

Horticulture Impact Assessment Program: Appendix 15: Vegetable market price reporting pilot program (VG16084 Impact Assessment)

Impact analyst:

Michael Clarke

Delivery partner:

AgEconPlus and Agtrans Research

Project code:

MT18011

Date:

19 August 2020

Disclaimer:

Horticulture Innovation Australia Limited (Hort Innovation) makes no representations and expressly disclaims all warranties (to the extent permitted by law) about the accuracy, completeness, or currency of information in this Final Report.

Users of this Final Report should take independent action to confirm any information in this Final Report before relying on that information in any way.

Reliance on any information provided by Hort Innovation is entirely at your own risk. Hort Innovation is not responsible for, and will not be liable for, any loss, damage, claim, expense, cost (including legal costs) or other liability arising in any way (including from Hort Innovation or any other person's negligence or otherwise) from your use or non-use of the Final Report or from reliance on information contained in the Final Report or that Hort Innovation provides to you by any other means.

Funding statement:

This project has been funded by Hort Innovation, using research and development levies and contributions from the Australian Government. Hort Innovation is the grower-owned, not-for-profit research and development corporation for Australian horticulture.

Publishing details:

Published and distributed by: Hort Innovation

Level 8
1 Chifley Square
Sydney NSW 2000

Telephone: (02) 8295 2300

www.horticulture.com.au

© Copyright 2020 Horticulture Innovation Australia

Contents

Contents	3
Tables	3
Figures	3
Executive Summary	4
Keywords	4
Introduction	5
General Method	6
Background & Rationale	7
Project Details	7
Project Investment	10
Impacts	11
Valuation of Impacts	13
Results	15
Conclusion	18
Glossary of Economic Terms	19
Reference List	20
Acknowledgements	21
Abbreviations	21

Tables

Table 1: Australian Vegetable Production and Value 2014/15 to 2018/19	7
Table 2: Logical Framework for Project VG16084	8
Table 3: Annual Investment in Project VG16084 (nominal \$)	10
Table 4: Annual Investment in Data Collection Project (VG16081 nominal \$)	10
Table 5: Triple Bottom Line Categories of Principal Impacts from Project VG16084	11
Table 6: Australian Government Research Priorities	11
Table 7: Summary of Assumptions	13
Table 8: Investment Criteria for Total Investment in Project VG16084	15
Table 9: Sensitivity to Discount Rate	16
Table 10: Sensitivity to Share of Vegetable Production Using Value-added Market Reports	16
Table 11: Sensitivity to Increase in Vegetable Grower Profit from Use of Market Reports	16
Table 12: Confidence in Analysis of Project	16

Figures

Figure 1: Annual Cash Flow of Undiscounted Total Benefits and Total Investment Costs	15
--	----

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 *VG16084: Vegetable market price reporting pilot program - reporting*. The project was funded by Hort Innovation over the period August 2017 to May 2019.

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

The investment in VG16084 has described a value-added, vegetable price reporting program that has been used by growers, a vegetable industry development officer, and the supply chain to inform decision making and potentially, contribute to grower profit. Value-added data production generated through VG16084 was discontinued due to a shortage of investment funds.

Investment Criteria

Total funding from all sources for the project was \$0.16 million (present value terms). The investment produced estimated total expected benefits of \$0.34 million (present value terms). This gave a net present value of \$0.19 million, an estimated benefit-cost ratio of 2.19 to 1, an internal rate of return of 33.5% and a MIRR of 7.6%.

Conclusions

A 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, wholesale market reporting, value-added, daily reports, weekly reports

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 *VG16084: Vegetable market price reporting pilot program - reporting* 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

Fresh produce wholesale markets are complex, dynamic, and often decentralised. Markets are extremely sensitive to supply and demand fluctuations as well as variations in produce quality. In this context the provision of effective, engaging, and relevant market price reporting for vegetables exists in a challenging space.

Market reporting is critical to vegetable growers and allows them to make informed short-term marketing decisions, as well as longer-term benchmarking and production decisions. Comparing price trends between wholesale markets over time may also allow growers to make more informed decisions about where to sell produce during the season and move products to the highest value market.

