

# Mango impact assessments 2021

During 2020/21, Hort Innovation engaged independent consultants to evaluate the impact of mango research and development over the five years ending 30 June 2020. The assessment provided insights into the type and magnitude of impacts generated from Mango Fund investments.

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



# How the impact assessments were made

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.



## Project population defined

A pool of mango research and development (R&D) projects was identified, with the criteria of being completed between 1 June 2015 and 30 June 2020 and with a Hort Innovation managed investment value of at least \$80,000 – met by a total of 16 projects with total investment value of \$7.9 million.



## Projects sampled

From this pool a random sample of three projects was selected (listed in subsequent table). Together these three projects had a nominal Mango Fund value of \$1.77 million (22.4 per cent of the overall investment value). One of the projects aligned with mango 2017-2021 Strategic Investment Plan (SIP) Outcome 1 (increased productivity), one aligned with Outcome 2 (increase demand), and one aligned with Outcome 3 (industry development). No projects in the sample aligned with outcome 4 (sustainability).



## Projects evaluated

Each of the three 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 results

The results demonstrated that the benefits of R&D investments in the Mango Fund were a sound investment for growers, with the **benefit-cost ratio of the three sampled projects estimated at 2.38 to one**. Together, the benefits of the three projects are expected to deliver some **\$15.39 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).

*Note that some, but not all, of the impacts identified for each project investment were quantified as part of the evaluation process. Generally, impacts weren't quantified due to shortages of evidence/ data or the levels of uncertainty and significance regarding the impacts. As not all impacts were valued, it is likely that the estimates reported are conservative estimates of the impacts of the Hort Innovation R&D investment evaluated.*

*Through the assessments, 21 impacts were identified as having been generated directly by the three randomly selected projects. Economic and social impacts were grouped into the following seven broad categories. Environmental impacts included reduced chemical use and climate change adaptation.*

## Economic impacts

### IMPROVED PROFITABILITY FOR AUSTRALIAN MANGO GROWERS AS A RESULT OF MORE CONSISTENT SUPPLY.


**EXAMPLE:** *Manipulating mango flowering to extend harvest window (MG12012):* Improved profitability for growers able to apply project findings to consistently deliver early season fruit and realise additional early season price premiums.

### IMPROVED PROFITABILITY FOR AUSTRALIAN MANGO GROWERS AS A RESULT OF IMPROVED MARKET ACCESS/ NEW MARKET OPPORTUNITIES.

**EXAMPLE:** *New fruit fly systems for mangoes and market access (MG12017)* improved profitability for NT mango growers with improved market access (domestic and export) and net savings in fruit fly treatment.

### COST SAVINGS FOR AUSTRALIAN MANGO GROWERS (INCLUDING SAVINGS IN FRUIT FLY TREATMENT).

**EXAMPLE:** *Mango industry communication program 2016-2017 (MG15006)* Lowered the costs of production for mango growers as a result of increased awareness and adoption of research, marketing, market access and biosecurity information.



**\$15.39  
MILLION**  
NET PRESENT VALUE

## Social impacts

### IMPROVED HEALTH OUTCOMES FOR FARM WORKERS AND CONSUMERS (E.G. LESS USE OF ORGANOPHOSPHATES).

**EXAMPLE:** *New fruit fly systems for mangoes and market access (MG12017)* Improved health outcomes with less use of organophosphates in mango packing sheds and led to less risk of chemical residues reaching mango consumers.

### INCREASED SCIENTIFIC KNOWLEDGE AND CAPACITY.

**EXAMPLE:** *Manipulating mango flowering to extend harvest window (MG12012):* resulted in additional researcher skills in mango phenology with PhD students trained as part of the project.

### INCREASED MANGO GROWER AND INDUSTRY ASSOCIATION KNOWLEDGE AND CAPACITY

**EXAMPLE:** *Mango industry communication program 2016-2017 (MG15006)* resulted in additional grower skills across mango production, marketing, and biosecurity.

### PRODUCTIVITY/ PROFITABILITY BENEFITS HAVING A FLOW-ON EFFECT TO SUPPORT IMPROVED REGIONAL COMMUNITY WELLBEING.

**EXAMPLE:** *Mango industry communication program 2016-2017 (MG15006)* contributed to improved regional community wellbeing from spill-over income and employment benefits as a result of a more profitable and sustainable mango industry.



# Reporting

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.

## REPORTING AGAINST THE MANGO STRATEGIC INVESTMENT PLAN 2017-2021

Project code	PROJECT NAME	Present value of benefits (\$m)	Present value of costs (\$m)	Net present value (\$m)	Benefit-cost ratio
<b>Strategic Investment Plan Outcome 1:</b> <i>Increased industry productivity through increased yields and reduced costs per hectare.</i>					
MG12012	Manipulating mango flowering to extend harvest window	17.43	4.42	13.00	3.94
<b>Strategic Investment Plan Outcome 2:</b> <i>Increased grower profitability through increased consumer demand for Australian mangoes.</i>					
MG12017	New fruit fly systems for mangoes and market access	7.68	6.02	1.67	1.28
<b>Strategic Investment Plan Outcome 3:</b> <i>Increased R&amp;D and extension capacity and resources supporting industry development.</i>					
MG15006	Mango industry communication program 2016-2017	1.46	0.75	0.72	1.96
<b>Strategic Investment Plan Outcome 4:</b> <i>Improved industry sustainability and management of risks.</i>					
No sampled projects aligned with Outcome 4					

## 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 2020/21 terms.
- **Present value of costs:** The discounted value of investment costs to 2020/21 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.

