

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

FINAL REPORT
15 DECEMBER 2017

Ownership of intellectual property rights

Unless otherwise noted, copyright (and any other intellectual property rights, if any) in this publication is owned by Grosvenor Management Consulting Pty Ltd.

Creative Commons licence

All material in this publication is licensed under a Creative Commons Attribution 3.0 Australia Licence, save for content supplied by third parties, logos and the Commonwealth Coat of Arms.



Creative Commons Attribution 3.0 Australia Licence is a standard form licence agreement that allows you to copy, distribute, transmit and adapt this publication provided you attribute the work. A summary of the licence terms is available from creativecommons.org/licenses/by/3.0/au/deed.en. The full licence terms are available from creativecommons.org/licenses/by/3.0/au/legalcode.

This publication (and any material sourced from it) should be attributed as: Grosvenor Management Consulting, 2017, *Evaluation of the Rural Research & Development (R&D) for Profit Program Final Report*, Canberra, 15 December 2017.

This publication is available at agriculture.gov.au/publications.

Department of Agriculture and Water Resources

Postal address GPO Box 858 Canberra ACT 2601

Telephone 1800 900 090

Web agriculture.gov.au

Disclaimer

The Australian Government acting through the Department of Agriculture and Water Resources has exercised due care and skill in publishing the information and data in this publication.

Notwithstanding, the Department of Agriculture and Water Resources, its employees and advisers disclaim all liability, including liability for negligence and for any loss, damage, injury, expense or cost incurred by any person as a result of accessing, using or relying upon any of the information or data in this publication to the maximum extent permitted by law.

Table of contents

1	Executive summary.....	3
1.1	Background	3
1.2	Terms of Reference	3
1.3	Approach	3
1.4	Summary of findings, conclusions and recommendations	4
2	Introduction	9
2.1	Program background	9
2.2	Evaluation requirement, purpose and Terms of Reference (ToR)	11
2.3	Methodology	12
3	Achievement of outcomes	155
3.1	Program logic.....	15
3.2	Program outcomes	17
3.3	New and innovative research collaborations.....	17
3.4	Generating knowledge, technologies, products or processes that benefit primary producers	288
3.5	Strengthening of extension pathways and understanding barriers to adoption	322
4	Administration, implementation and delivery	366
4.1	Efficiency and effectiveness	366
4.2	Application, assessment and selection	36
4.3	Monitoring, evaluation and KPIs	422
4.4	Meeting the needs of RDCs and government	455
5	Conclusions and recommendations	49
5.1	Achievement of outcomes	49
5.2	Efficiency and effectiveness of program management by the department	511
	Attachments	Error! Bookmark not defined. 4
	Attachment A: List of projects (taken from Rural R&D for Profit website)	544
	Attachment B: Extracts from program and evaluation plans.....	744
	Attachment C: Draft outcomes hierarchy and KPIs.....	755
	Contact us	79

1 Executive summary

1.1 Background

The Rural R&D for Profit program is a \$180.5 million competitive grants program administered by the Department of Agriculture and Water Resources (the department).

The program is designed to create productivity and profitability improvements for primary producers, through generating knowledge, technologies, products or processes, as well as strengthening pathways to extend results of rural R&D and establishing new and innovative research collaborations.

The program commenced in 2015 and is set to conclude in 2022. Program guidelines stipulated that an evaluation would occur in the fourth year (midpoint) of the program's lifecycle to examine if the program was meeting its stated objectives, and consider if there was a need for refinement.¹

Grosvenor Management Consulting (Grosvenor) was engaged by the department to conduct the mid program evaluation to inform the department regarding:

- the extent to which the program is on track to achieve its long-term objectives, to identify opportunities for change and improvement and to provide recommendations to improve the performance measures for the program
- impacts of the program's operating model² on the broader RDC system, and lessons learned from experience to date.

1.2 Terms of Reference

The following Terms of Reference were developed for the evaluation:

1. To what extent is the program on track to achieve long-term outcomes?
2. To what extent is the program's operating model appropriate?
3. What are the lessons learned from the design and delivery of Rural R&D for Profit to date? Are there any opportunities for improvement?

1.3 Approach

The evaluation was informed by desktop review of all projects from Rounds 1, 2 and 3 in addition to consultation with key stakeholder groups.

¹ A final evaluation will be conducted in the eighth and final year of the program to measure performance against outcomes and impacts on primary producers.

² Included program design and approach.

1.4 Summary of findings, conclusions and recommendations

1.4.1 Overall finding

Early indicators suggest the program is on track to achieve longer term objectives. Enabling factors for long term success were evidenced by the program's positive impacts relating to:

- collaboration
- generation of knowledge, technologies, products or processes that benefit primary producers
- understanding of barriers to adoption and
- strengthening of pathways to extension.

The majority of RDCs are supportive of the competitive grants operating model and the department regards the program as an important link to RDCs. Due to the importance of the program in linking the department and RDCs, a cautious approach should be adopted in transitioning the program to the Community Grants Hub.

Feedback from the majority of RDCs and partner organisations was positive in relation to administration and management of projects by the department. However, a key area for improvement was in relation to KPIs and reporting and monitoring, which was regarded by the RDCs and partner organisations as 'overcomplicated'. While the department has simplified KPIs over successive rounds, there is still opportunity to enhance the visibility of achievement of outcomes at the program level.

A focus for the department should be building on the success of the program moving forward to ensure continuity in the future.

Notwithstanding successes achieved to date, opportunities for improvement were identified and these are detailed in evaluation recommendations.

1.4.2 Collaboration

Notwithstanding the absence of a documented baseline, the program has contributed to fostering new and innovative collaborations, evidenced by:

- successful leveraging of funding across projects undertaken to date
- a prevailing view across stakeholder groups that it has fostered pursuance of innovative collaborations between RDCs and universities, research organisations and private companies
- the projects undertaken to date, which demonstrate a breadth and variety of collaborations resulting from participation in the program.

The nature of collaboration and extent of involvement in the program varies considerably among RDCs, and a minority of RDCs are represented very strongly. The department may need to consider strategies to better understand why some RDCs have limited or no involvement, and how they might participate more fully.

The extent of new collaborations, particularly inter-RDC, and therefore new cross sectoral collaborations, appears to be dwindling over successive rounds and there is evidence of repeated inter-RDC collaborations across projects.

Recommendation 1

Revise the program's current emphasis on establishing 'new' collaborations such that there is broader application towards supporting collaboration more generally. This would include fostering of new collaborations as well as sustaining collaborations already developed.

Recommendation 2

The department may need to consider strategies to better understand why some RDCs have only limited involvement, and how they might participate more fully.

1.4.3 Generation of knowledge, technologies, products or processes

Early indicators are positive that the program is on track to achieve outcomes relating to generation of knowledge, technologies, products or processes that benefit primary producers. This is evidenced by:

- the 36 projects resulting from the program (including one completed project) that aim to benefit primary producers and
- relative distribution of projects across priority areas.

However, due to the inherent complex nature of research, realisation of project outcomes may not eventuate, or be evident for some time.

Recommendation 3

The department should continue to monitor distribution of projects across program priorities in future rounds to assess adequacy of representation and if action is required to address any imbalance.

1.4.4 Extension pathways and barriers to adoption

Early indicators suggest that the program is on track to achieve outcomes relating to strengthening of extension pathways and understanding barriers to adoption. This is evidenced by:

- the requirement for each project to develop a plan to undertake extension and communication activities
- 20 projects that address the priority of adoption and
- positive views expressed by RDCs and partner organisations that their projects were on track to meet extension and adoption objectives, with the caveat that results against this outcome are likely to be evident in the longer term.

1.4.5 Lessons learned

Lessons learned about successful collaboration are being collected via project reporting. For example, the evaluation found that factors for successful collaboration

include trust, shared vision and benefits. Barriers identified primarily referred to the costs associated with collaboration.

Via project reporting, the department is also collecting information regarding factors for success, or barriers to, extension and adoption from project participant (either in relation to specific extension projects or more generally). As more projects mature and finish, the department will have a rich source of data for analysis which could be used to inform future policy and be shared more broadly with stakeholders.

Other areas of the department, specifically dealing with extension activities in the rural R&D context, identified a need for greater engagement with the program. This was with a view to furthering their understanding of the program and individual projects, to assist them promulgate program information and learnings in their broader networks.

Recommendation 4

Undertake meta-analysis of project final reporting and evaluations to build up a knowledge base of success factors for, and better understanding of barriers to, collaboration, extension and adoption. Share learnings with other areas of the department, program participants and the broader rural R&D community.

1.4.6 Appropriateness of program approach and operating model

The majority of RDCs were supportive of the competitive grants operating model, however a minority did think the grants program would be better placed with other existing structures such as the Council of Rural RDCs.

The program helps the department better understand the rural R&D agenda and strengthens linkages with the RDCs. In the broader context of the Government's streamlining grants agenda, key policy and management responsibilities should be retained by the department and a staged approach be adopted in transitioning to the Community Grants Hub.

Recommendation 5

As part of the Streamlining Government Grants Administration program, a staged approach to transitioning to the Community Grants Hub should be adopted with key policy and management responsibilities to be retained by the department.

1.4.7 Efficiency and effectiveness of program management by the department

Administration and management of projects by the department showed alignment with the *Commonwealth Grants Rules and Guidelines* in that analysis of reporting showed projects were being managed against the established funding agreements.

Feedback from the majority of RDCs and partner organisations was positive in relation to the department's administration and management of projects. Notwithstanding, there were opportunities for improvement identified, particularly in relation to application and selection processes and program and project monitoring and reporting.

1.4.8 Application and selection

There is a downward trend in numbers of applications being submitted over rounds.