Hort Innovation engaged service provider, Ausmarket Consultants, at the same time as VG16084 to collect raw wholesale market data for vegetable growers. The purpose of this pilot project was to work with Ausmarket Consultants to analyse the data and present it in a value-added form. The value-added form was to include data visualisation and analysis of trends over time. The reporting metrics, presentation and format of the report were to be determined by a Project Reference Group.

Value-added wholesale market reports were made available to Hort Innovation for dissemination to levy paying vegetable growers via the Hort Innovation website.

Project Details

Summary

<p>Project Code: VG16084</p> <p>Title: <i>Vegetable market price reporting pilot program - reporting</i></p> <p>Research Organisation: Freshlogic</p> <p>Project Leader: Martin Kneebone</p> <p>Period of Funding: August 2017 to May 2019</p>
--

Objectives

The objectives of project VG16084 were to help Hort Innovation to:

1. Offer vegetable industry stakeholders and levy payers a market price report resource that provides value and supports profitable marketing decisions.
2. Facilitate stakeholder engagement with market price reporting in the vegetable industry.
3. Appraise the value of market price reporting for vegetable stakeholders.

Logical Framework

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

Table 2: Logical Framework for Project VG16084

Activities	<p>Major project activities included:</p> <ul style="list-style-type: none"> • Obtain daily and monthly wholesale market price data for the Brisbane, Sydney, Melbourne, and Adelaide wholesale markets from Ausmarket via Hort Innovation. • Analysis of grades and product forms to enable valid and consistent comparisons. • Identification of pack sizes to enable a valid common denominator of price per kilogram to be calculated. Other market data was then overlayed to provide insight. • Design of a system that considers seasonal issues and state markets in order to consolidate state based pricing into a national indicator price. • Engage with the Project Reference Group to receive input and finalise the design of the reports. Reports include timeseries comparisons of prices across markets and products, average unit prices compared to pack size and historical 10 year movements in price. • Production of individual market reports. A twice weekly report that provides daily data for the prescribed day i.e. data for the Monday and Thursday trading day. • Production of monthly reports that provide average prices across the month and report medium term and historical trends. • Daily reports made available within 24 hours of receiving the data and monthly reports within three days of receiving the data. • Reports prepared for ten commodities i.e. beans, broccoli, capsicum, carrot, cauliflower, celery, cucumber, lettuce, sweetcorn, and zucchini. • Reports copy-edited for consistency and accuracy prior to provision to Hort Innovation. • Reports made available for timely download from the Hort Innovation website.
Outputs	<p>The important outputs of the project were:</p> <ul style="list-style-type: none"> • Daily (twice weekly), monthly and 10 year historical monthly data reports. 65 daily reports and 12 monthly reports were prepared between May 2018 and May 2019 for each of the ten commodities. • Value-added reports that present price per kilogram rather than the raw data which was presented in a variety of carton and tray unit forms. • Feedback from nineteen vegetable growers, fourteen of whom noted that the reports were either 'very useful' or 'useful'. Seven other users of the data (wholesalers, exporters, government, and a vegetable industry development officer) also provided feedback and mostly indicated that the reports were useful.

	<ul style="list-style-type: none"> • A total of 2,400 users accessed project materials (6,700 page views) in the time the material was made public.
Outcomes	<ul style="list-style-type: none"> • A twelve month pilot project that provided vegetable growers, an industry development officer and supply chain partners with better information for more informed business and investment decisions and encouraged ongoing use of Ausmarket reports. A forced discontinuation of the project was necessary due to a shortage of investment funds.
Impacts	<ul style="list-style-type: none"> • Economic – minor increase in vegetable grower use of market reports, resulting in improved marketing decisions and additional business profit. • Capacity – growers, industry development officer and researchers who are more aware of the content and value of existing (Ausmarket) market reporting data. • 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 VG16084 by Hort Innovation. There were no other funding contributions to the project.

Table 3: Annual Investment in Project VG16084 (nominal \$)

Year ended 30 June	HORT INNOVATION (\$)	OTHER (\$)	TOTAL (\$)
2018	70,000	0	70,000
2019	55,700	0	55,700
Total	125,700	0	125,700

Source: VG16084 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). No additional costs of extension were included as the project itself was extension oriented i.e. better communication of wholesale market reporting data to vegetable growers. However, the project was dependent on Hort Innovation investment in Ausmarket Consultants collection of raw wholesale data (VG16081). Hort Innovation investment in VG16081 is shown in Table 4.

