Horticulture Impact Assessment Program:

Appendix 8: Olive oil food service program (OL16004 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

Contents

Tables

Figures

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 *OL16004: Olive Oil Food Service Program, Understanding and educating the food service market for olive oil.* The project was funded by Hort Innovation over the period May 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

Investment in this research project has resulted in an improved understanding of the use of olive oil in the food services sector, the training of 1,195 student chefs and the education of student and established chefs through social media. This investment should have resulted in an increase in Australian extra virgin olive oil (EVOO) consumption in the food services sector, increased demand for Australian EVOO and an associated increase in olive and olive oil price. Realistic assumptions have been used to quantify these impacts in the absence of industry data.

Investment Criteria

Total funding from all sources for the project was $0.21 million (present value terms). The investment produced estimated total expected benefits of $0.49 million (present value terms). This gave a net present value of $0.28 million, an estimated benefit-cost ratio of 2.35 to 1, an internal rate of return of 21.4% and a MIRR of 7.8%.

Conclusions

The Hort Innovation investment in Project OL16004 is likely to have been successful in increasing demand for EVOO in the food services sector. An increase in demand will manifest as an increase in olive and olive oil price.

Several economic and social impacts identified were not valued as the impacts were considered uncertain and difficult to value with credible assumptions. Hence, investment criteria provided by the valuation may be underestimates of the actual performance of the investment.

Keywords

Impact assessment, cost-benefit analysis, olive industry, Australian extra virgin olive oil, food service, TAFE, chefs, trainee chefs, culinary schools

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 OL16004: Olive Oil Food Service Program, Understanding and educating the food service market for olive oil 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 olive industry produces olives that are predominantly used to make oils for human consumption. Around 5% of the crop is sold as table olives. Key olive and olive oil production figures are summarised in Table 1.

Table 1: Australian Olive and Olive Oil Production 2014-2018

Year	Olive production (tonnes)	Gross value of olives ($m)	Olives for oil production (tonnes)	Farmgate value of olives for oil ($/tonne)
2014	79,340	153.1	75,373	1,833
2015	107,711	210.3	102,325	1,855
2016	90,323	112.1	85,807	1,179
2017	130,000	125.1	123,500	914
2018	55,000	71.9	52,165	1,244
Average	92,475	134.5	87,834	1,405

Source: data adapted from Horticulture Statistics Handbook 2017/18 and 2014/15

The Australian olive oil industry has grown significantly since the early 2000s. Approximately 900 farmers grow olives and there is 20,568 ha of production. Most olives are grown in Victoria and a single large grower/processor dominates supply. In 2017/18 the Australian industry produced 9,390 tonnes of oil and exported more one third of that volume (3,679 tonnes of oil). Australia imported 28,478 tonnes of olive oil in 2017/18. By world standards, Australia is a small producer; Spain produces approximately 1.1 million tonnes of olive oil and 3 million tonnes of oil is produced globally each year.

The research and development (R&D) activities of the Australian olive industry are guided by the industry's Strategic Investment Plan (SIP). The activities are funded by levies payable on olives produced in Australia; and the R&D levy funds are managed by Hort Innovation.

The current SIP has been driven by levy payers and addresses the Australian olive industry's needs from 2017 to 2021. Strategies and priorities in the Plan have been driven by a set of three desired outcomes (Hort Innovation, 2017):

1. Improved on-farm productivity, sustainability and product quality.
2. Increased demand for Australian olive products within Australia and in key overseas markets.
3. Greater skills, capacity and knowledge in the industry.

Rationale

Fresh extra virgin olive oil (EVOO) is regarded as one of the healthiest and best tasting oils to use in cooking and food preparation and the Australian olive industry produces some of the highest quality oil in the world. Despite this, there is a lack of knowledge and a number of misconceptions about olive oil in the Australian market even in areas where an enhanced knowledge of oils might be expected, such as the food service sector. Some of this lack of knowledge and misconceptions surround the product (how it is produced, its varying taste profiles, provenance, its benefits, how it should be stored, etc.) and other misconceptions surround the ways that olive oil can be used in cooking and food preparation.

There is opportunity to better inform stakeholders in the food service sector about the attributes, benefits and uses of olive oil while countering some of the misconceptions. These activities are recognised as a high priority in the SIP which outlines a deliverable around the desire to ensure key information about the product is clearly and widely communicated to industry and pipeline customers.