There is a degree of confusion evident among RDCs and partner organisations regarding the selection criteria and why projects are successful or unsuccessful.

Communication around options for debriefing unsuccessful bidders was identified as an area to address - to assist RDCs and partner organisations to better understand assessment and selection criteria and to improve their future proposals.

The application timeframe was regarded as too short by some RDCs and partner organisations, particularly because of the lead time required to organise collaborations. Comparison with other research grants programs showed Rural R&D for Profit has one of the shortest application periods.

The length of time taken to select and publicly announce projects was identified as an opportunity for improvement by RDCs and partner organisations. The length of time taken to notify unsuccessful bidders was also regarded as too long. Implications of a lengthy selection process included:

- successful bidders experiencing delays in getting projects started
- unsuccessful bidders missing out on opportunities to pursue other research proposals, as funding allocated to their Rural R&D for Profit bid was held in reserve while awaiting notification of their proposal's outcome.

Recommendation 6

The department continue to monitor numbers of applications and successful projects selected to assess if criteria need further refinement.

Recommendation 7

The department increase publicity regarding the debriefing process for unsuccessful bidders to assist RDCs and associated partner organisations to access this feedback. This is with a view to increasing their understanding of the assessment and selection criteria, improving their bids, and increasing their chances for successful applications in future rounds.

Recommendation 8

The department explore options for extending the timeframe for the application stage.

Recommendation 9

The department explore options to reduce timeframes in the assessment and selection process, including time lags associated with notification of unsuccessful applicants and public announcement of successful projects.

1.4.9 Monitoring and reporting

Milestone reporting and monitoring has been complicated, perhaps 'overcomplicated'. While the department has simplified reporting of project KPIs over successive rounds, there is still opportunity to simplify monitoring and reporting

requirements through the development of a M&E Framework that will link data collection to program outcomes and enhance the visibility of achievement at project and program levels.

Recommendation 10

The department develop a M&E framework, using the program logic diagram as a starting point, to drive the development of outcomes oriented KPIs, and associated data and data sources.

Recommendation 11

Based on the M&E framework developed, revise project reporting, including consideration of reduced and more flexible reporting options.

1.4.10 Program legacy

As the program moves into the latter half of its life cycle, the department will need to plan so that momentum built up is leveraged and outputs and achievements are not stymied or lost with the cessation of the program.

There are networks and organisations, external to the program, which are fostering rural R&D collaboration (eg Council of RDCs and CRCs). These could provide ongoing mechanisms and infrastructure to support future rural R&D collaborations.

Further, in building on the success of the program, the department should also consider how sharing of research outcomes might be undertaken and communicated more broadly.

Recommendation 12

The department consider options to build on current success into the future. This would include consultation with the RDC community regarding suggested approaches.

2 Introduction

2.1 Program background

2.1.1 Context

The Rural Research & Development (R&D) for Profit program (hereafter Rural R&D for Profit, or the 'program') is a \$180.5 million competitive grants program administered by the Department of Agriculture and Water Resources (the department).

The program was established in response to a 2013 federal election commitment by the Coalition, initially receiving \$100 million in funding over four years (from 2014-2018).

In July 2015, the Government announced a four-year extension to the program until 30 June 2022, with an additional \$100 million in funding made available as part of the *Agricultural Competitiveness White Paper*.³ \$19.5 million has since been redirected from the program for other government priorities.

The program was designed to create productivity and profitability improvements for primary producers by generating knowledge, technologies, products or processes, as well as strengthening pathways to extend results of rural R&D and establishing new and innovative research collaborations. As described in the Coalition's policy document:

*'Funding will be allocated to specific projects that openly enhance agricultural profitability, level out competition and better leverage coordination and cooperation between stakeholders. In conjunction with increased investment, the Coalition will work with research and development organisations and levy payers to improve the collaboration on research and to provide even better returns on investment.'*⁴

2.1.2 Eligibility and program criteria

The program is open exclusively to the 15 Australian Rural Research and Development Corporations (Rural RDCs or RDCs), covering the agriculture, fishery and forestry industries.⁵

The Rural RDCs are funded through industry levies, with matched Australian Government funding. Ten of the Rural RDCs are industry owned companies, and five are Commonwealth statutory bodies, listed in Table 1.

³ Department of the Prime Minister and Cabinet, *Agricultural Competitiveness White Paper*, July 2015.

⁴ The Coalition's *Policy for a Competitive Agriculture*, August 2013.

⁵ Established in the 1980s; these corporations were set up to commission and manage R&D activities aimed at improving productivity, profitability and sustainability of Australia's primary industries.

Table 1: List of Rural RDCs

COMMONWEALTH STATUTORY RURAL RDCs

Wine Australia (formerly Australian Grape and Wine Authority [AGWA])
Cotton Research and Development Corporation (CRDC)
Fisheries Research and Development Corporation (FRDC)
Grains Research and Development Corporation (GRDC)
AgriFutures Australia (formerly Rural Industries Research and Development Corporation [RIRDC])

INDUSTRY RDCs

Australian Eggs Corporation Limited
Australian Livestock Export Corporation Limited (LiveCorp)
Australian Meat Processor Corporation (AMPC)
Australian Pork Limited (APL)
Australian Wool Innovation Limited (AWI)
Dairy Australia Limited (DAL)
Forest and Wood Products Australia (FWPA)
Horticulture Innovation Australia Limited (HIA)
Meat and Livestock Australia (MLA)
Sugar Research Australia Limited (SRA)

A condition of funding under the program is for RDCs to collaborate or partner with other organisations across the research, industry, business and/or not-for-profit sectors. Where two or more RDCs seek a grant as a consortium, one RDC member must be appointed as the applicant or 'lead'. The lead RDC must submit the application and if successful, is the legal entity that enters into a grant agreement with the department.⁶

It is a co-investment program – whereby applicants/partner organisations must provide cash and in-kind co-investment. Commonwealth grant funding cannot exceed 50 percent of the total project cost and projects should not typically exceed five years.

Program priorities, displayed in Table 2, were derived from the *Agricultural Competitiveness White Paper*⁷, which set priorities for targeting rural research, development and extension (RD&E) funding.

⁶ As per program Guidelines Round 3, 2016.

⁷ Department of the Prime Minister and Cabinet, *Agricultural Competitiveness White Paper*, July 2015.

Table 2: Program priorities

PRIORITY	DESCRIPTION
1. Advanced technology	To enhance innovation of products, processes and practices across the food and fibre supply chains through technologies such as robotics, digitisation, big data, genetics and precision agriculture.
2. Biosecurity	To improve understanding and evidence of pest and disease pathways to help direct biosecurity resources to their best uses, minimising biosecurity threats and improving market access for primary producers.
3. Soil, water and managing natural resources	To manage soil health, improve water use efficiency and certainty of supply, sustainably develop new production areas and improve resilience to climate events and impacts.
4. Adoption of R&D	Focusing on flexible delivery of extension services that meet primary producers' needs and recognising the growing role of private sector delivery.

Adoption of research outputs was also identified as key to the success of the program. Whereby applicants must consider how primary producers will use the outcomes and must build pathways to adoption or benefit into projects.

2.1.3 Projects to date

To date, three rounds of the program have been undertaken (in years 2014, 2015 and 2016), with 36 projects funded. One project has been completed.

The list of projects funded by round is provided at Attachment A.

2.2 Evaluation requirement, purpose and Terms of Reference (ToR)

2.2.1 Evaluation requirement

The Rural R&D for Profit program has the following evaluation requirement:

- a mid-point evaluation in year four of the program, to examine if the program is meeting its stated objectives, and consider any needs for refinement
- a final evaluation to be conducted in the eighth and final year of the program to measure performance against outcomes and impacts on primary producers.

Grosvenor was engaged by the department to conduct the mid-point evaluation.

This report documents the evaluation's findings, conclusions and recommendations.

2.2.2 Purpose and scope

The purpose of the evaluation was to inform the department program team regarding:

- the extent to which the program is on track to achieve its long-term objectives, to identify opportunities for change and improvement and to provide recommendations to improve the performance measures for the program
- impacts of the program's operating model (includes program design and approach) on the broader RDC system, and lessons that can be learned from experience.

The scope of the evaluation focused on the effectiveness and appropriateness of design and delivery of the program to date. All 36 funded projects were included.

Assessment of financial processes and achievement of value for money was outside the scope of the evaluation.

2.2.3 ToR, key evaluation questions (KEQs) and data sources

ToR and KEQs for the evaluation were developed, as follows. (Note, as this was a mid-program evaluation, the focus was on both what had occurred to date and / or what was expected to occur in the future. For simplicity's sake and ease of reading, all KEQs were posed in the past tense.)

- 1 To what extent is the program on track to achieve long-term outcomes?
 - 1.1 To what extent have new and innovative research collaborations been established as a result of the program?
 - 1.2 To what extent has the program generated knowledge, technologies, products or processes that benefit primary producers?
 - 1.3 To what extent has the program improved understanding of the barriers to adoption of research by primary producers?
 - 1.4 To what extent has the program strengthened pathways to extend results of rural R&D to end users?
 - 1.5 Are current performance measures sufficient to demonstrate achievement of program outcomes? Are they measurable?

2. To what extent is the program operating model appropriate?
 - 2.1 How effective and efficient was the implementation, administration and service delivery of the program?
 - 2.2 To what extent does the program's operating model meet the needs of RDCs and government?

3. What are the lessons learnt from the design and delivery of Rural R&D for Profit to date? Are there any opportunities for improvement?

2.3 Methodology

2.3.1 Approach

The evaluation adopted a highly consultative approach, and comprised a combination of qualitative and quantitative data collection. The evaluation was

informed by a range of activities, including desktop analysis and stakeholder consultations.

