Horticulture Impact Assessment Program:

Appendix 14: Training growers to enhance their consumer engagement (VG16035 Impact Assessment)

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AgEconPlus and Agtrans Research

Project code:

MT18011

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Executive Summary

What the report is about

This report presents the results of an impact assessment of a Horticulture Innovation Australia Limited (Hort Innovation) investment in *VG16035: Training growers in direct consumer engagement – scoping report.* The project was funded by Hort Innovation over the period February 2017 to April 2017.

Methodology

The investment was first analysed qualitatively within a logical framework that included activities and outputs, outcomes and impacts. Actual and/or potential impacts then were categorised into a triple bottom line framework. Principal impacts identified were then considered for valuation in monetary terms (quantitative assessment). Past and future cash flows were expressed in 2019/20 dollar terms and were discounted to the year 2019/20 using a discount rate of 5% to estimate the investment criteria and a 5% reinvestment rate to estimate the modified internal rate of return (MIRR).

Results/key findings

Longer term, the investment has potential to contribute to an increase in profitable sales for vegetable growers adopting Direct Consumer Engagement. To realise this impact, investment is required in the further development and rollout of a vegetable grower Direct Consumer Engagement marketing program. Other potential impacts include increased grower marketing capacity and an increased understanding by researchers of marketing programs targeting small businesses using social media. Project investment also has the potential to make a future contribution to improved regional community wellbeing via its contribution to profitable vegetable growers.

Investment Criteria

Total funding from all sources for the project was $0.17 million (present value terms). The investment produced estimated total expected benefits of $0.20 million (present value terms). This gave a net present value of $0.03 million, an estimated benefit-cost ratio of 1.19 to 1, an internal rate of return of 6.0% and a MIRR of 5.6%.

Conclusions

A small positive return has been assessed for this project. Several social impacts identified were not valued, the impacts were considered uncertain and indirect compared with the impact valued. Consequently, the investment criteria provided by the valuation may be underestimates of the actual performance of the investment.

Keywords

Impact assessment, cost-benefit analysis, vegetable industry, grower marketing program, direct consumer engagement, marketing, training, education, brands, branding, advertising, social media

Introduction

Horticulture Innovation Australia Limited (Hort Innovation) required a series of impact assessments to be carried out annually on a number of investments in the Hort Innovation research, development and extension (RD&E) portfolio. The assessments were required to meet the following Hort Innovation evaluation reporting requirements:

- Reporting against the Hort Innovation's current Strategic Plan and the Evaluation Framework associated with Hort Innovation's Statutory Funding Agreement with the Commonwealth Government.
- Annual Reporting to Hort Innovation stakeholders.
- Reporting to the Council of Rural Research and Development Corporations (CRRDC).

Under impact assessment program MT18011, the first series of impact assessments were conducted in 2019 and included 15 randomly selected Hort Innovation RD&E investments (projects). The second series of impact assessments (current series), undertaken in 2020, also included 15 randomly selected projects worth a total of approximately $7.11 million (nominal Hort Innovation investment). The second series of projects were selected from an overall population of 85 Hort Innovation investments worth an estimated $44.64 million (nominal Hort Innovation investment) where a final deliverable had been submitted in the 2018/19 financial year.

The 15 investments were selected through a stratified, random sampling process such that investments chosen represented at least 10% of the total Hort Innovation RD&E investment in the overall population (in nominal terms) and was representative of the Hort Innovation investment across six, pre-defined project size classes.

Project *VG16035: Training growers in direct consumer engagement – scoping report* was randomly selected as one of the 15 investments under MT18011 and was analysed in this report.

General Method

The impact assessment follows general evaluation guidelines that are now well entrenched within the Australian primary industry research sector including Research and Development Corporations, Cooperative Research Centres, State Departments of Agriculture, and some universities. The approach includes both qualitative and quantitative descriptions that are in accord with the impact assessment guidelines of the CRRDC (CRRDC, 2018).

The evaluation process involved identifying and briefly describing project objectives, activities and outputs, outcomes, and impacts. The principal economic, environmental and social impacts were then summarised in a triple bottom line framework.

