights into the type and magnitude of impacts generated from Avocado Fund investments.

The evaluation revealed a range of economic and social benefits being generated for avocado growers, supply chain participants and the community at large. No environmental impacts were identified.





How the impact assessments were made

Project population defined



A pool of Avocado Fund research and development (R&D) projects was identified, with the criteria of being completed between 1 June 2013 and 30 June 2018 and with a Hort Innovation managed investment value of at least \$80,000 – met by a total of 27 projects with a Hort Innovation investment value of \$9.97 million.

Projects sampled



From this pool a **random sample of seven projects** was selected (listed in subsequent tables). Together these seven projects had a nominal Hort Innovation Avocado Fund value of \$1.91 million (19.2 per cent of the overall investment value). Two of the projects aligned with the avocado Strategic Investment Plan (SIP) 2017-2021 Outcome 1 (increase demand), three aligned with Outcome 2 (improve quality), none aligned with Outcome 3 (increase exports) and two aligned with Outcome 4 (increase yield).

Projects evaluated



Each of the seven 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 Avocado Fund represent a sound return on investment for growers, with the benefit-cost ratio of the seven sampled projects coming out at between **2.84** and **3.78 to one**. Together, the benefits of the seven projects are expected to deliver some **\$8.39 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.

Three of the project investments involved identification of impacts that could not be valued in monetary terms. For these projects only the present value of costs was reported, with all other investment criteria appearing as NR (not reported).

Through the assessments, 25 impacts were identified as having been generated directly by the seven randomly selected projects. The impacts themselves were grouped into six broad categories. Specific benefits ranged from additional profitable avocado sales to more efficient avocado supply chains.

3.78:1*
BENEFIT-COST RATIO

**\$8.39
MILLION**
NET PRESENT VALUE

Economic impacts

Additional profitable sales for avocado growers with improved fruit quality.

Example: *Reducing flesh bruising and skin spotting in Hass avocado* (AV10019), resulted in improved external and internal avocado quality and is likely to have contributed to improved customer and consumer satisfaction and consequently increased demand and increased future demand for avocados.

Additional profitable sales with improved understanding of the health benefits of avocados.

Example: *Health professional education and research program* (AV13010), resulted in improved knowledge and understanding of the health benefits of avocados among health professionals such as dietitians, fitness professionals and food regulatory agencies/public health professionals with a corresponding positive influence on consumer purchasing decisions.

Improved efficiency and reduced costs along the avocado supply chain.

Example: *Achieving more consistent yields of quality fruit in the Australian avocado industry* (AV14000), resulted in a decrease in year to year variability of avocado flows along the supply chain with a reduction in grower to market costs.

Social impacts

Increased knowledge in relation to avocado pests and diseases, decision making tools and the health impacts of avocados.

Example: *Mechanisms of cultivar and race based disease resistance in avocado* (AV09024), generated new knowledge on Phytophthora root rot confirming that root regenerative ability is not a credible way of providing resistance to the disease.

Increased industry and service provider capacity.

Sampled projects added to the skill sets of growers, researchers and market analysts.

Example: *An analysis of fruit spotting bug activity in avocado crops from fruit set to harvest* (AV11021), included funding for a PhD scholarship that was duly awarded.

Productivity/profitability benefits having a flow-on effect to support improved community wellbeing in avocado growing areas.

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

For full details of the impact assessments including detailed reports on each project, visit www.horticulture.com.au/mt18009

* Upper bound benefit cost ratio

Reporting against the avocado 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. The assessment did not include any Outcome 3 projects.

Project Code	Project Name	Present Value of Benefits (\$M)	Present Value of Costs (\$M)	Net Present Value (\$M)	Benefit-Cost Ratio
Strategic Investment Plan Outcome 1: By 2021, domestic demand for Australian avocados has increased by at least 20%.					
AV12007	Data Collection to facilitate supply chain transparency	0.00	0.54	NR	NR
AV13010	Health professional education and research program	0.83	0.38	0.45	2.19
Strategic Investment Plan Outcome 2: By 2021, over 90 per cent of avocados received by consumers will meet or exceed their expectations of quality.					
AV10019	Reducing flesh bruising and skin spotting in Hass avocado	1.26	0.26	1.01	4.90
AV14000	Achieving more consistent yields of quality fruit in the Australian avocado industry	2.26	0.62	1.64	3.65
AV15010	Supply chain quality improvement – cool chain best practice guidelines	2.20	0.61	1.59	3.58
Strategic Investment Plan Outcome 4: By 2021, productivity (marketable yield per hectare) has improved by 15 per cent on average, without increased production costs per kilogram.					
AV09024	Mechanisms of cultivar – and race-based disease resistance in avocado	0.00	0.21	NR	NR
AV11021	An analysis of fruit spotting bug activity in avocado crops from fruit-set to harvest	0.00	0.20	NR	NR

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 2017/18 terms.
- **Present value of costs:** The discounted value of investment costs to 2017/18 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.