2.3.2 Desktop analysis of existing project and program materials

The desktop review considered data relating to each of the 36 projects, with a focus on Round 1 projects (those being the most mature and more likely to have evidence of impacts).

Data for each project was collated and analysed, including review of funding agreements, project plans, milestone reports, variations and final reports where available (one project).

Program plans, frameworks and reports were also assessed as well as external reports and contextual documentation.

2.3.3 Stakeholder consultations

Consultations were undertaken with a range of internal and external stakeholders:

- interviews with Research Managers and Project Managers (where available) from each of the 15 Rural RDCS
- online survey of project partner organisations, distributed via the RDC Research Managers
- interviews with a small sample of Sustainable Agriculture Facilitators from the department
- interviews with a small sample of stakeholders not directly participating in the program, for example, representatives from the Council of Rural RDCs and partner organisation representatives from unsuccessful project proposals
- interviews with program staff from the department.

Further, the evaluation researched four Round 1 projects as short case studies. These were informed by project documentation, interviews with relevant RDC representatives, project partners, and where available, primary producers and extension providers. Case studies were chosen to evidence the variance in size and nature of R&D projects and collaborations, and to obtain feedback from primary producers and industry participants where possible. Two specific extension projects were also nominated as case studies to better understand some of the issues relating to extension and adoption within agriculture and stakeholder perceptions as applicable to their projects.

2.3.4 Limitations

Online survey of partner organisations

The online survey of partner organisations was distributed via the RDC Research Manager network. It was therefore difficult to determine how many surveys had been distributed, and some partners participating in multiple projects received the survey more than once.

Therefore, the representation and overall response rates were difficult to determine, and survey results have been viewed as indicative rather than representative.

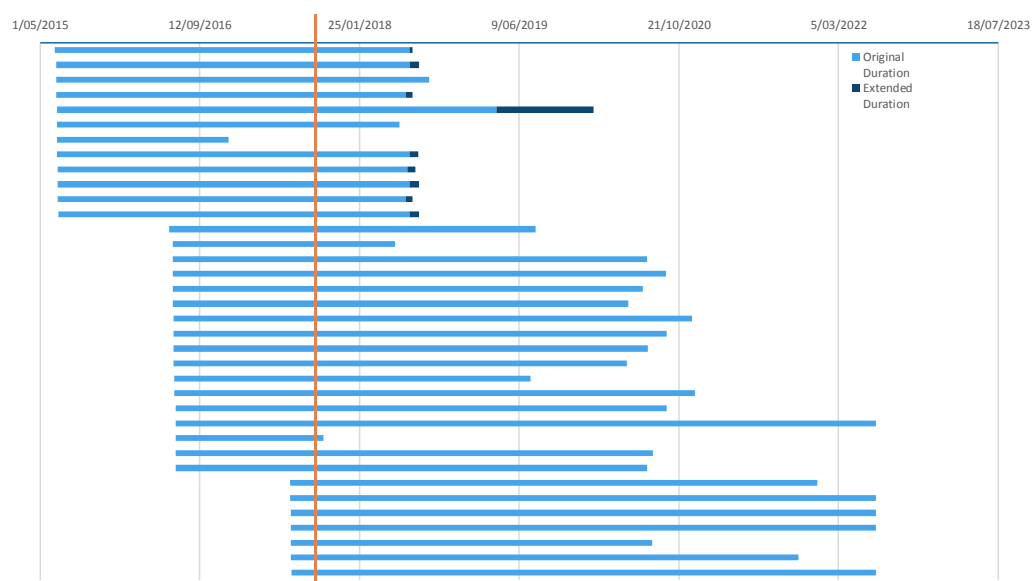
There were 303 partner organisations identified as participating in the program (based on analysis of grant agreements). 52 responses were received.

The 52 responses came from a cross section of partner organisations, including university, research and industry sectors and were a 'healthy' sized pool of information to draw from. Further, most respondents invested in providing detailed qualitative commentary and feedback.

Evaluation taking place before projects completed

Only one project had been completed during the period evaluated. Figure 1 shows the point in time in the context of the life cycle of the 36 projects.

Figure 1: Duration of projects funded (red line denotes timing of evaluation)



As can be seen in Figure 1, only one project was completed at the time of the evaluation.

It was therefore only possible to assess the extent to which program outputs and some of the short-term outcomes were in place to provide an indication of whether the program was on track to achieve longer term success.

Further, R&D project results may take years before research phases are completed and extension and adoption are evident. R&D is by nature unpredictable, and there are no guarantees that projects will result as planned, or translate to extension and adoption by primary producers.

3 Achievement of outcomes

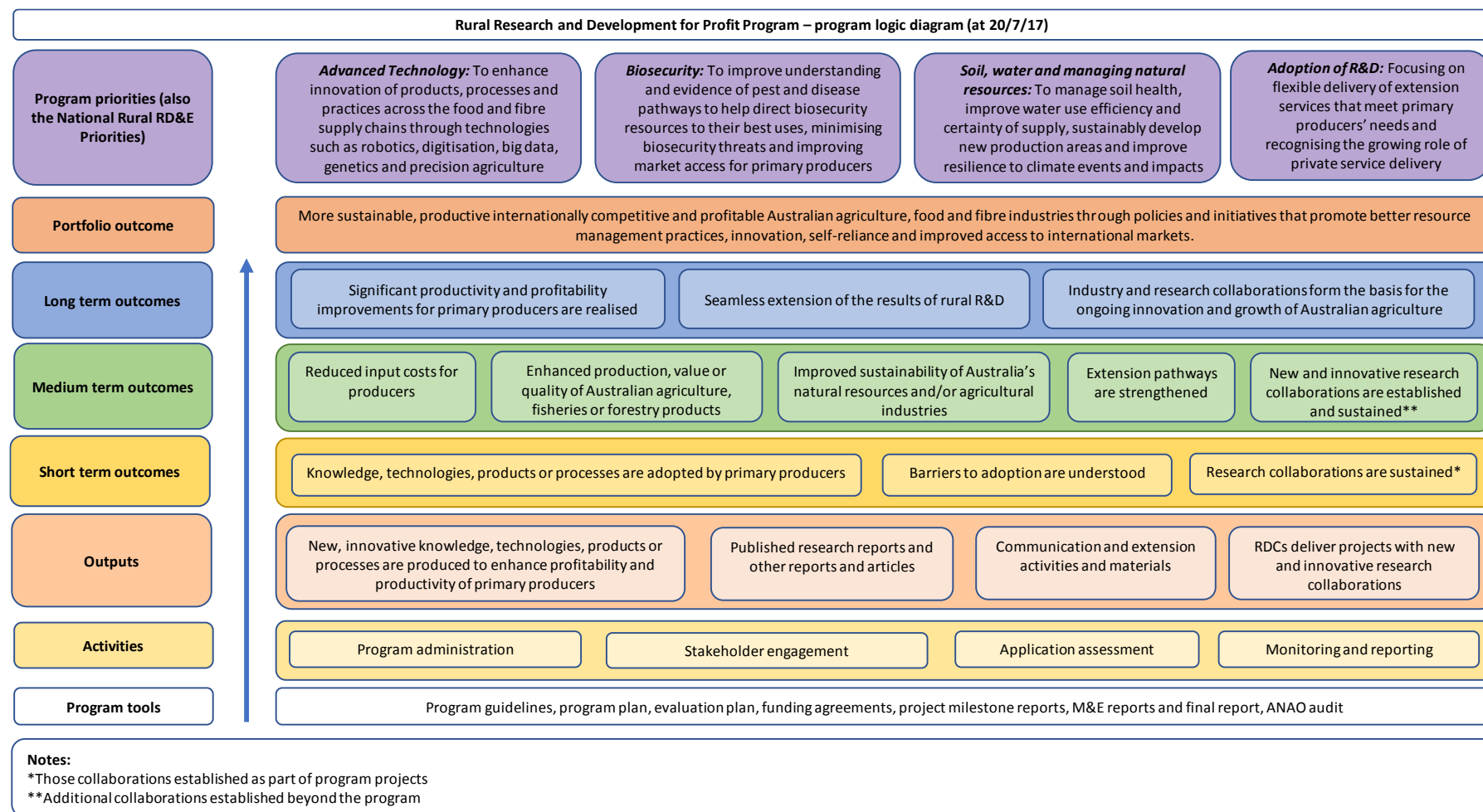
3.1 Program logic

The department's program team developed a program logic diagram to inform the evaluation, which was refined during the project.

The program logic articulated the long, medium and short-term outcomes and outputs and activities for Rural R&D for Profit, displayed in Figure 2.

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Figure 2: Rural R&D for Profit program logic diagram



3.2 Program outcomes

3.2.1 Is it on track?

This section discusses findings in relation to the extent to which the program is on track to achieve its longer-term outcomes relating to:

- establishment of new and innovative research collaborations
- generation of knowledge, technologies, products or processes that benefit primary producers
- improvement of understanding of barriers to adoption of research by primary producers
- strengthening of pathways to extend results of rural R&D to end users.

3.3 New and innovative research collaborations

3.3.1 Guidelines and criteria

Collaboration refers to the communication, coordination and co-investment of partner organisations to deliver a common goal. A long-term objective sought by the program is for industry and research collaborations to form the basis for ongoing innovation and growth of Australian agriculture.

Program Guidelines⁸:

- refer to the National Primary Industries Research Development and Extension (NPIRD&E) framework to encourage greater collaboration and coordination in the investment of research, development and extension (RD&E) nationally
- articulate this objective as: ‘Establishing and fostering industry and research collaborations that form the basis for ongoing innovation and growth of Australian agriculture.’
- set out ‘partnership’ as an eligibility requisite: ‘Partnership: the applicant must partner with one or more researchers, research agencies, RDCs, funding bodies, businesses, producers’ groups or not-for-profit organisations’.

