Fund Impact Assessment program 2020-21: Vegetable industry summary

What was the research about

During 2022, Hort Innovation engaged independent consultants to evaluate the impact of vegetable research and development completed over the five years ending 30 June 2021. Impact assessments seek to provided insights into the type and magnitude of impacts generated from investments in the vegetable levy fund.

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

About the impact assessment process

1. Project population defined

A pool of Vegetable Fund research and development (R&D) projects was identified, with the criteria of being completed between 1 June 2016 and 30 June 2021 and with a Hort Innovation managed investment value of at least $80,000. This criteria was met by a total of 90 projects with a Hort Innovation investment value of $54.8 million.

2. Projects sampled

From this pool a random sample of nine projects was selected (listed in Table 1). Together these nine projects had a nominal Hort Innovation investment value of $5.86 million (11 per cent of the overall investment value).

3. Projects evaluated

Each of the nine projects was evaluated using a logical framework approach, to map the impact pathway from activities, outputs and outcomes and impacts. Impacts were identified across economic, social, and environmental themes where appropriate. Where sufficient evidence and data allowed, the identified impacts were then 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. To support the evaluations, the impact assessment consultants reviewed project documentation, and engaged with 36 stakeholders including researchers, Hort Innovation staff, growers, and supply chain participants.

The results

As shown in Table 1, the impact assessment process valued impacts for four of the nine projects sampled. For each of these four projects, the investments generated a return to industry of between $2.1 to $8.7 for every dollar of total RD&E costs.

It is important to note, however, that while some impacts were valued, other benefits were not able to be quantified due to a lack of evidence or data to confidently attribute in impact. As such, the results give a conservative estimate of the true benefits that will be realised. As such, the results give a conservative estimate of the true benefits that will be realised.

For similar reasons, the potential impacts of the remaining five projects 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).

Across the nine projects, when the investment costs and benefits are grouped together, the benefit cost ratio is equal to 3.10:1 (or $3.10 of benefit generated for industry for every $1 in total RD&E funding).

Through the assessments, 42 impacts were identified as having been generated directly by the nine randomly selected projects or have the potential to be generated. Economic and social impacts were grouped into the following 5 broad categories. Environmental impacts included increased environmentally sustainable production from adoption of industry best practice.

Economic impacts

Increased farm productivity and profitability. Identified for four of nine sampled projects.

Example. VG15034 increased confidence to adopt IPM, reducing pest management costs with pest control equal to or better than conventional pest management.

Example. VG16068 increased adoption of cover cropping research outputs supporting farm productivity and profitability through increased gross yields, or reduced input costs, or both. For example, through a reduced risk of soil disease, pest or weed outbreaks and mitigation of adverse weather events (e.g. topsoil runoff) for vegetable growers, reducing management costs.

Enhanced export value. Identified for two of nine sampled projects.

Example. VG13072 Increased industry production and exports, specifically for carrots, sweet corn, beans, broccoli and baby leaf vegetables into the Malaysian and UAE markets, and for vegetable more generally.

Enhanced domestic value. Identified for two of nine sampled projects.

Example. VG17013 outlined key recommendations to inform demand creation strategies for domestic vegetable consumption and value. The economic analysis conducted as part of VG17013 identified a potential impact with a return of between $18.6 to $19.0 for every dollar invested in a consolidated demand creation campaign.

Example. VG15071 has the potential to support a greater selection of Australian native and Asian vegetable varieties aligning with consumer preferences supports increased consumer appeal, thereby supporting increased vegetable consumption with associated health and wellbeing outcomes.

Social impacts

Increased RD&E and scientific capacity. Identified for five of nine sampled projects.

Example. VG16070 improved vegetable grower and industry knowledge of the performance of protected cropping light and energy technologies, contributing to the ongoing development of technologies to support the sector realise productivity and operational efficiencies.

Example. VG15021 increased industry research knowledge, skills and evidence relating to plant growth regulators and precision application technology, supporting industry capacity for ongoing R&D into this area, with the potential for future industry impact.

Productivity/profitability benefits having a flow-on community benefit in vegetable growing areas. Identified for four of nine sampled projects.

Example. VG13078 Increased industry adoption of integrated crop protection practices, enabling an increased sustainability of quality and affordable vegetable supply, and in turn supporting increased consumption of vegetables with associated health and wellbeing benefits.

Environmental impacts

Improved environmental outcomes from vegetable farming. Identified for four of nine sampled projects.

Example. VG16068 improved vegetable grower and industry knowledge of cover cropping, reducing risks of soil erosion, enhanced soil microbial activity, and reducing reliance on chemical nutrition inputs with associated risks of environmental runoff.

Reporting against the 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.

Table 1. Reporting against industry Strategic Investment Plans 2017-2021

Project code	Project Name	Present value of benefits ($M)	Present value of costs ($M)	Net present value ($M)	Benefit-cost ratio
Outcome 1. Increased domestic demand					
VG15071	*Understanding consumer triggers and barriers to consumption of Australian indigenous vegetables and Asian vegetables*	NA	0.70	NA	NA
VG17013	*Building the case to grow domestic demand for vegetables*	NA	0.30	NA	NA
Outcome 2. Export market growth and increased understanding of opportunities					
VG13072	*Export Opportunities for Carrots, Sweet corn, Beans, Broccoli and Baby leaf - Symposia*	2.76	0.62	2.14	4.45

VG15074	*Export Development of Australian Vegetables to Japan*	NA	1.35	NA	NA
Outcome 3. Increased farm productivity					
VG16068	*Optimising cover cropping for the Australian vegetable industry*	39.52	4.21	35.32	9.39
VG16070	*Innovative glass and photovoltaic technologies in protected cropping*	NA	5.63	NA	NA
VG15021	*Sowing success through transformational technologies*	NA	2.19	NA	NA
Outcome 4. Increased supply chain integration					
Outcome not sampled.		NA	NA	NA	NA
Outcome 5. Improved industry capability to adopt improved practices					
VG13078	*Extension of integrated crop protection information*	11.92	2.27	9.65	5.25
VG15034	*Adoption of IPM through a Participatory Approach with Local Advisors and Industry*	1.52	0.72	0.81	2.13
TOTAL SAMPLE		**55.73**	**17.99**	**37.74**	**3.10**

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 2021/22 terms.

Present value of costs: The discounted value of investment costs to 2021/22 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.

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