Some, but not all, of the impacts identified were then valued in monetary terms. Where impact valuation was exercised, the impact assessment uses cost-benefit analysis as its principal tool. The decision not to value certain impacts was due either to a shortage of necessary evidence/data, a high degree of uncertainty surrounding the potential impact, or the likely low relative significance of the impact compared to those that were valued. The impacts valued are therefore deemed to represent the principal benefits delivered by the project. However, as not all impacts were valued, the investment criteria reported for individual investments potentially represent an underestimate of the performance of that investment.

Background & Rationale

Background

The Australian vegetable industry is one of Australia's largest horticultural industries with a five year estimated annual production value of $4.19 billion and a production volume of 3.6 million tonnes. Vegetable supply per capita, a proxy for vegetable consumption, stands at 87.9 kg – Table 1.

Table 1: Australian Vegetable Production and Value 2014/15 to 2018/19

Year Ended 30 June	Production (tonnes)	Supply per Capita (kg)	Gross Value of Production ($m)	Farmgate Value of Production ($m)
2015	3,514,125	N/a	3,786.5	3,597.2
2016	3,584,516	87.82	3,801.2	3,611.1
2017	3,502,673	86.73	4,291.6	4,077.0
2018	3,695,345	88.79	4,345.7	4,128.4
2019	3,722,378	88.09	4,722.1	4,486.0
Average	3,603,807	87.86	4,189.4	3,979.9

Source: Horticulture Statistics Handbook 2016/17 and 2018/19

Australian vegetable growers grow more than 130 different vegetable crops. The majority of growers are located in New South Wales, followed by Queensland and Victoria. The top three states by value of production are Queensland, Victoria and South Australia.

The vegetable industry has a research and development (R&D) levy that is used for vegetable RD&E activities across a range of disciplines targeting both on-farm and supply chain sectors in accordance with industry priorities. The levy is collected on the majority of vegetable commodities, with exceptions of particular note being potato, onion and tomato, and is matched by Hort Innovation with funding from the Australian Government. Some 1,676 growers pay the vegetable levy each year (Hort Innovation, 2017).

Vegetable R&D levy investment is guided by the Vegetable industry's Strategic Investment Plan (SIP). The current SIP has been driven by levy payers and addresses the Australian vegetable industry's needs from 2017 to 2021. Strategies and priorities in the Plan have been driven by a set of five desired outcomes (Hort Innovation, 2017):

1. Growth in the domestic market
2. Growth in export markets
3. Improved farm productivity
4. Increased levels of post-farmgate integration
5. Improved industry capabilities for adoption and innovation.

Rationale

Social media (e.g. Facebook, Instagram, You Tube) potentially provides vegetable growers with the opportunity to build their own brand and market cost effectively. However, many growers do not have the knowledge or resources to realise this opportunity. Design of a grower training program to directly engage consumers was envisaged. The approach proposed would potentially allow growers to join the project at any stage and select their level of engagement based on their existing marketing knowledge, the scale and life-stage of their business.

Project Details

Summary

Project Code: VG16035

Title: *Training growers in direct consumer engagement – scoping report*

Research Organisation: Workshop Australia Pty Ltd

Project Leader: Jamie Kwong

Period of Funding: February 2017 to April 2017

Objectives

The specific objectives of project VG16035 were:

1. To provide an overview of how marketing, branding and consumer engagement work.
2. To detail opportunities available to growers (considering different business sizes, complexities, resources, capabilities as well as grower sales and distribution models).
3. To provide a thorough and extensive outline of the marketing channels and platforms available.
4. To provide an easy to use, up to the minute guide on social and digital media marketing from a remote base.
5. To provide growers with the incentive and know-how to start their own consumer brand journey or evolve a current brand for long-term success.

The overall ambition for the project was to improve grower viability and sustainability by increasing the value of vegetable products through branding and marketing, reducing reliance on supply to large retailers and inspiring the next generation growers to stay on, or return to, the farm.

Logical Framework

Table 2 provides a detailed description of the project in a logical framework.