The Guidelines over the three funding rounds have indicated a preference for projects that are cross sectoral in scope and that are new collaborations.⁹ For example:

- additional considerations stated that assessors of project proposals may consider whether projects have potential benefits for more than one primary industry, and/ or form new collaborations (Round 1 Guidelines)
- assessment criteria emphasised a high regard for projects that evidence: potential benefits for more than one primary industry; formation of new

⁸ Taken from Round 3 Guidelines.

⁹ Note, Guidelines have been refined over the three funding rounds.

research and or extension collaborations for ongoing innovation and growth of Australian agriculture; a case for research that would not otherwise be undertaken for example, due to the project having a large scale broad scope and or requiring cross-sectoral collaboration. (Rounds 2 and 3)

Projects have been successful when not cross sectoral or a new collaboration; however, the Guidelines and assessment panel reports have indicated a preference for such projects.

3.3.2 Evidence

The following was investigated to form a picture of the extent to which the program was on track to achieve outcomes relating to collaboration:

- extent of leveraged funding
- increase in numbers of new inter-RDC collaborations and those between RDCs and external organisations
- increase in appetite by RDCs and partner organisations to establish new collaboration
- sustainment of collaborations between RDCs and partner organisations, outside of Rural R&D for Profit projects.

3.3.3 Baseline

The program has contributed to the existence of 36 R&D projects, involving 36 collaborative arrangements.

It proved difficult to determine change in the actual number of collaborations pre- and post-program as the *‘the extent of collaboration has not been documented’*.¹⁰

While there was not an accurate pre-program collaboration baseline available, the prevailing view, pre-program:

- showed a perception of a lack of cross RDC collaboration and focus on cross sectoral R&D
- evidenced the intention to pursue policy levers to drive such collaboration.

*There was a perception that‘RDCs were weak in being able to appropriately resource and prioritise collaborative cross-sectoral R&D’*¹¹

*‘Government calls for RDCs to collaborate, particularly on cross-sectoral issues, have been increasing in intensity over the last decade.’*¹²

¹⁰ Leecia Angus Consulting, *Current cross-RDC collaborative investments, Status Report to the Council of Rural Research and Development Corporations (CRRCD)*, April 2017.

¹¹ CRRDC’s *Strategic Approach 2016*.

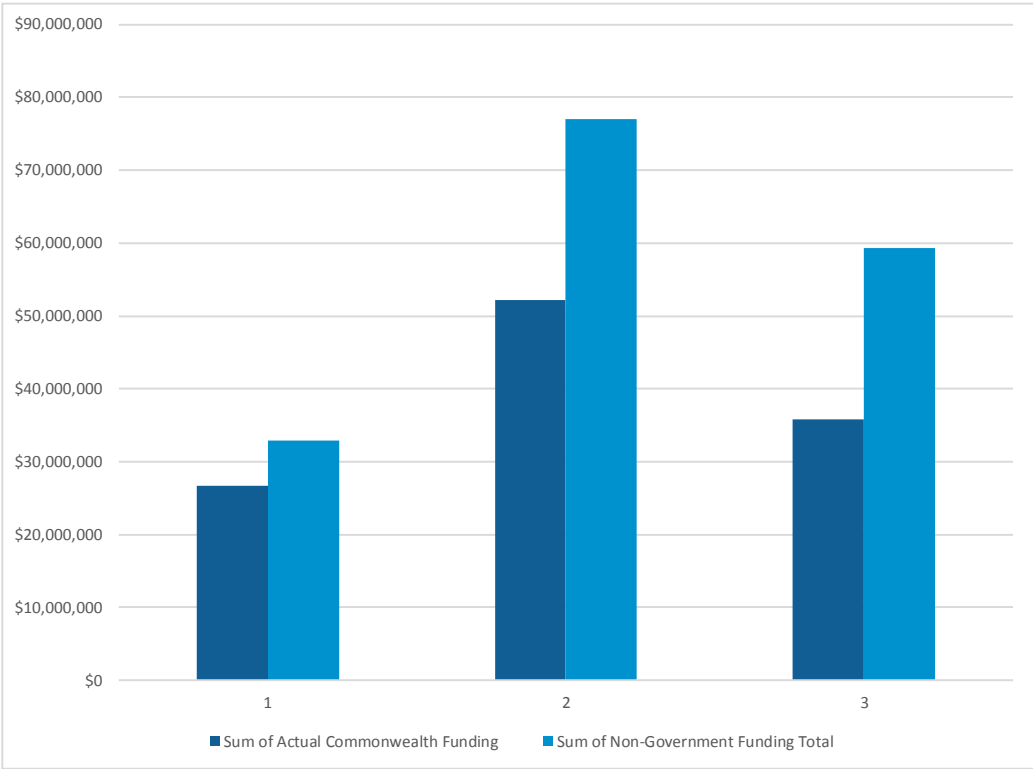
¹² Leecia Angus Consulting, *Current cross-RDC collaborative investments, Status Report to the Council of Rural Research and Development Corporations (CRRCD)*, April 2017.

3.3.4 Leveraging of funding

A key advantage of collaboration is that it enables leveraging of resources and funding. Analysis of the 36 projects showed that via collaboration the program has successfully leveraged funding across the three rounds (illustrated in Figure 3).

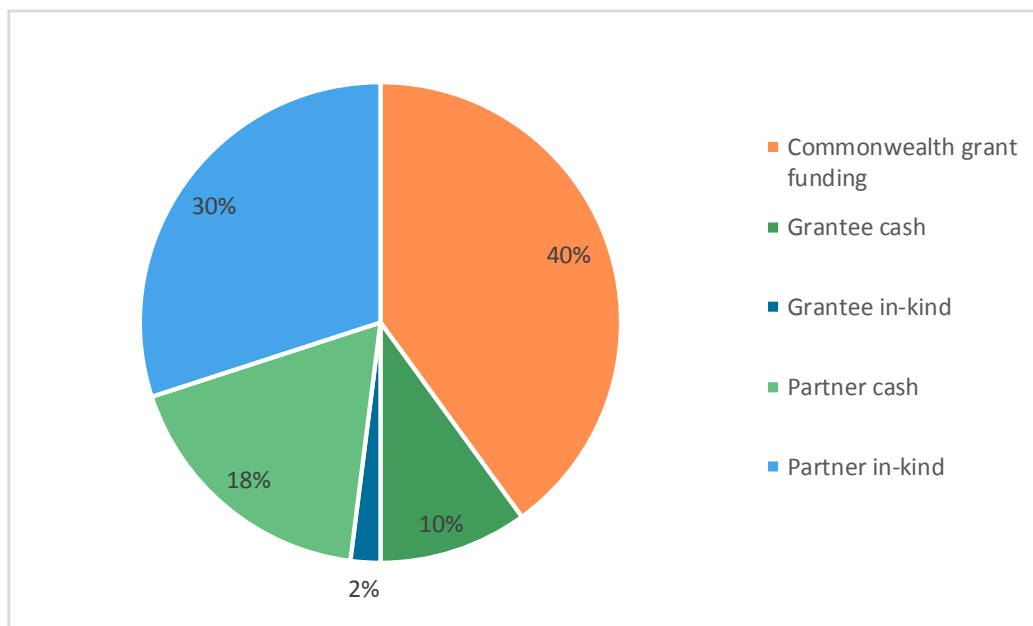
In sum, a total of \$114.68 million in Commonwealth funding has been awarded to projects and the program has leveraged \$169.37 million in partner co-contributions (cash and in-kind).

Figure 3: Amount of Commonwealth funding and non-government funding (partner co-contributions) across Rounds 1, 2 and 3



A breakdown of program funding sources showed that over three rounds the department funded 40% of the total project funding allocation, with 60% of total project funding provided by external sources (both cash and in-kind). The breakdown is represented in Figure 4.

Figure 4: Percentage breakdown of total program funding by funding sources



3.3.5 Extent of participation by RDCs and partner organisations in collaborations

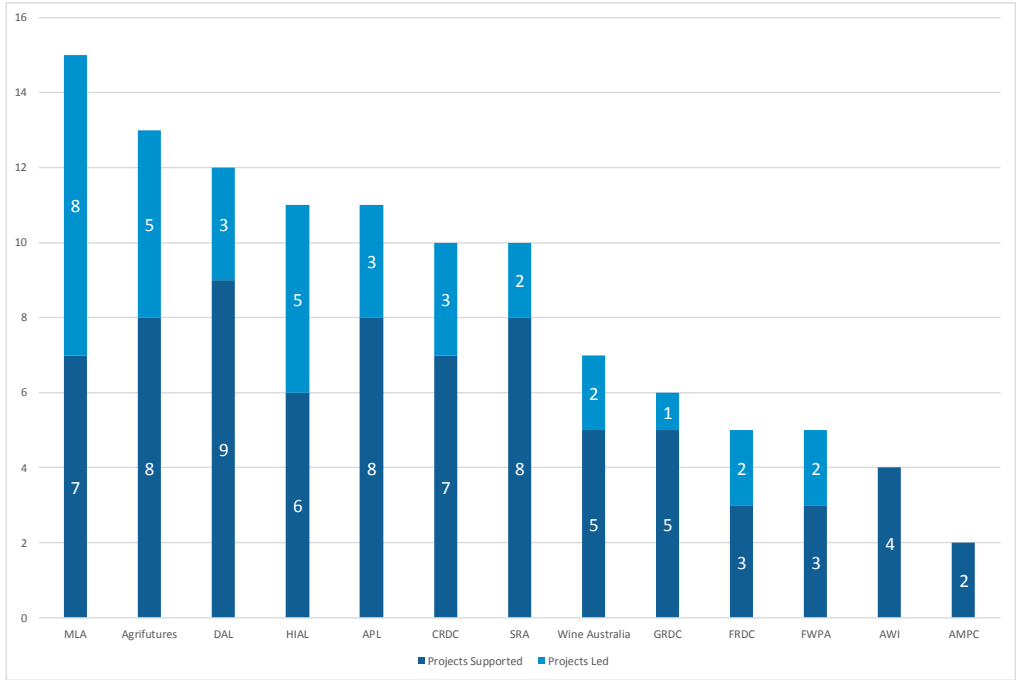
The nature and size of collaborations varied significantly across projects in terms of the numbers of partners involved, the size and nature of projects and level of involvement and contribution.