Table 4: Annual Investment in Data Collection Project (VG16081 nominal \$)

Year ended 30 June	HORT INNOVATION (\$)	OTHER (\$)	TOTAL (\$)
2018	159,606.40	0	159,606.40
2019	200,563.60	0	200,563.60
Total	360,170.00	0	360,170.00

Source: VG16081 Executed Research Agreement

Impacts

Table 5 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 VG16084

Economic	<ul style="list-style-type: none"> Minor increase in vegetable grower use of market reports, resulting in improved marketing decisions and additional business profit.
Environmental	<ul style="list-style-type: none"> Nil
Social	<ul style="list-style-type: none"> Growers, industry development officer and researchers with additional capacity – increased awareness of the content and value of existing (Ausmarket) market reporting data. Future contribution to improved regional community wellbeing with more profitable vegetable growers.

Public versus Private Impacts

Impacts from investment in VG16084 will be mainly private and realised by vegetable growers via increased use of market reports, improved marketing decisions and additional business profit.

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, wholesalers, exporters, retailers, 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

Lessons learnt from this project will be relevant to other horticultural industries considering value-added market reporting including non-levied vegetables (e.g. potato, onion, tomato) and the fruit industries.

Impacts Overseas

Analysis prepared as part of the value-added market reporting project may be used by overseas supply chains importing Australian fresh vegetables.

Match with National Priorities

The Australian Government's Science and Research Priorities and Rural RD&E priorities are reproduced in Table 6. The project outcomes and related impacts will contribute to Rural RD&E Priority 4 and 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	1. Food
2. Biosecurity	2. Soil and Water
3. Soil, water and managing natural resources	3. Transport
4. Adoption of R&D	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 2017-2021¹ (Hort Innovation, 2017). Project VG16084 addressed Outcome 4, Strategy 4.1 'improve supply chain integration and efficiencies'.

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 – minor increase in vegetable grower use of market reports, including ‘raw’ wholesale data, resulting in improved marketing decisions and additional business profit for adopting growers.

Impacts Not Valued

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

- Growers and researchers with additional capacity – increased awareness of the content and value of existing (Ausmarket) market reporting data.
- 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: Increase in vegetable grower use of market reports resulting in improved marketing decisions and additional business profit for adopting growers

The VG16084 investment provided twelve months of ‘value-added’ wholesale market reporting which was adopted by a number of growers who, it is assumed, went on to make use of Ausmarket ‘raw’ data reports. Those accessing the data are somewhat likely to have used the information for business decision making – where to sell their produce over the season and moving products to the highest value market. In this way, VG16084 will have contributed to an increase in vegetable grower profit.

Attribution

Two projects were completed as part of the wholesale market price reporting project – VG16081 and the project being evaluated, VG16084. An attribution factor of 25.87% has been used for VG16084, based on its share of total investment.

Counterfactual

The scenario assumed if the investment had not been made is that no other project would have addressed value added market reporting data.

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: Increase in vegetable grower use of market reports resulting in improved marketing decisions and additional business profit for adopting growers		
Share of fresh Australian vegetable production making use of value-added market reporting.	14%	Consultant estimate – prepared assuming 10% of the 2,400 unique users of the site between May 2018 and May 2019 were vegetable growers who made changes to their enterprise (240 growers) and there are 1,676 growers paying the vegetable levy (14% of the grower population).
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 use of market reporting data.	2%	Consultant estimate.
Year of first impact.	2019/20	Consultant estimate.
Year of last impact.	2023/24	Consultant estimate – other sources of decision-making data become available to growers after this time e.g. new market data, ‘value-adding’ project.
Probability of a useful output	75%	Consultant estimate.
Probability of useful output having an impact on grower profitability.	50%	Consultant estimate.

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 (2018/19) as per the CRRDC Impact Assessment Guidelines (CRRDC, 2018).

