

Banana impact assessments 2020

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

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





How the impact assessments were made

Project population defined



A pool of Banana 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 24 project investments with a Hort Innovation investment value of \$16.72 million (whole population).

Projects sampled



The final stratified, **random sample of eight** Hort Innovation Banana Fund RD&E projects had a total Hort Innovation managed investment value of approximately \$3.02 million (nominal dollars) representing 18.1% of the overall Hort Innovation managed investment in the population (\$16.72 million). Further, for the SIP Outcome area criterion, six projects were selected for SIP Outcome area 1 (Biosecurity), one for SIP Outcome area 2 (BMP plan), and one for SIP Outcome area 4 (Productivity). No projects were selected for SIP Outcome area 3 as Outcome area 3 (Demand) projects represented only 0.5% of the overall population.

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 Banana Fund represent a sound return on investment for growers, with the benefit-cost ratio of the eight sampled projects coming out at between **1.55 to 5.26 to one**, with an aggregated benefit-cost ratio average of **3.62 to one**. Together, the benefits of the eight projects are expected to deliver some **\$22.83 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 eight projects assessed there were 42 individual impacts identified. Of these, 50.0% were identified as economic (21), 11.9% as environmental (5), and 38.1% as social (16).

3.62:1*
BENEFIT-COST RATIO

\$22.83
MILLION
NET PRESENT VALUE

Economic impacts

Increased productivity and/or profitability for Australian banana growers

Example: *Integrated management of Yellow Sigatoka and other banana diseases in Far North Qld (BA12007)* reduced losses associated with endemic banana diseases through increased compliance with disease control legislation, improved Integrated Pest and Disease Management (IPDM) and enhanced on-farm biosecurity management practices leading to reduced overall levels of disease.

Reduced risk of incursion, establishment and/or spread of endemic or exotic pests and diseases

Example: *Coordination of Banana Industry R&D (Panama TR4) (BA14012)* contributed to reduced risk of the spread of Panama TR4 in Qld because of enhanced industry capacity/grower understanding and awareness and improved biosecurity processes both on and off farm.

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

Example: *Fusarium wilt Tropical Race 4 – Biosecurity and sustainable solutions (BA14013)* contributed to improved resource allocation for RD&E associated with Fusarium wilt of bananas, such as the identification of RD&E investment in productive, resistant banana varieties with market acceptance will be key.

Environmental impact

Improved environmental outcomes through reduced or use and/or improved management of agricultural chemicals

Example: *Capacity building in bananas (BA12703)* contributed to future reductions in the use of agricultural chemicals (e.g. pesticides) and associated chemical export off-farm through the adoption of the BMP plan.

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 banana 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 banana 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: New varieties introduced and improved pest and disease management that improve varietal diversity and biosecurity					
BA12007	Integrated management of Yellow Sigatoka and other banana diseases in Far North Qld	3.71	0.81	2.90	4.57
BA13011	The cause and management of crown rot of banana	4.65	0.78	3.87	5.98
BA14012	Coordination of Banana Industry R&D (Panama TR4)	2.21	0.72	1.49	3.08
BA14013	Fusarium wilt Tropical Race 4 – Biosecurity and sustainable solutions	11.02	3.27	7.75	3.37
BA15006	National banana bunchy top virus program – Phase 3 – QLD (Child of Parent BA14015)	2.22	0.66	1.57	3.38
BA17001	Banana Bunchy Top Virus Control Data	1.36	0.26	1.11	5.26
Strategic Investment Plan Outcome 2: Increased adoption of the industry's BMP plan that improves industry sustainability, biosecurity and environmental stewardship					
BA13004	National Banana Development and Extension Project	5.98	1.96	4.02	3.05
Strategic Investment Plan Outcome 4: Increased adoption of continuous improvement and automation technology that improve industry productivity and profitability					
BA12703	Capacity building in bananas	0.38	0.24	0.13	1.55

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.