While all RDCs have participated in the program in some capacity, the degree of involvement across RDCs varied considerably.

Figure 5 illustrates the variance in involvement by RDCs, whereby some RDCs have participated extensively as both leads and partners in multiple projects, and a few RDCs did not invest much at all. RDCs do range significantly in terms of their R&D funding, capacity and capability. The number and size of projects is partly, but not only, a reflection of their size and scale.

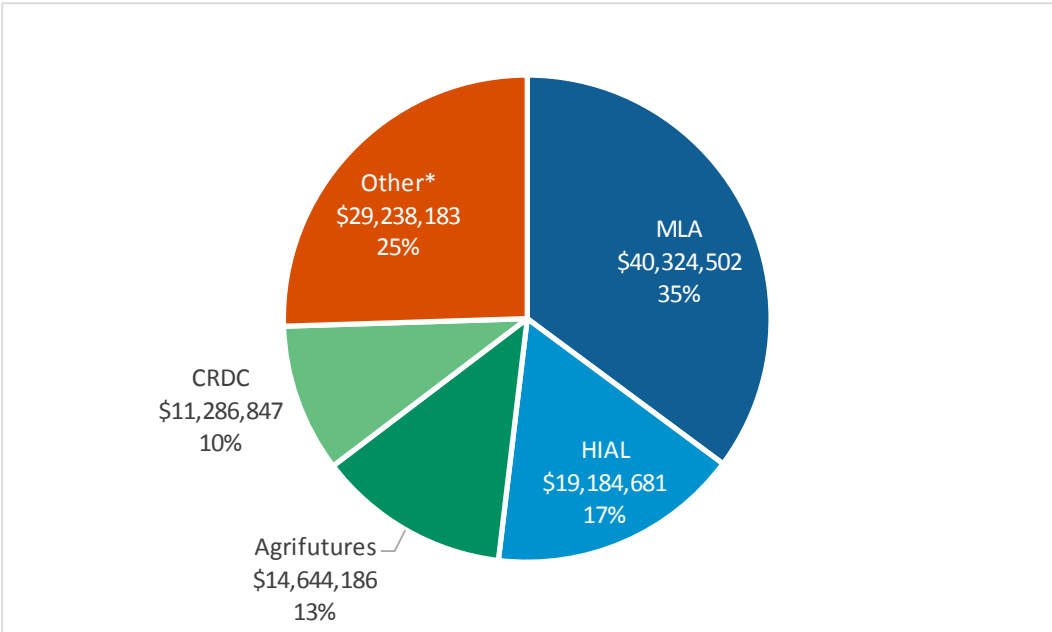
Figure 5 also shows 11 out of the 15 RDCs have participated as lead RDCs.

Figure 5: Number of projects by participant RDCs (as lead and supporting partners)



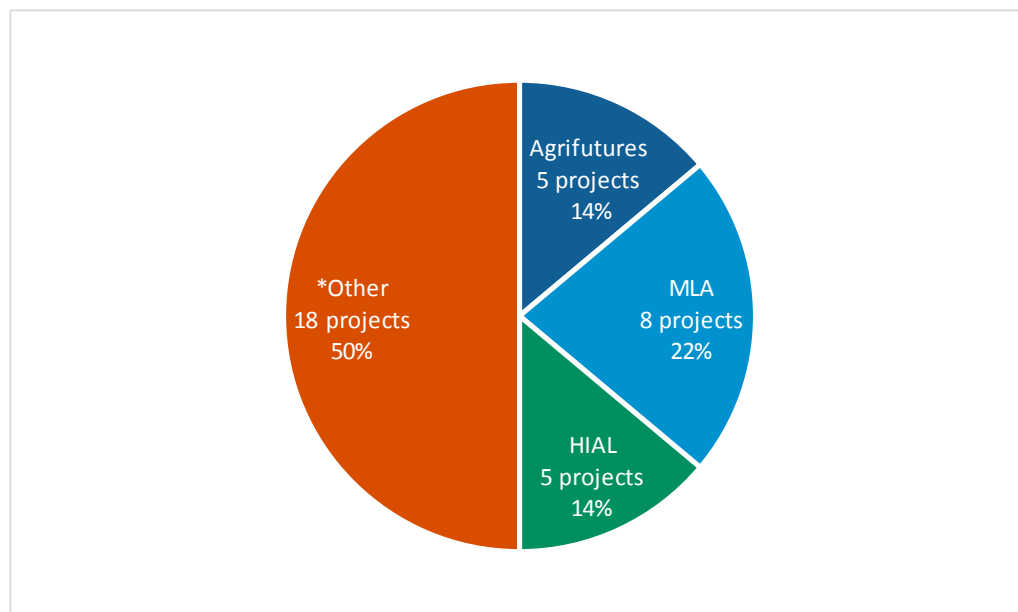
Allocation of funding across lead RDCs is illustrated in Figure 6. Distribution of the number of projects across lead RDCs is displayed in Figure 7.

Figure 6: Distribution of Commonwealth funding across lead RDCs



*'Other' category includes: Wine Australia, \$4,453,635, 4%; APL, \$2,848,361, 2%; DAL, \$5,122,273, 4%; FRDC, \$3,236,275, 3%; FWPA, \$1,420,000, 1%; GRDC, \$5,516,075, 5%; SRA, \$6,641,564, 6%

Figure 7: Distribution of number of projects by lead RDC



* 'Other' includes: Wine Australia 2 projects, 5%; APL 3 projects, 8%; CRDC 3 projects, 8%; DAL 3 projects, 8%; FRDC 2 projects, 6%; FWPA 2 projects, 6%; GRDC 1 project, 3%; SRA 2 projects 6%

Of the lead RDCs, there were four key players that received the highest proportion of grant funding allocated and there was a similar trend in the highest number of projects lead by those RDCs (seen in Table 3).

Table 3: Highest amount of grant funding allocated and highest number of projects

LEAD RDC	# PROJECTS LEAD	% OF TOTAL # PROJECTS	COMMONWEALTH \$ RECEIVED	% OF TOTAL COMMONWEALTH FUNDING ALLOCATED
MLA	8	22%	\$40,324,502	35%
HIAL	5	14%	\$19,184,681	17%
AGRIFUTURES	5	14%	\$14,644,186	13%
CRDC	3	8%	\$11,286,847	10%

There were 20 inter-RDC collaborations across the 36 projects in Rounds 1, 2 and 3, but as discussed below there was an element of repeated partnering between the same RDCs.

Project collaborations involving more than one RDC were analysed to establish if there were any trends in the make-up of inter-RDC partnering arrangements. Analysis revealed a high incidence of repeated partnering in inter-RDC collaborations.

While repeated partnering between RDCs across multiple projects is not problematic per se, it is a factor for consideration in the context of the program's emphasis on fostering new collaborations. The extent of new inter-RDC collaborations appears to be lessening over successive rounds.

This is not necessarily surprising; a factor inherent in a relatively small pool of 15 potential RDC partners, and the fact that some industries are more aligned, which

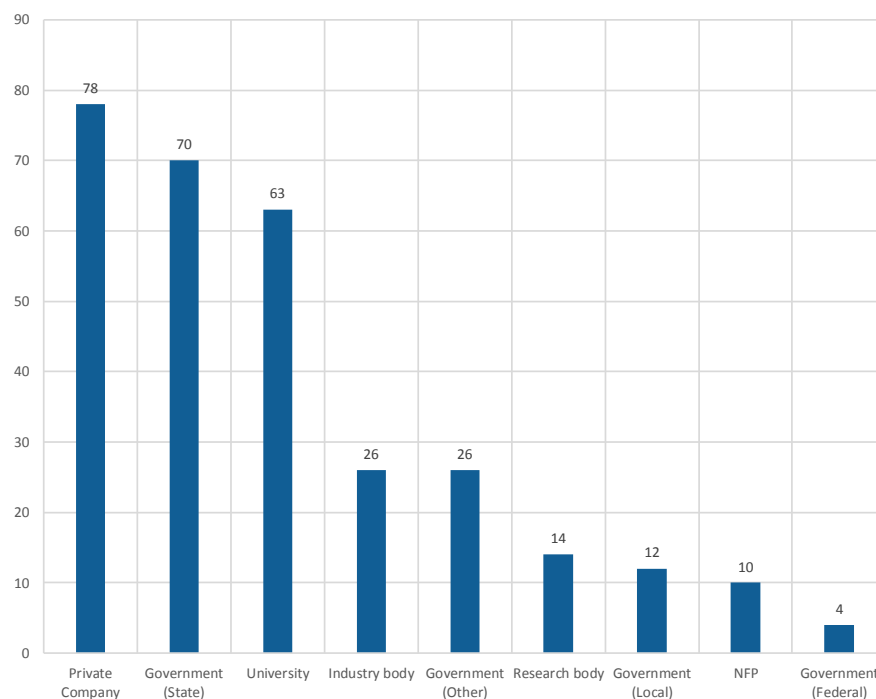
translates more easily to cross-sectoral research opportunities. The department may want to consider the ongoing appropriateness of the emphasis on new collaborations for the remaining rounds of the program.