Table 2: Logical Framework for Project VG16035

Activities	Major project activities included: • Initial briefing and brainstorming session between the research provider and Hort Innovation. Brainstorming included specification of the content of an integrated Direct Consumer Engagement marketing program. • Preparation of a framework for the program encompassing the project's five objectives (an overview of the marketing process, description of marketing opportunities, relevant channels/platforms, a social/digital marketing guide, and incentives for grower engagement). • Research to review existing marketing programs with a focus on small business and social/digital marketing. The review applied the following criteria to evaluation: language (terminology, consistency, tonality), content (is it applicable to small business, new starters and new media), relevance (to a vegetable grower audience), quality (best practice examples), and engagement (approachable, simple, inspiring, interactive). • Training formats reviewed included: online courses/webinars, one-on-one training, small group workshops, seminars and e-newsletters. • Consultation completed with representatives from small to medium enterprise associations, human resource experts, trainers, social media specialists and training material developers. • Liaison with potential training program suppliers to provide a detailed quote for delivery of a pilot program consistent with the project framework. A clear opportunity to link with vegetable industry training coordinator VegPro was identified. • Documentation and discussion of a final proposal with Hort Innovation.
Outputs	The important outputs of the project were:

	• The scoping of a pilot project (a program proposal) for a Direct Consumer Engagement program for vegetable growers. The program proposal includes a framework, justification for the framework and a range of alternative investment budgets. • Research revealed growers have a range of marketing knowledge and that the training program needs to appeal across a spectrum; building grower appreciation of the advantages of marketing is as important as demonstrating practical applications; the marketing program must be engaging and one growers will recommend to their peers; the program should be available in a range of formats; the program has the potential to make a significant positive contribution to grower profitability and community welfare. • A recommendation that a series of grower interviews be completed to further fine tune the proposal and achieve grower ownership. Grower interviews were to be completed prior to producing the content for a pilot training program. • The project was not designed to deliver the pilot project, only a design draft. No vegetable growers were engaged during the project.
Outcomes	Additional knowledge in relation to the design, and products available, for training growers in Direct Consumer Engagement.
Impacts	• Economic – contribution to potential future projects that will increase vegetable grower profitability via adoption of a Direct Consumer Engagement marketing program. • Capacity – future contribution to vegetable grower understanding of the benefits of marketing, the marketing process and Direct Consumer Engagement. • Capacity – researchers with an increased understanding of resources available for small business, social media focussed marketing programs. • Social – future contribution to improved regional community wellbeing with more profitable vegetable growers.

Project Investment

Nominal Investment

Table 3 shows the annual investment made in Project VG16035 by Hort Innovation. The research provider, Workshop Australia Pty Ltd, made an in-kind contribution to the project.

Table 3: Annual Investment in Project VG16035 (nominal $)

Year ended 30 June	HORT INNOVATION ($)	OTHER ($)	TOTAL ($)
2017	108,170	15,111	123,281
Total	**108,170**	**15,111**	**123,281**

Source: VG16035 Executed Research Agreement

Program Management Costs

For the Hort Innovation investment the cost of managing the Hort Innovation funding was added to the Hort Innovation contribution for the project via a management cost multiplier (1.162). This multiplier was estimated based on the share of 'payments to suppliers and employees' in total Hort Innovation expenditure (3-year average) reported in the Hort Innovation's Statement of Cash Flows (Hort Innovation Annual Report, various years). This multiplier was then applied to the nominal investment by Hort Innovation shown in Table 3.

Real Investment and Extension Costs

For purposes of the investment analysis, the investment costs of all parties were expressed in 2019/20 dollar terms using the Implicit Price Deflator for Gross Domestic Product (ABS, 2020). The project (scoping for a pilot program), required further investment in program development and rollout prior to the realisation of project impacts.

Impacts

Table 4 provides a summary of the principal types of impacts delivered by the project, based on the logical framework. Impacts have been categorised into economic, environmental and social impacts.

Table 4: Triple Bottom Line Categories of Principal Impacts from Project VG16035

Economic	• Contribution to potential future projects that will increase vegetable grower profitability via adoption of a Direct Consumer Engagement marketing program.
Environmental	• Nil
Social	• Future contribution to vegetable grower understanding of the benefits of marketing, the marketing process and Direct Consumer Engagement. • Researchers with an increased understanding of resources available for small business, social media focussed marketing programs. • Future contribution to improved regional community wellbeing with more profitable vegetable growers.