Project Details

Summary

Project Code: OL16004

Title: *Olive Oil Food Service Program, Understanding and educating the food service market for olive oil*

Research Organisation: Nutrition Australia

Project Leader: Aranya Changkaoprom

Period of Funding: May 2017 to May 2019

Objectives

Specific objectives of project OL16004 were:

1. Better understand current usage patterns and the purchase and consumption drivers of the sub-sectors of the food service sector.
2. Better understand competitor products and domestic and international food trends relevant to the food service factor.
3. Collect and prepare available information from industry on the attributes, benefits, and various uses of Australian EVOO.
4. Deliver the information to priority food service stakeholders in an effective manner and countering any misconceptions that may exist.
5. Provide information to growers about the expectations and requirements from the food service sector so they can align their business practices accordingly.

Logical Framework

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

Table 2: Logical Framework for Project OL16004

Activities	Major project activities included: • Desk research and stakeholder interviews to build an understanding of the Australian food service market including value; volume; current usage patterns and perceptions / attitudes to Australian EVOO; penetration in different sectors of food service (pubs, clubs, cafes, 4/5 star restaurants, fast-food outlets, institutions, caterers, culinary schools, etc.) and cuisine (Italian, Turkish, French, etc.) to understand barriers and opportunities for growth in each sector. • Identify and prioritise opportunities to engage sectors of the food service industry to improve their understanding of how and why to use Australian EVOO. The primary target audience was identified as trainee chefs in TAFE and other culinary schools. The secondary target audience was identified as established chefs in the food service sector. • Develop information packages on the suitability of EVOO for different cooking methods / cuisines. Packages included information on production, provenance, storage, handling, versatility, composition, health benefits, sensory dimensions, menu development, and food pairing. Information packages were prepared for both target audiences. • Information packages included three educational videos featuring established chefs and a technical expert talking about the benefits, attributes and properties of Australian EVOO. Three fact sheets were also developed to support the videos – 'in the kitchen', 'selecting high quality EVOO', and 'the benefits of Australian EVOO'. A consumer webpage was created for Australian Extra Virgin Olive Oil ('Australian everyday'). • Develop and execute in agreed pilot markets a communication/engagement plan that identified appropriate training opportunities for each prioritised sector of food service.

	• Engagement included TAFE colleges in Victoria and NSW to showcase project videos to trainee chefs and embed these resources within the Certificate III in Commercial Cookery. The project exposed a total of 1,195 trainee chefs to the benefits of Australian EVOO. Videos were also disseminated via sponsored posts on the Australian Everyday Facebook account. A further 39,605 people viewed videos for at least ten seconds. A share of these views were expected to include established Australian chefs. • Evaluation data showed that the project had increased the awareness of the benefits, attributes and properties of Australian EVOO and encouraged its purchase and use especially amongst trainee chefs. It also showed that students would benefit from an additional practical component in their EVOO use training. • Communicate activities and key findings from the project to levy paying growers via industry publications, presentations and a comprehensive final report.
Outputs	The important outputs of the project included: • The development and use of a project Monitoring, Evaluation, Reporting and Improvement plan along with six monthly project status reports. • The results of stakeholder interviews that identified barriers and drivers of Australian and imported EVOO. • SWOT analysis of olive oil in the food services sector. • Communication/engagement plan for the food service sector. • Training materials including videos and fact sheets for Australian EVOO use. • Delivery of the materials to the targeted stakeholders. • Recommendations for further research investment. • A final report that included project measurement and evaluation.
Outcomes	The outcomes driven by the project included: • An increase in Australian EVOO consumption within the food services sector.
Impacts	• Increased demand for Australian EVOO with an associated increase in olive and olive oil price. • Increased capacity in chefs working in the Australian food services sector. • Increased knowledge and capacity amongst teachers working in NSW and Victorian TAFE and other culinary schools. • Increased capacity amongst project team members who have additional market research experience. • Increased satisfaction amongst customers in the food service sector with better tasting and more skilfully prepared foods. • Contribution to improved regional community wellbeing from spill-over benefits as a result of increased demand for Australian EVOO.

Project Investment

Nominal Investment

Table 3 shows the annual investment made in Project OL16004 by Hort Innovation.