3.3.6 Participation by partner organisations

Analysis of partner organisations participating in projects showed:

- a total of 303 individual partner organisations have, or are currently participating in the program
- private sector, state government and university partners were most strongly represented. Illustrated in the count by sector type of the non-RDC partners involved in the program to date in Figure 8.
- there was a mix of partners represented from the different states and territories and from urban and regional areas.

Figure 8: Count of partner organisations (non-RDCs) involved across projects



Among non-RDC partner organisations, there was also a portion involved in multiple projects, ie repeated partners in project collaborations.

While it was evidenced that a number of organisations have, or are participating in multiple projects; the appearance of repeated partnering was distorted by the fact that these were typically very large organisations with significant research reach, such as CSIRO, state departments or large universities.

Hence while the organisation had partnered multiple times in Rural R&D for Profit projects, it was often a different research team, branch or faculty.

3.3.7 Stakeholder feedback

RDCs

A key point made by the majority of RDCs, particularly in relation to inter RDC collaboration was that ‘collaboration is a means to an end’ and it was the pursuit of shared research goals that should drive the development of partnerships.

RDCs in the main, felt that the program’s focus on collaboration had encouraged their pursuit of new collaborative research projects:

- the majority of RDCs felt the program had contributed to the creation of new collaborations, including both inter-RDC (cross-sectoral) collaborations and industry specific
- some RDCs indicated they collaborated with other RDCs and project partners prior to the program and to that end a number of collaborations within this program were from pre-existing partner relationships; nonetheless they regarded any opportunity to collaborate as valuable.

Some RDCs were particularly positive, regarding the program as a ‘circuit breaker’ that had:

- caused them to develop new and innovative collaborations, including inter RDC collaborations, and
- led to development of mechanisms for ongoing collaboration (for example, establishment of the Council of Rural RDC Research Manager Forum and creation of legal agreement templates).

RDCs observed their R&D capability and capacity impacted on the nature of their collaborations and general participation in the program. For example, RDCs with limited R&D capability to take on additional projects, collaborated differently to those with a large in-house research function.

Partner organisations

90% of partner organisations felt the program had created new partnerships, and that these partnerships would likely be sustained beyond the life of the program.

Their comments highlighted that the collaborative emphasis had fostered research in cross-sectoral areas they otherwise would not have invested in, and had fostered partnerships with other organisations with different skill sets. Illustrated in the following survey comments:

(The program) ...has allowed our organisation to develop large multidisciplinary projects with multiple industry bodies, private sector and universities and tackling key national challenges on a scale never before achieved.

The program has allowed us to expand our research focus and bring in research collaborators with different skills and experience necessary to achieve the objectives of the research.

...the program is also providing the opportunity for improved communication between producers, processors, regulators, veterinary practitioners and research across different livestock sectors to come together on an issue that affects all the stakeholders.

... injected welcome funds into a sector seriously in need of innovation and has forced an examination of ways to demolish silo walls.

3.3.8 ANAO performance audit

Project analysis and stakeholder feedback collected for the evaluation, on balance indicated the program has had a positive impact with respect to encouraging collaboration. However, the Australian National Audit Office's (ANAO) recent performance audit ¹³ reported that stakeholder feedback in relation to the collaborative aspects of the program was mixed. Specifically, it considered that:

Potential for effective collaboration was constrained by the competitive nature of the program, the relatively short application period, and / or the incentive to select research partners on the basis of their ability to provide co-contributions rather than the suitability of their research capabilities to the proposed project.

Barriers to collaboration that were identified by stakeholders interviewed are discussed in more detail in 2.3.9.

3.3.9 Factors for successful collaboration and barriers to collaboration

A range of factors were identified by stakeholders as contributing to successful collaborations or as providing barriers to collaborations, summarised in Tables 4 and 5. This information may be useful to the program team to inform future guidance to applicants and to the department in developing future policy.

Table 4 Collaboration - factors identified for success

SUCCESS FACTOR	DESCRIPTION
<ul style="list-style-type: none"> Picking the 'right' research project 	<ul style="list-style-type: none"> Stakeholders often described finding the 'right' research project was the key driver to successful collaboration - whereby research outcomes would be to the equal advantage to all project partners <p><i>...collaboration is a means to an end; you don't collaborate for collaboration's sake (RDC)</i></p>
<ul style="list-style-type: none"> Getting the 'right' project manager 	<ul style="list-style-type: none"> The role of project manager / coordinator was identified as crucial to the success or otherwise of collaborative projects. Their key attributes were categorised as: <ul style="list-style-type: none"> - well organised - strong communicator - ensuring all parties were kept abreast of project developments and able to build positive working relationships - fair – ensuring all partner views and interests were represented - strong leadership skills - particularly ensuring that project partners functioned as a team, working towards project outcomes, rather than interests of their individual organisation <p><i>...the project stayed on track and true to the needs of the farmers - not the researchers (partner organisation)</i></p>

¹³ ANAO Report No. 17 2016 – 17, *Design and Monitoring of the Rural Research and Development for Profit Programme*.

SUCCESS FACTOR	DESCRIPTION
<ul style="list-style-type: none"> Positive working relationships 	<ul style="list-style-type: none"> Investment in 'soft capital' and building of positive working relationships where partners had a 'shared understanding and vision' was viewed as critical to the success of a collaboration. It was seen as the building block of any future collaboration between partners as well as sustaining of existing partnerships and networks. <p><i>Trust – it's so simple, but it's essential (project manager, partner organisation)</i></p> <p><i>Good collaborations are about relationships and stakeholder management (partner organisation)</i></p>
<ul style="list-style-type: none"> The right skill sets and industry perspectives 	<ul style="list-style-type: none"> Those involved in cross-sectoral research projects in particular highlighted the advantages of partnerships with other organisations that have other skills and perspectives. This included the direct involvement of industry participants and primary producers on the team. Sheer number of partners was not seen as a factor for success. Rather choosing the right collaborators that brought the right skill set and views to the project. <p><i>More partners don't necessarily equal better collaboration with better research outcomes (RDC)</i></p> <p><i>There is a sweet spot for the number of organisations involved, and sometimes less is more (RDC)</i></p>

Table 5 – Barriers identified for collaboration

BARRIERS	DESCRIPTION
<ul style="list-style-type: none"> Costs 	<ul style="list-style-type: none"> Collaborations were described as intensive in time, money and resources, particularly during project initiation. <p><i>Collaborations involve a cost – and the value of working together must outweigh the cost (RDC)</i></p> <p>Collaborations particularly impacted on in-kind contributions / or costs.</p> <p><i>Partners have all spent more time on the project than expected, but that is not demonstrated in the in-kind reporting. With contract in-kind contributions based on 'staff time' most partners are not including actual costs (travel, accommodation, reporting etc) in their contributions. (Partner organisation)</i></p>
<ul style="list-style-type: none"> Collaborating with your competitors 	<ul style="list-style-type: none"> It was noted that RDCs are in competition for research dollars. We are so often in competition, including protecting our IP (intellectual property). You wonder if they are still holding a few cards back. (RDC) Further, the tension between levy payer priorities and cross-sector collaboration was inhibitive for some RDCs in particular. For example, some industry groups were noted as prioritising industry specific research over cross-sectoral.

3.3.10 Case study – Smarter irrigation for profit

A large Round 1 project (total of \$4,000,000 in Commonwealth funding, \$3,435,000 cash and \$2,906,949 in kind) due for completion in September 2018.

This project is aimed at improving water productivity, efficiency and farmer profitability for 3,000 cotton, dairy, rice and sugar irrigators. It aims to assist farmers and irrigation professionals improve farm profits through new irrigation technologies and science application. It is a grower led research and extension project to collect commercially relevant comparative data on different irrigation systems and technologies. The intention is to provide growers with improved understanding of implications of capital investment, management and resource requirements (water, energy and labour) associated with different irrigation systems.

This project provides a good example of large scale cross industry collaboration, involving multiple RDCs and partner organisations across Australia. Led by CRDC, other partner RDCs included AgriFutures, DAL and SRA.

There are also many partner organisations involved from across university, state government and private sectors, including primary producers, University of Southern Queensland, Tasmanian Institute of Agriculture, CSIRO, NSW Government Department of Primary Industries, DairyTas Board, South Australian Research and Development Institute, Dairy SA, Victorian Government Department of Economic Development, Jobs, Transport and Resources, Gwydir Valley Irrigators Association, Sundown Pastoral Company and Auscott.

It is also large and complex in the of number trial sites and their broad distribution across regional Australia. There are 19 sites in total in Ayr, Emerald, Warwick, Dalby, Toowoomba, St George, Moree, Narrabri, Wee Waa, Tamworth, Whitton, Jerilderie, Numurkah, Shepparton, Macalister, Goulburn, Murray Irrigation District, Rocky Creek, Sisters Creek, South Riana, Montana, Cressy, Allendale, Eight Mile Creek, Mt Schank, and Harvey.

From an RDC perspective, this project provides a focal point for greater collaboration across RDCs and the government sector, and this was identified as an area for increased collaboration and extension in the future. It was clear from interviews that project participants value the trust built up across the group, and they felt interests had been balanced and equal participation encouraged. As commented by one project participant:

It's been a good honest forum. Not like some, where you get into them, and you know the bloke across the table is holding a few cards back.

This project also provides an example of farmer led collaboration, as farmers are collecting the commercially comparative data on different irrigation systems and technologies as they trial the different automated irrigation scheduling systems on farms. Two satellite based scheduling irrigation performance pilots are also being implemented on commercial dairy farms in Northern Victoria. Interviews with RDC representatives commented on how the collaboration has successfully involved farmers as part of the research.