Investment Criteria

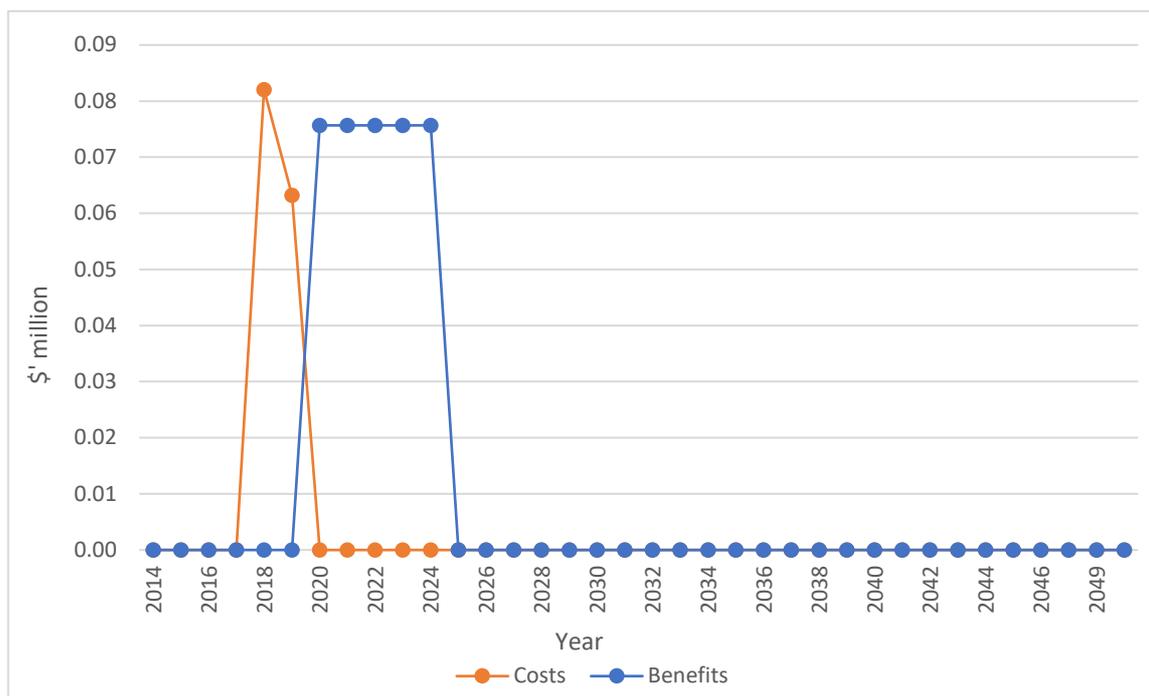
Tables 7 shows the investment criteria estimated for different periods of benefit for the total investment. There were no other investors in the project.

Table 7: Investment Criteria for Total Investment in Project VG16084

Investment Criteria	Years after Last Year of Investment						
	0	5	10	15	20	25	30
Present Value of Benefits (\$m)	0.00	0.34	0.34	0.34	0.34	0.34	0.34
Present Value of Costs (\$m)	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Net Present Value (\$m)	-0.16	0.19	0.19	0.19	0.19	0.19	0.19
Benefit-Cost Ratio	0.00	2.19	2.19	2.19	2.19	2.19	2.19
Internal Rate of Return (%)	negative	33.5	33.5	33.5	33.5	33.5	33.5
MIRR (%)	negative	17.5	12.1	10.0	8.8	8.1	7.6

The annual undiscounted benefit and cost cash flows for the total investment for the duration of the VG16084 investment plus 30 years from the last year of investment are shown in Figure 1.

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 show a low level of sensitivity to the discount rate.

Table 8: Sensitivity to Discount Rate (Total investment, 30 years)

Investment Criteria	Discount rate		
	0%	5% (base)	10%
Present Value of Benefits (\$m)	0.38	0.34	0.32
Present Value of Costs (\$m)	0.15	0.16	0.17
Net Present Value (\$m)	0.23	0.19	0.15
Benefit-cost ratio	2.61	2.19	1.87

A sensitivity analysis was then undertaken for the share of vegetable production using project generated value-added market reports. Results are provided in Table 10. Project benefits continue to exceed project costs when share of vegetable production using 'value-added' market reports is halved.