Table 3: Annual Investment in Project OL16004 (nominal $)

Year ended 30 June	HORT INNOVATION ($)	NUTRITION AUSTRALIA ($)	TOTAL ($)
2018	89,000	12,760	101,760
2019	54,846	12,760	67,606
Total	**143,846**	**25,520**	**169,366**

Source: OL16004 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 extension costs were incurred.

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 OL16004

Economic	• Increased demand for Australian EVOO with an associated increase in olive and olive oil price.
Environmental	• Nil
Social	• Increased capacity in chefs working in the Australian food services sector. • Increased knowledge and capacity amongst teachers working in NSW and Victorian TAFE and other culinary schools. • Increased capacity amongst project team members who have additional market research experience. • Increased satisfaction amongst customers in the food service sector with better tasting and more skilfully prepared foods. • Contribution to improved regional community wellbeing from spill-over benefits as a result of increased demand for Australian EVOO.

Public versus Private Impacts

The impacts identified from the investment are predominantly private impacts accruing to Australian growers of olives for the production of EVOO and the olive oil supply chain. However, some public benefits also have been produced in the form of spill-overs to regional communities from enhanced grower incomes.

Distribution of Private Impacts

The private impacts will have been distributed between retailers, wholesalers, distributers and producers of Australian EVOO as well as growers who produce olives for oil production. The share of impact realised by each link in the supply chain will depend on both short- and long-term supply and demand elasticities in the olive oil market.

Impacts on Other Australian Industries

It is likely that all impacts will be confined to the olive industry.

Impacts Overseas

It is possible that some views of project videos placed on the web will be by overseas chefs who will purchase more Australian EVOO. It is also possible that increased domestic demand and prices paid for Australian EVOO will divert product from 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 primarily to Rural RD&E Priority 4, and to Science and Research Priority 1 and 8.

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 Olive Strategic Investment Plan 2017-2021

The strategic outcomes and strategies of the olive industry are outlined in the Olive Strategic Investment Plan 2017-2021[1] (Hort Innovation, 2017). Project OL16004 primarily addressed Outcome 2, Strategy 2.3 deliverable 1 'Education of customers, especially chefs and the food service industry, about the health benefits of olive oil and how to cook with Australian EVOO'. The project is also relevant to Strategy 2.1 (market research), and Strategy 2.2 (diseminate information on health benefits of Australian olive oil).

[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.

The impact that was valued was the increase in demand for Australian EVOO with an associated increase in olive and olive oil price.

Impacts Not Valued

Not all of the impacts identified in Table 4 could be valued in the assessment. Those not valued included:

- Increased capacity in chefs, teachers, and researchers.
- Increased satisfaction amongst customers in the food service sector with better tasting and more skilfully prepared foods.
- Increased regional community spill-overs.

These impacts were not valued largely due to lack of data to support credible assumptions.

Summary of Assumptions

A summary of the key assumptions made for valuation of the increase in demand for Australian EVOO and the resultant increase in olive and olive oil price as a result of OL16004 is provided in Table 6.

Table 6: Summary of Assumptions for Impact Valuation

Variable	Assumption	Source/Comment
Volume of fruit used for oil production.	87,834 tonnes	Average olive production 2014-2018 (Horticulture Statistics Handbooks) adjusted down by 5% to account for production of table olives.
Farmgate price of fruit used for oil production.	$1,405/tonne	Total fruit production and gross value 2014-2018 (Horticulture Statistics Handbooks) adjusted for volumes used in table olives and the cost of fruit transport.
Increase in price associated with OL16004.	0.5%	AgEconPlus estimate. Small increase in price applicable to Australian EVOO sold in the domestic market (Exports subject to influence of world supply and demand rather than preferences of domestic chefs).
Share of crop that will experience price increase.	35%	AgEconPlus estimate of EVOO sold on the domestic market. Excludes exports (more than 30% of crop) and other grades of Australian olive oil including 'natural olive oil', refined olive oil' and 'olive-pomace oil' (see Hort Innovation 2017).
Year in which increased demand for EVOO commences.	2020	AgEconPlus
Year in which increased demand and price increase is maximised.	2023	AgEconPlus
Year in which increased demand is fully dissipated (new culinary messages replace those learned through OL16004).	2031	AgEconPlus
Risk factors		

Probability of increased demand resulting in a price increase for Australian EVOO and Australian olives.	60%	AgEconPlus
Probability of impact (assuming successful outcome)	60%	AgEconPlus
Counterfactual		
If Project OL16004 had not been funded, it is assumed that there would not have been any increase in demand for Australian EVOO in the food service sector. Market development investments by the Australian olive industry and commercial producers are focussed on consumer promotion.		
Proportion of benefits estimated that would have been delivered without Project OL16004.	0%	OL16004 was the olive industry's first investment in the food service sector.

