

Citrus impact assessments 2020

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

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





How the impact assessments were made

Project population defined



A pool of Citrus 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 35 project investments with a Hort Innovation investment value of \$15.78 million (whole population).

Projects sampled



The final stratified, **random sample of eight** Hort Innovation Citrus Fund RD&E projects had a total Hort Innovation managed investment value of approximately \$5.40 million (nominal dollars) representing 34.2% of the overall Hort Innovation managed investment in the population (\$15.78 million). Further, for the SIP Outcome area criterion, four projects were selected for SIP Outcome area 1 (Demand), one for SIP Outcome area 2 (Plant protection), two for SIP Outcome area 3 (Adoption), and one for SIP Outcome area 4 (Capacity).

Projects evaluated



Each of the eight 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 Citrus Fund represent a sound return on investment for growers, with the aggregated benefit-cost ratio of the eight sampled projects coming out at **3.43 to one**. Together, the benefits of the eight projects are expected to deliver some **\$20.64 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.

3.43:1*
BENEFIT-COST RATIO

\$20.64
MILLION
NET PRESENT VALUE

Across all eight projects assessed there were 38 individual impacts identified. Of these, 55.3% were identified as economic (21), 15.8% as environmental (6), and 28.9% as social (11).

Economic impacts

Increased productivity and or profitability for Australian citrus growers

Example: *Citrus Industry Communications (CT15009)* contributed to increased productivity and profitability of citrus levy payers via more informed decision making.

Maintained or increased market access

Example: *Increasing market access, profitability and sustainability through integrated approaches to fungal disease control (CT13020)* contributed towards developing exports of Murcott mandarins from Queensland to Europe and New Zealand, via improved quarantine protocols.

Increased efficiency and/or effectiveness of resource allocation for citrus RD&E

Example: *Australian citrus industry innovation and market development program (CT15012)* resulted in some changes in citrus R&D priorities driven by the highlighting of critical constraints to exporting and market access.

Environmental impacts

Reduced need for waste disposal affecting the environment

Example: *Australian citrus quality standards – Stage 3 (CT15013)* improves growers ability to meet the ACQA, resulting in more production being sent to market and therefore avoiding disposal.

More judicious use of chemicals by some growers

Example: *Development of national strategies to manage citrus gall wasp (CT15006)* found that specific pruning regimes and the use of integrated pest management is more effective than exclusively using insecticides to manage citrus gall wasp.

Social impact

Regional community spill-over impacts driven by increased productivity and profitability by citrus growers and their supply chains

Projects that resulted in additional profitable citrus sales will generate flow-on income and employment opportunities in citrus 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 citrus 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: Market opportunities in both domestic and especially export markets have been developed and maintained, leading to increased demand and support for citrus products					
CT13022	Driving citrus industry success through a coordinated market development program – Stage 2	6.61	1.90	4.71	3.48
CT15011	Data packages to support market access for additional citrus varieties to Japan	0.43	0.14	0.29	3.02
CT15012	Australian Citrus Industry Innovation and Market Development Program	13.31	3.17	10.14	4.20
CT17005	Consumer research in key export markets for the citrus industry	0.00	0.02	-0.02	0.00
Strategic Investment Plan Outcome 2: Growers and the industry reduce biosecurity, phytosanitary and agrichemical-related risks					
CT13020	Increasing market access, profitability and sustainability through integrated approaches to fungal disease control	1.42	0.56	0.86	2.53
Strategic Investment Plan Outcome 3: Improved product quality and increased productivity from the application of innovation					
CT15006	Development of national strategies to manage citrus gall wasp	2.47	0.93	1.54	2.65
CT15013	Citrus Quality Standards (Stage 3)	2.66	0.83	1.83	3.20
Strategic Investment Plan Outcome 4: Industry participants have increased skills, capacity and knowledge					
CT15009	Citrus Industry Communications	2.25	0.95	1.30	2.36

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.