Public versus Private Impacts

Impacts from investment in VG16035 will be mainly private and realised through a future increase in vegetable grower profit for those adopting a Direct Consumer Engagement marketing program.

Distribution of Private Impacts

Economic benefits from an increase in vegetable grower profitability will be shared along the supply chain with input suppliers (e.g. seed, chemical, fertiliser), transporters and consumers all benefiting. The share of benefit realised by each link in the supply chain will depend on both short- and long-term supply and demand elasticities in the fresh vegetable market.

Impacts on Other Australian Industries

If the strategy to increase profits through Direct Consumer Engagement is successful, it will occur at the expense of sales through other vegetable marketing channels including the large supermarket chains and other produce retailers.

Impacts Overseas

It is possible that marketing using Direct Consumer Engagement could also be used to increase profit on vegetable sales in export markets.

Match with National Priorities

The Australian Government's Science and Research Priorities and Rural RD&E priorities are reproduced in Table 5. The project outcomes and related impacts will contribute to Science and Research Priority 1.

Table 5: Australian Government Research Priorities

Australian Government	
Rural RD&E Priorities (est. 2015)	**Science and Research Priorities (est. 2015)**
1. Advanced technology 2. Biosecurity 3. Soil, water and managing natural resources 4. Adoption of R&D	1. Food 2. Soil and Water 3. Transport 4. Cybersecurity 5. Energy and Resources 6. Manufacturing 7. Environmental Change 8. Health

Sources: (DAWR, 2015) and (OCS, 2015)

Alignment with the Vegetable Strategic Investment Plan 2017-2021

The strategic outcomes and strategies of the vegetable industry are outlined in the Vegetable Industry's Strategic Investment Plan 2017-2021[1] (Hort Innovation, 2017). Project VG16035 addressed Outcome 1, Strategy 1.1 'increase knowledge to better understand consumer trends and segments' and Outcome 5, Strategy 5.2 'Support innovation that advances and grows the vegetable industry'.

[1] For further information, see: https://www.horticulture.com.au/hort-innovation/funding-consultation-and-investing/investment-documents/strategic-investment-plans/

Valuation of Impacts

Impacts Valued

Analyses were undertaken for total benefits that included future expected benefits. A degree of conservatism was used when finalising assumptions, particularly when some uncertainty was involved. Sensitivity analyses were undertaken for those variables where there was greatest uncertainty or for those that were identified as key drivers of the investment criteria.

A single key impact was valued – contribution to potential future projects that will increase vegetable grower profitability via adoption of a Direct Consumer Engagement marketing program. The impact is longer term and requires further investment in the development and rollout of a training program.

Impacts Not Valued

Not all of the impacts identified in Table 4 could be valued in the assessment. The three social impacts identified but not valued were:

- Future contribution to vegetable grower understanding of the benefits of marketing, the marketing process and Direct Consumer Engagement.
- Researchers with an increased understanding of resources available for small business, social media focussed marketing programs.
- Future contribution to improved regional community wellbeing with more profitable vegetable growers.

Potential social impacts were not valued due to an absence of data that would allow the development of credible assumptions.

Valuation of Impact: Contribution to Potential Future Projects that will Increase Vegetable Grower Profitability via Adoption of a Direct Consumer Engagement Marketing Program

The VG16035 investment created additional knowledge in relation to products available and the design of training packages for growers interested in Direct Consumer Engagement. With additional investment, VG16035 has the potential to contribute to future increases in vegetable grower profit.

Attribution

A 10% attribution factor has been assumed for VG16035's contribution to future increases in vegetable grower profit associated with adoption of Direct Consumer Engagement. Most of the investment required to achieve this outcome will be in final marketing program design, rollout and adoption.

Counterfactual

The scenario assumed if the investment had not been made is that it is 50% likely that the same benefits (i.e. a successful scoping of a Direct Consumer Engagement marketing program for vegetable growers) would have been developed through another project.