Farmers involved in the project commented on the impact of the project to their farm practices. For example:

I've now fully automated the farm. It's made a massive difference. We have proper records of water usage and we can manage our irrigation much better.

It's also meant I've saved money on hiring people. I was lying in my hotel room in San Francisco and was still able to turn my pumps on.

The project also evidences how new collaborations between farmers in the sugar, cotton, rice and dairy industries have been formed, via a number of activities such as bus tours of young farmers to other farms and presentation by groups at major workshops. As commented by one farmer involved:

... talking to others, you could see that we faced the exact same issues across industries. It's good to find out what other people are doing to make me think about how I could apply it differently on my property.

3.4 Generating knowledge, technologies, products or processes that benefit primary producers

3.4.1 Guidelines and priorities

A key objective of the program is to realise productivity and profitability improvements for primary producers through generating new knowledge, technologies, products or processes. (This was identified in the program logic as a key output: 'new innovative knowledge, technologies, products or process are produced to enhance profitability and productivity of primary producers'.)

Projects must address one or more of the program's priorities:

- advanced technology
- biosecurity
- soil, water and managing natural resources
- adoption of R&D.

To assess the extent to which this output has been (or is on track to be) achieved, the following was investigated:

- numbers of new innovative technologies, products or processes being produced and distribution of these across program priorities
- evidence of R&D outputs, for example published research reports and articles and trial activities with new knowledge.

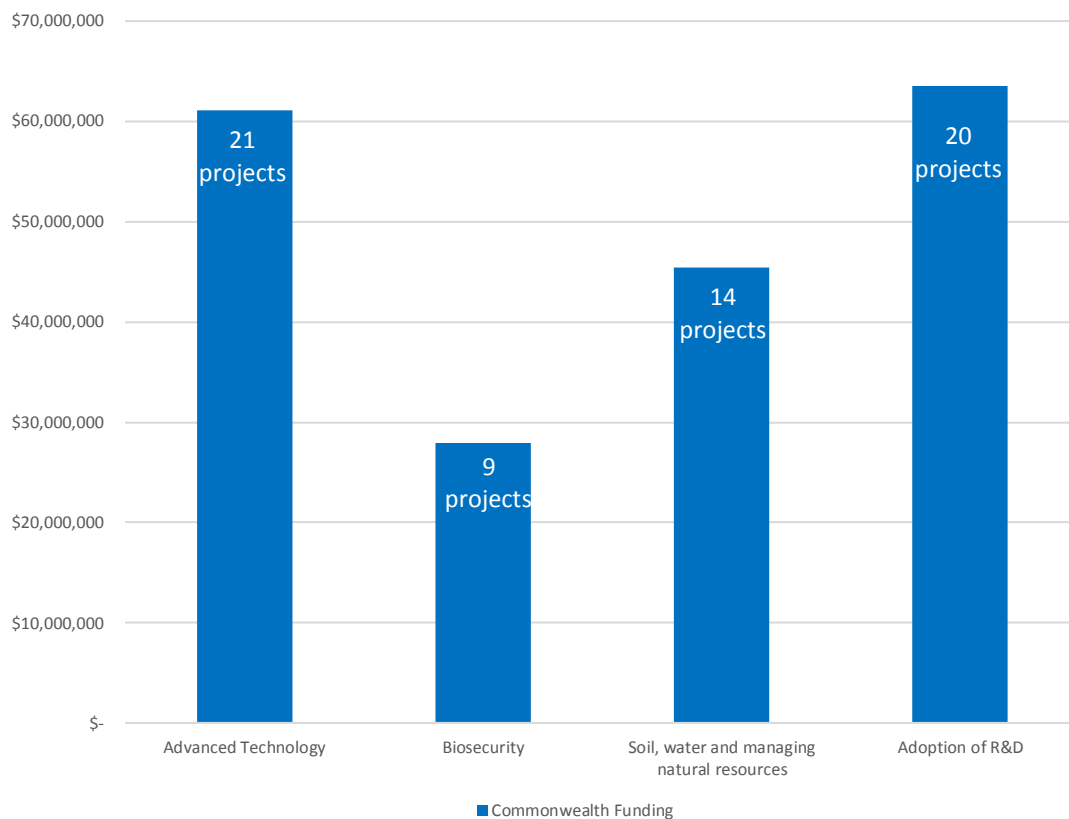
3.4.2 Number of projects and representation of priority areas

As indicated previously, 36 rural R&D projects have been funded, including one completed project.

All program priorities were well represented, showing a relative distribution in both numbers of projects and Commonwealth funding allocated (albeit, a slightly lower allocation to biosecurity projects). This is illustrated in Figure 9. Note, priorities were identified by the departmental program team, and do not necessarily align with the project applications, as the applications sometimes identified priorities which were beyond the main scope of work. Also, a number of projects responded to multiple

priorities. Where projects addressed more than one priority, the grant funding has been averaged across nominated priorities. For example, where a project addressed four priorities, 25% of the grant funding for that project was allocated to each priority.

Figure 9 Distribution of number of projects and Commonwealth funding allocated across priority areas



3.4.3 Publications and reports

Analysis of project reports revealed evidence of numerous R&D outputs such as published academic research papers and other reports which indicated projects are producing the knowledge, technologies, products or processes. Analysis indicated consistent evidence that those outputs were in line with project applications. For example, review of the most recent milestone reports for Round 1 projects showed in that last reporting period:

- a total of 48 academic papers and presentations had been completed
- 22 other reports had been produced, for example survey reports, research reports and evaluations were produced
- evidence of numerous project related industry magazine articles and presentations.

The case study projects also displayed evidence of numerous academic and research reports, including attendance at research forums and symposiums. By way of example, a paper on a component of the 'Multi-scale monitoring tools for managing

Australian tree crops: Industry meets innovation' project won best paper at an international conference in mid-2017.¹⁴ (See case study in section 2.4.5.)

3.4.4 Stakeholder feedback

RDCs were very positive that projects had delivered, or were on track to deliver, intended research outcomes that would benefit farmers. As articulated by two RDCs:

We would only invest in projects where there is a high degree of certainty that outcomes will be delivered to stakeholders and address relevant issues.

This program has enabled us to achieve 15 fold ... I am amazed by what they have achieved in such a short space of time.

Partner organisations were also very positive. In the survey:

- 98% respondents indicated their projects will meet their goal of delivering new knowledge and technologies and productivity or profit benefits to primary producers
- 91% perceived projects have resulted, or will result, in productivity and profit benefits to primary producers

Comments from survey respondents highlighted the multi-sector element of the program had been a key benefit in the project and, as per RDC comments, had enabled them to accelerate their research. For example:

Rural R&D for Profit has allowed us to tackle traditional and new biosecurity challenges with state of the art technology solutions that can potentially game change knowledge and service provision to farmers.

Involvement has enabled us to extend the scope of projects and activities over a shorter period of time than what may have otherwise been possible.

While consensus was that projects were on track, comments from both RDCs and partner organisations indicated that some projects had been delayed due to the time required in organising partnership arrangements in the project initiation phase.

RDCs in particular also highlighted that most projects were still in the 'knowledge creation' stage and R&D by its very nature is complex and often unpredictable; therefore, outcomes from the research are not guaranteed, or may not be available for some time. As articulated by one RDC:

Projects aren't always going to hit the sweet spot.

3.4.5 Case study - Multi-scale monitoring tools for managing Australian tree crops: Industry meets innovation

A Round 1 project, receiving \$3,428,248 in Commonwealth funding, \$2,079,000 in cash and \$1,692,072 in kind¹⁵ and due to finish in June 2018. This project provides

¹⁴ 11th European Conference on Precision Agriculture, July 2017.

¹⁵ Figures as at April 2017.

another example of large scale research; eg, teams from four universities were in the field at the same time.

The project is led by HIAL with a number of partners from university and private sectors, including: University of New England, University of Queensland, Central Queensland University, University of Sydney, Department of Agriculture and Fisheries Queensland, Australian Mango Industry Association, Australian Macadamia Society, Avocados Australia, Simpson Farms and AGTRIX.

The project is integrating the latest imaging and robotics technologies to provide mango, avocado and macadamia farmers with decision-support tools to help improve production and profit. Data collected via the project, and tools developed, will help farmers predict fruit quality and yield, and to monitor tree health including early detection of pests and disease outbreaks.

The project aims to provide:

- a national audit capability framework identifying location, area and tree population of every commercial avocado, mango, macadamia orchard and banana plantation across Australia
- farm level decision support tool utilising satellite image data streams and novel on-ground sensor systems, including machine vision and spectro-radiometric sensors, and robotic platforms for mapping fruit yield and quality, tree health and inflorescence counts.

Partners, including university and industry representatives, commented on the extent of results achieved by the project in such a short space of time and are pushing for commercialisation this year. They have noted the potential for extension to other commodities such as olive, citrus, potatoes, pineapples, almonds, blueberries and rice.

Project participants interviewed consistently identified involvement of industry partners as integral to the success of the project. Evidenced in a sample of their comments:

... we are producing good solid results for industry. Industry groups have been instrumental in ensuring the group has stayed practical.

It's essential to have the voice of the farmer at the table – I know the farmer down the road and what he needs. You can't just sit there and agree to everything, you've got to bring the research back to the ground.

Publications and reports, and participation in symposiums and forums have been strongly evident in this project, including taking out the prize for best paper at an international conference in mid-2017.¹⁶

Project participants felt that this project has been a model for success, with potential future application for pest and disease management, biosecurity outbreaks and responding to extreme weather events such as cyclones.