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

Table 7: Investment Criteria for Total Investment in Project OL16004

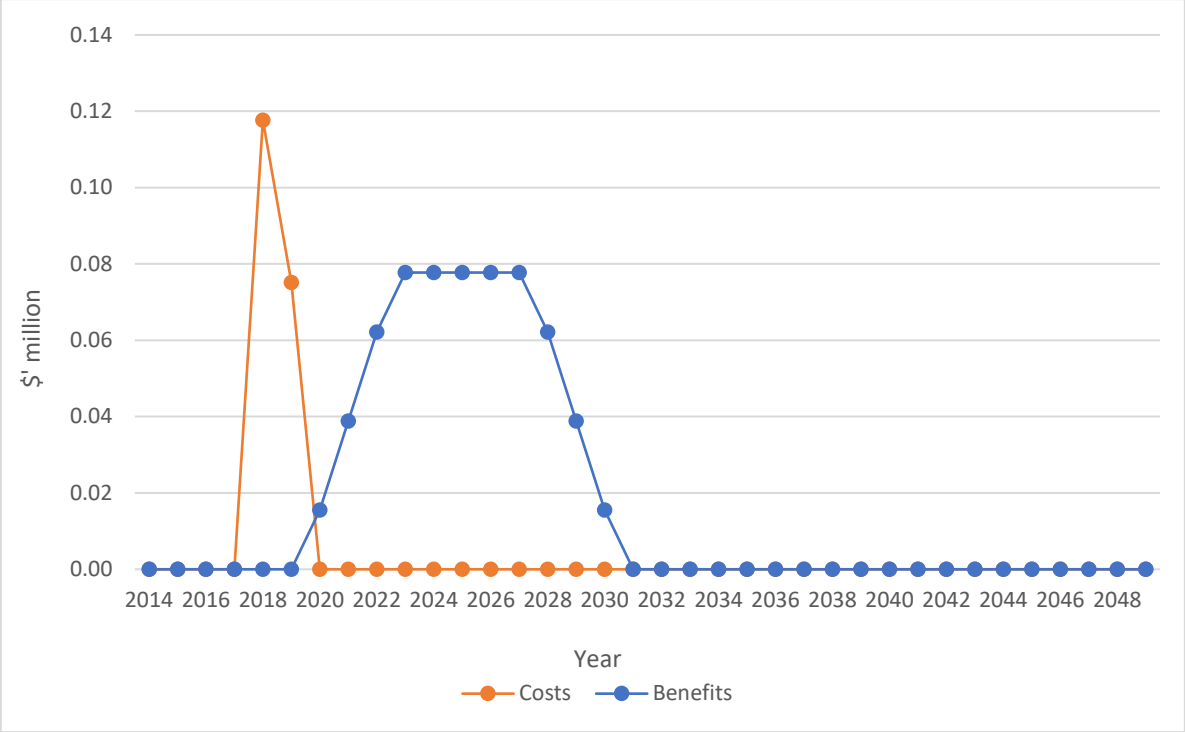
Investment Criteria	Years after Last Year of Investment						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present Value of Benefits ($m)	0.00	0.24	0.48	0.49	0.49	0.49	0.49
Present Value of Costs ($m)	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Net Present Value ($m)	-0.21	0.03	0.27	0.28	0.28	0.28	0.28
Benefit-Cost Ratio	0.00	1.15	2.31	2.35	2.35	2.35	2.35
Internal Rate of Return (%)	negative	8.6	21.2	21.4	21.4	21.4	21.4
MIRR (%)	negative	7.1	12.6	10.4	9.2	8.4	7.8