Summary of Assumptions

A summary of the key assumptions made for valuation of the impacts is shown in Table 6.

Table 6: Summary of Assumptions

Variable	Assumption	Source/Comment
Impact 1: Contribution to Potential Future Projects that will Increase Vegetable Grower Profitability via Adoption of a Direct Consumer Engagement Marketing Program		
Share of fresh Australian vegetable production likely to adopt a Direct Consumer Engagement marketing program.	5%	Consultant estimate – bulk of production will continue to engage through mainstream supply channels including major supermarket chains, large independent retailers and central wholesale markets.
Australian fresh vegetable production.	3,603,807 tonnes	5 year average production 2015 to 2019 sourced from Horticulture Statistics Handbooks and shown above in Table 1.
Grower profit on vegetable sales.	$77.30/tonne	Farm gate value of vegetable production of $3,979.9 million divide production of

		3,603,807 tonnes to give a gross value of $1,104/tonne (See Table 1 above). Typically, profit averages somewhere between 2% and 10% in established horticultural industries and 7% has been used in this analysis to reflect higher value crops covered by the vegetable levy.
Increase in grower profit attributable to adoption of a Direct Consumer Engagement (DCE) marketing program.	12%	Consultant estimate after consideration of differences in profit from DCE channels such as farmers markets and allowing for the cost of grower investment in DCE development and implementation in their business. Woodburn (2014) noted that farmers' markets allow growers to retain a higher share of retail price than other marketing channels and that profit was a 'top 3' reason for farmer participation in this form of marketing arrangement. Woodburn (2014) also noted that there was a need to collect and compare cost and revenue data across marketing channels.
Year of first impact.	2024/25	Consultant estimate after noting that Hort Innovation is not currently investing in DCE projects for the vegetable industry.
Probability of a useful output	50%	Consultant estimate after considering the VG16035 final report.
Probability of useful output having an impact on grower profitability.	50%	Consultant estimate after considering the VG16035 final report.
Attribution.	10%	Consultant estimate made after considering additional investment required in finalising a Direct Consumer Engagement marketing program, pilot program rollout and full program implementation.

Results

All costs and benefits were discounted to 2019/20 using a discount rate of 5%. A reinvestment rate of 5% was used for estimating the Modified Internal Rate of Return (MIRR). The base analysis used the best available estimates for each variable, notwithstanding a level of uncertainty for many of the estimates. All analyses ran for the length of the project investment period plus 30 years from the last year of investment (2016/17) as per the CRRDC Impact Assessment Guidelines (CRRDC, 2018).

Investment Criteria

Tables 7 and 8 show the investment criteria estimated for different periods of benefit for the total investment and the Hort Innovation investment alone.