Table 9: Sensitivity to Share of Vegetable Production Using Value-added Market Reports (Total investment, 30 years)

Investment Criteria	Share of Vegetable Production Using Value-added Market Reports Created by VG16084		
	7%	14% (base)	28%
Present Value of Benefits (\$m)	0.17	0.34	0.69
Present Value of Costs (\$m)	0.16	0.16	0.16
Net Present Value (\$m)	0.02	0.19	0.53
Benefit-cost ratio	1.10	2.19	4.39

A final sensitivity analysis tested the sensitivity of the investment criteria to the increase in grower profit realised when use was made of 'value-added' market reports. The results (Table 11) show that the 'breakeven' level of profit increase is between 0.5% and 1%.

Table 10: Sensitivity to Increase in Vegetable Grower Profit from Use of Market Reports (Total investment, 30 years)

Investment Criteria	Increase in Vegetable Grower Profit with Adoption of Market Reports		
	0.5%	1%	2% (base)
Present Value of Benefits (\$m)	0.09	0.17	0.34
Present Value of Costs (\$m)	0.16	0.16	0.16
Net Present Value (\$m)	-0.07	0.02	0.19
Benefit-cost ratio	0.55	1.10	2.19

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 11: 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 – increase in grower profit with use of ‘value-added’ market reports was valued. Confidence in assumptions was rated as Medium, most of the data used came from credible sources, some key assumptions were made by the analyst.

Conclusion

The investment in VG16084 has described a value-added, vegetable price reporting program that has been used by growers, a vegetable industry development officer, and the supply chain to inform decision making and potentially, contribute to grower profit. Value-added data production generated through VG16084 was discontinued due to a shortage of investment funds.

Total funding from all sources for the project was \$0.16 million (present value terms). The investment produced estimated total expected benefits of \$0.34 million (present value terms). This gave a net present value of \$0.19 million, an estimated benefit-cost ratio of 2.19 to 1, an internal rate of return of 33.5% and a modified internal rate of return of 7.6%.

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.

Reference List

- Australian Bureau of Statistics. (2020, March 4). *5206.0 – Australian National Accounts: National Income, Expenditure and Product, Dec 2019*. Table 5. Expenditure on Gross Domestic Product (GDP), Implicit price deflators. Retrieved from Australian Bureau of Statistics: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5206.0Dec%202019?OpenDocument>
- Council of Rural Research and Development Corporations. (2018). Cross-RDC Impact Assessment Program: Guidelines. Canberra: Council of Rural Research and Development Corporations. Retrieved from http://www.ruralrdc.com.au/wp-content/uploads/2018/08/201804_RDC-IA-Guidelines-V.2.pdf
- Department of Agriculture and Water Resources (DAWR). (2015). Agricultural Competitiveness White Paper. Canberra: Commonwealth of Australia. Retrieved from <http://agwhitepaper.agriculture.gov.au/SiteCollectionDocuments/ag-competitiveness-white-paper.pdf>
- Hort Innovation (2017) Vegetable Strategic Investment Plan - 2017-2021. Retrieved from <https://www.horticulture.com.au/hort-innovation/funding-consultation-and-investing/investment-documents/strategic-investment-plans/>
- Hort Innovation (2018) Horticulture Statistics Handbook 2016/17
- Hort Innovation (2019) Horticulture Statistics Handbook 2017/18. Retrieved from <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/australian-horticulture-statistics-handbook/>
- Hort Innovation (2020) Horticulture Statistics Handbook 2018/19. Retrieved from <https://www.horticulture.com.au/growers/help-your-business-grow/research-reports-publications-fact-sheets-and-more/australian-horticulture-statistics-handbook/>
- Office of the Chief Scientist (OCS). (2015). Strategic Science and Research Priorities. Canberra: Commonwealth of Australia. Retrieved from http://www.chiefscientist.gov.au/wp-content/uploads/STRATEGIC-SCIENCE-AND-RESEARCH-PRIORITIES_181214web.pdf

Acknowledgements

AgEconPlus and Agtrans Research would like to thank all the project and program personnel associated with Horticulture Innovation Australia Limited that were involved in the evaluation process. Their cooperation and feedback throughout the evaluation process contributed significantly to this report.

Specific acknowledgements:

Adam Briggs, Head of Data & Insights, Hort Innovation

Martin Kneebone, Freshlogic

Brendan O’Keeffe, Analyst, Hort Innovation

Abbreviations

CRRDC	Council of Research and Development Corporations
DAWR	Department of Agriculture and Water Resources (Australian Government)
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
PVB	Present Value of Benefits
RD&E	Research, Development and Extension