Table 8: Investment Criteria for Hort Innovation Investment in Project OL16004

Investment Criteria	Years after Last Year of Investment						
	0	**5**	**10**	**15**	**20**	**25**	**30**
Present Value of Benefits ($m)	0.00	0.21	0.42	0.42	0.42	0.42	0.42
Present Value of Costs ($m)	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Net Present Value ($m)	-0.18	0.03	0.24	0.24	0.24	0.24	0.24
Benefit-Cost Ratio	0.00	1.15	2.30	2.35	2.35	2.35	2.35
Internal Rate of Return (%)	negative	8.6	21.2	21.4	21.4	21.4	21.4
MIRR (%)	negative	7.1	12.6	10.4	9.2	8.4	7.8

The annual undiscounted benefit and cost cash flows for the total investment for the duration of the OL16004 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 moderate sensitivity to the discount rate.

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

Investment Criteria	**Discount rate**		
	0%	**5% (base)**	**10%**
Present Value of Benefits ($m)	0.62	0.49	0.40
Present Value of Costs ($m)	0.19	0.21	0.23
Net Present Value ($m)	0.43	0.28	0.17
Benefit-cost ratio	3.22	2.35	1.76

A sensitivity analysis was then undertaken for the olive price increase attributable to Project OL16004. Results are provided in Table 10. The breakeven price increase, given all other assumptions remaining unchanged, was 0.2%.

Table 10: Sensitivity to Increase in Olive Price due to Project OL16004 (Total investment, 30 years)

Investment Criteria	**Price Increase**		
	0.2%	**0.25%**	**0.5% (base)**
Present Value of Benefits ($m)	0.21	0.25	0.49
Present Value of Costs ($m)	0.21	0.21	0.21
Net Present Value ($m)	0.00	0.04	0.28
Benefit-cost ratio	0.99	1.18	2.35

A final sensitivity analysis tested the sensitivity of the investment criteria to the share of olive production impacted by Project OL16004. The results (Table 11) show that even if production impacted by a price increase was as low as 15%, the project would breakeven.

Table 11: Sensitivity to Share of Olive Production Impacted by Project OL16004 (Total investment, 30 years)

Investment Criteria	Production Impacted		
	15%	17.5%	35% (base)
Present Value of Benefits ($m)	0.21	0.25	0.49
Present Value of Costs ($m)	0.21	0.21	0.21
Net Present Value ($m)	0.00	0.04	0.28
Benefit-cost ratio	1.01	1.18	2.35

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	Low

Coverage of benefits valued was assessed as High as the key impact – increased demand for Australian EVOO was valued. Confidence in assumptions was rated as Low, the quantum of price increase required an assumption.

Conclusion

The investment in OL16004 is likely to have driven demand for Australian EVOO amongst trainee chefs and some established chefs. An increase in demand will manifest as an increase in olive and olive oil price.

Total funding from all sources for the project was $0.21 million (present value terms). The investment produced estimated total expected benefits of $0.49 million (present value terms). This gave a net present value of $0.28 million, an estimated benefit-cost ratio of 2.35 to 1, an internal rate of return of 21.4% and a modified internal rate of return of 7.8%.

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 (ABS) (2017) Census 2016 – Employment, Income and Education, 4 digit level SA4.Retrieved from https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2071.02016?OpenDocument

Australian Bureau of Statistics (ABS) (2019) 5206.0 – Australian National Accounts: National Income, Expenditure and Product, Jun 2018. Canberra: Australian Bureau of Statistics. Retrieved from https://www.abs.gov.au/ausstats/abs@.nsf/mf/5206.0

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) Olive Strategic Investment Plan - 2017-2021. Retrieved from https://australianolives.com.au/wp-content/uploads/2018/06/HortInnovation-olive-SIP.pdf

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/

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

Elizabeth Bouzoudis, Administration Manager, Australian Olive Association

(Aranya Changkaoprom, is no longer with Nutrition Australia)

Amy Knight, Project Officer, Nutrition Australia

Tess Leeder, Nutrition Australia

Brendan O'Keeffe, Analyst, Hort Innovation

Jemma O'Hanlon, R&D Manager, Hort Innovation

Greg Seymour, CEO, Australian Olive Association

Abbreviations

CRRDC	Council of Research and Development Corporations
DAWR	Department of Agriculture and Water Resources (Australian Government)
EVOO	Extra Virgin Olive Oil
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