Table 7: Investment Criteria for Total Investment in Project VG16035

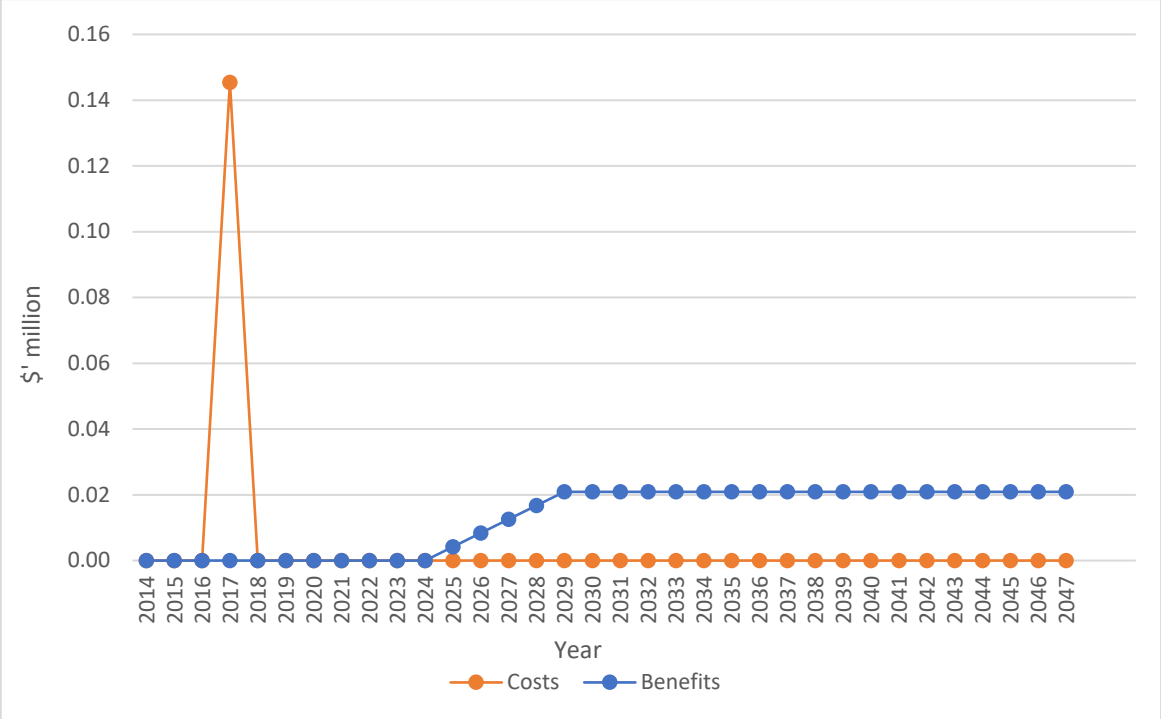
Investment Criteria	Years after Last Year of Investment						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present Value of Benefits ($m)	0.00	0.00	0.02	0.08	0.13	0.17	0.20
Present Value of Costs ($m)	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Net Present Value ($m)	-0.17	-0.17	-0.15	-0.09	-0.04	0.00	0.03
Benefit-Cost Ratio	0.00	0.00	0.11	0.47	0.77	1.01	1.19
Internal Rate of Return (%)	negative	negative	negative	negative	3.2	5.1	6.0
MIRR (%)	negative	negative	negative	negative	3.7	5.0	5.6

Table 8: Investment Criteria for Hort Innovation Investment in Project VG16035

Investment Criteria	Years after Last Year of Investment						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present Value of Benefits ($m)	0.00	0.00	0.02	0.07	0.12	0.15	0.18
Present Value of Costs ($m)	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Net Present Value ($m)	-0.15	-0.15	-0.13	-0.08	-0.03	0.00	0.03
Benefit-Cost Ratio	0.00	0.00	0.11	0.47	0.77	1.01	1.19
Internal Rate of Return (%)	negative	negative	negative	negative	3.2	5.1	6.0
MIRR (%)	negative	negative	negative	negative	3.7	5.0	5.6

The annual undiscounted benefit and cost cash flows for the total investment for the duration of the VG16035 investment plus 30 years from the last year of investment are shown in Figure 2.

Figure 1: Annual Cash Flow of Undiscounted Total Benefits and Total Investment Costs



Sensitivity Analyses

A sensitivity analysis was carried out on the discount rate. The analysis was performed for the total investment and with benefits taken over the life of the investment plus 30 years from the last year of investment. All other parameters were held at their base values. Table 9 presents the results. The results are sensitive to the discount rate and at a 10% discount rate, project costs exceed project benefits.

Table 9: Sensitivity to Discount Rate (Total investment, 30 years)

Investment Criteria	**Discount rate**		
	0%	**5% (base)**	**10%**
Present Value of Benefits ($m)	0.44	0.20	0.10
Present Value of Costs ($m)	0.15	0.17	0.19
Net Present Value ($m)	0.29	0.03	-0.09
Benefit-cost ratio	3.02	1.19	0.53

A sensitivity analysis was then undertaken for the share of vegetable production adopting Direct Consumer Engagement. Results are provided in Table 10. Project costs exceed project benefits when share of vegetable production adopting DCE is halved.

Table 10: Sensitivity to Share of Vegetable Production Adopting DCE (Total investment, 30 years)

Investment Criteria	**Share of Vegetable Production Adopting DCE**		
	2.5%	**5% (base)**	**10%**
Present Value of Benefits ($m)	0.10	0.20	0.40
Present Value of Costs ($m)	0.17	0.17	0.17
Net Present Value ($m)	-0.07	0.03	0.23
Benefit-cost ratio	0.60	1.19	2.38

A final sensitivity analysis tested the sensitivity of the investment criteria to the increase in grower profit realised with adoption of DCE. The results (Table 11) show that the project breaks even when profit increase is 10%.

Table 11: Sensitivity to Increase in Vegetable Grower Profit from Adoption of DCE (Total investment, 30 years)

Investment Criteria	Increase in Vegetable Grower Profit with Adoption of DCE		
	6%	10% (breakeven)	12% (base)
Present Value of Benefits ($m)	0.10	0.17	0.20
Present Value of Costs ($m)	0.17	0.17	0.17
Net Present Value ($m)	-0.07	0.00	0.03
Benefit-cost ratio	0.60	0.99	1.19

Confidence Rating

The results produced are highly dependent on the assumptions made, some of which are uncertain. There are two factors that warrant recognition. The first factor is the coverage of benefits. Where there are multiple types of benefits it is often not possible to quantify all the benefits that may be linked to the investment. The second factor involves uncertainty regarding the assumptions made, including the linkage between the research and the assumed outcomes.

A confidence rating based on these two factors has been given to the results of the investment analysis (Table 12). The rating categories used are High, Medium and Low, where:

High: denotes a good coverage of benefits or reasonable confidence in the assumptions made

Medium: denotes only a reasonable coverage of benefits or some uncertainties in assumptions made

Low: denotes a poor coverage of benefits or many uncertainties in assumptions made

Table 12: Confidence in Analysis of Project

Coverage of Benefits	Confidence in Assumptions
High	Medium-high

Coverage of benefits valued was assessed as High as the key impact – contribution to future projects that will increase vegetable grower profitability via adoption of a DCE marketing program was valued. Confidence in assumptions was rated as Medium-high, data used came from credible sources.

Conclusion

The investment in VG16035 has described a Direct Consumer Engagement marketing program that when rolled out and adopted by vegetable growers has the potential to increase profit.

Total funding from all sources for the project was $0.17 million (present value terms). The investment produced estimated total expected benefits of $0.20 million (present value terms). This gave a net present value of $0.03 million, an estimated benefit-cost ratio of 1.19 to 1, an internal rate of return of 6.0% and a modified internal rate of return of 5.6%.

As several social impacts identified were not valued, the investment criteria estimated by the evaluation may be underestimates of the actual performance of the investment.

Glossary of Economic Terms

Cost-benefit analysis:	A conceptual framework for the economic evaluation of projects and programs in the public sector. It differs from a financial appraisal or evaluation in that it considers all gains (benefits) and losses (costs), regardless of to whom they accrue.
Benefit-cost ratio:	The ratio of the present value of investment benefits to the present value of investment costs.
Discounting:	The process of relating the costs and benefits of an investment to a base year using a stated discount rate.
Internal rate of return:	The discount rate at which an investment has a net present value of zero, i.e. where present value of benefits = present value of costs.
Investment criteria:	Measures of the economic worth of an investment such as Net Present Value, Benefit-Cost Ratio, and Internal Rate of Return.
Modified internal rate of return:	The internal rate of return of an investment that is modified so that the cash inflows from an investment are re-invested at the rate of the cost of capital (the re-investment rate).
Net present value:	The discounted value of the benefits of an investment less the discounted value of the costs, i.e. present value of benefits - present value of costs.
Present value of benefits:	The discounted value of benefits.
Present value of costs:	The discounted value of investment costs.

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Abbreviations

CRRDC	Council of Research and Development Corporations
DAWR	Department of Agriculture and Water Resources (Australian Government)
DCE	Direct Consumer Engagement
GDP	Gross Domestic Product
GVP	Gross Value of Production
IRR	Internal Rate of Return
MIRR	Modified Internal Rate of Return
OCS	Office of Chief Scientist Queensland
PIEFA	Primary Industries Education Foundation Australia
PVB	Present Value of Benefits
RD&E	Research, Development and Extension