¹⁶ 11th European Conference on Precision Agriculture, July 2017.

3.5 Strengthening of extension pathways and understanding barriers to adoption

3.5.1 Program guidelines

Other program objectives are to strengthen pathways to extend the results of rural R&D, and to understand the barriers to adoption.

One of the program priorities is adoption of R&D, focusing on flexible delivery of extension services that meet primary producers' needs and recognising the growing role for private service delivery.

To assess the extent to which the program was tracking towards these objectives, the evaluation investigated evidence pertaining to communication and extension activities, materials developed and understanding barriers to adoption.

3.5.2 Project reports

Analysis of project reports showed strong evidence of extension activities. Of note:

- communication and extension plans are requisite in project planning. Review of a sample showed extremely detailed and specific planning.
- communication and extension activities were varied, by way of example such activities included:
 - local media releases and newspaper articles
 - local television and radio interviews
 - distribution of written materials in a range of formats, often involving a website presence and/or online publication, such as targeted newsletters and updates
 - a range of face to face activities such as meetings, workshops, forums and field days
 - involvement of local professional extension providers as both advisers to the project and as active participants in research and trials
 - inclusion of primary producers in project design. They then assist with advocating or facilitating further extension and adoption of research/technology via their networks.

There were two specific extension projects funded:

- Simulating private sector extension in Australian agriculture to increase returns from R&D, led by Agrifutures Australia with a grant of almost \$1.6 million
- Consolidating targeted and practical extension services for Australian farmers and fishers, led by DAL with a grant of \$815,000.

These are discussed in case studies in this section.

The department, via project reporting, is in the process of collecting information relating to extension activities and the understanding of barriers to adoption. Data received is variable across projects and there is an opportunity for the department to

collect information more consistently, so that it can be aggregated and analysed at a program level. This could be done as part of developing a Monitoring and Evaluation (M&E) Framework, discussed in section 4.3.

As more projects mature and are completed, the store of information relating to lessons learned about extension and adoption of rural R&D will be significant and valuable to share with the broader rural R&D community.

RDCs

Most RDCs indicated that despite some difficulties in demonstrating extension and adoption within project timeframes, they felt confident that projects were either already showing, or were on the way to showing actual extension and adoption. They highlighted that a key factor in this was due to project design, whereby actual end users, or industry participants were involved as partners and testers of the technology. Therefore, extension and adoption activities were embedded throughout the lifecycle of the project.

Partner organisations

Nearly all partner organisation survey respondents indicated that their projects have, or will strengthen pathways to adoption and that there will be evidence of adoption by primary producers before the conclusion of the program. 80% indicated that their projects will inform better understanding of barriers to adoption.

Qualitative feedback in the survey highlighted the complex and multifaceted nature of barriers to adoption and identified the importance of designing extension activities to suit the specific nature of the research, the needs of the industry group, and the local environment. For example:

Our project is looking specifically at barriers to adoption and developing a strategy to address these barriers. Barriers to adoption are being shown to be complex (there are multiple barriers) and different strategies and approaches are required. Extension and adoption activities are likely to be required to extend beyond the life of the project and we will need to develop a strategy to deal with this.

Communication and appropriate reporting for the specific intended audience is crucial to develop participation in the project, and adoption of the system and the project outcomes.

Survey comments also highlighted the importance of addressing the social elements of extension and adoption activities. For example:

Our project has a specific social science aspect - to understand the challenges and limitations of implementing the new technology.

Regional networks are vital for extension, working with the private sector requires considerable effort and trust.

3.5.3 Case study - Simulating private sector extension in Australian agriculture to increase returns from R&D

A Round 1 project, receiving \$1,595,000 Commonwealth funding, \$810,000 in cash and \$785,000 in-kind. It commenced in mid 2015 and is due for completion mid 2018.

This is a large inter-RDC collaboration. Lead by DAL, it includes MLA, CRDC, APL, HIAL and SRA. Other partner organisations include University of Melbourne, Victorian Government Department of Economic Development, Jobs, Transport and Resources and NSW Department of Primary Industries.

This project is one of two projects solely focused on extension. It is a national project conducting research and developing models to increase capacity of commercial and private-sector extension services to deliver research and development outputs on-farm. A project website has been developed <http://rirc.fvas.unimelb.edu.au/ag-extension> containing publications and communication materials.

Project activities have included:

- an Australia wide survey of farmers and advisors to develop a national picture of needs for extension skills training
- forums, workshops and research throughout Australia
- action research case studies in four trial sites.

Results achieved to date include:

- knowledge of end user preferences and demand for extension services
- better understanding of the emerging role of brokers within the RD&E system
- career pathways for building private and public agriculture extension capacity through training new and retaining extension professionals.

Project participants interviewed commented on changes in the extension sector, and the applicability of this project to filling gaps:

The linear approach to extension doesn't work anymore.

Extension networks have been eroded over the years.

There's lots of research not getting out to the farms.

The approach to the project has been inclusive of industry, including in the trial sites, and this was regarded as a key contributing factor to the momentum of the project. It was highlighted as being practical research where all partners have learned from the project. As identified by project participants interviewed:

We've gained real insight into issues and challenges in private sector extension.

You can't just come up with a model for engagement. Farmers have to feel part of the solution.

Processors have really appreciated the opportunity to focus on their own business.

Would not have had this level of buy in without trials in situ.

3.5.4 Case study – Consolidated, targeted and practical extension services for Australian farmers and fishers

This is the only completed Rural R&D for Profit project to date, and one of the two projects focused on extension. This was a Round 1 project, commencing in mid-2015 and completed in December 2016. It received \$815,000 in Commonwealth funding and partner contributions of \$600,000 cash and \$300,000 in-kind.

This was integrated with the extension project led by DAL – Simulating private sector extension in Australian agriculture to increase returns from R&D (see case study at section 2.5.3). The project also involved collaboration with the Australasian Pacific Extension Network (APEN) and engaged with all state agencies.

Led by AgriFutures Australia, it included partner organisations from NSW Local Land Services, NT Department of Primary Industry, Tasmanian Institute of Agriculture and Fisheries, University of Melbourne and Victorian Government Department of Economic Development, Jobs, Transport and Resources.

Note this project ran a number of forums – including two collaborative workshops with all 15 rural RDCs, state agencies and University of Melbourne.

The project sought to reverse some of the drivers of fragmentation impacting on delivery of extension services and to identify actions that would lead to improvements in the extension system and consolidate knowledge.

The project was managed by a dedicated project manager employed by AgriFutures Australia, with an Expert Panel comprising extension experts from around Australia, and included representatives from all project partners to provide technical expertise.

Key activities undertaken included:

- an evaluation of the current extension environment systems – to better understand system strengths and weaknesses, identify key players and their needs. This included an assessment of current and potential future extension delivery approaches and how these could be used.
- information and advice on strategic next steps to improve the efficiency of Australian primary industry extension.
- a practical extension information ‘hub’, <https://extensionhub.com.au/web/extension-practice> – a web based hub to support extension professionals as they plan and deliver information to Australian farmers and fishers.

The site, established as the Extension Community of Practice (CoP) went live in November 2016. AgriFutures continues to fund maintenance of the site, although with a greatly reduced amount of site management. The site currently has six communities of practice and from July 1 2017 to October 2017, 23000 users have accessed the site.

Project participants interviewed regarded the project highly, describing it as an ‘absolute front runner’ with ‘genuine’ national representation of extension professionals. They all identified the potential for further development of the project and use of the ‘backend’ platform to potentially host unlimited Communities of Practice. As one interviewee commented:

The Hub has potential to provide real value in the future. AgriFutures now has a tested platform to establish unlimited communities of practice. But it would take more funding to get it to the next level.

4 Administration, implementation and delivery

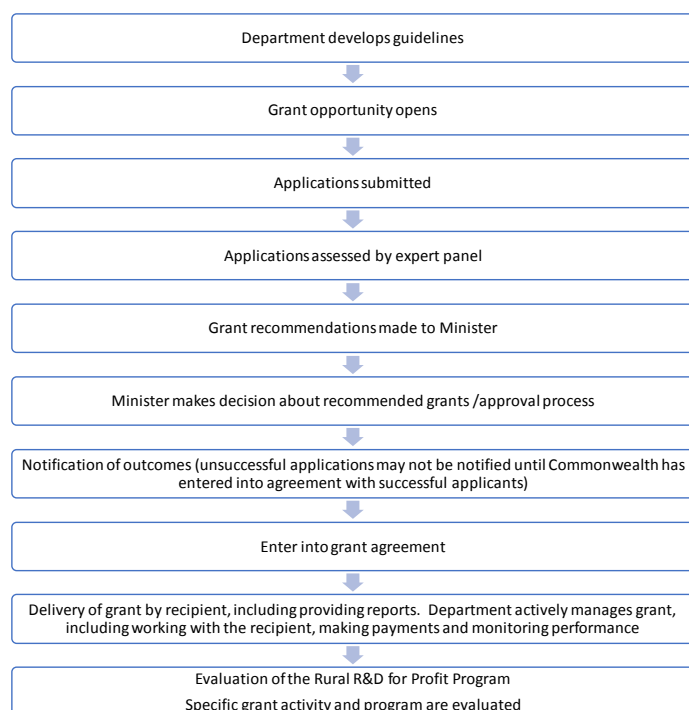
4.1 Efficiency and effectiveness

4.1.1 Introduction

This section presents findings relating to the department's administration and management of the competitive grants program. The evaluation looked at both aspects of efficiency and effectiveness across program processes.

Program processes are summarised in Figure 10.

Figure 10 Summary of program processes (from program Guidelines, Round 3)



4.2 Application, assessment and selection

Guidance relating to project applications, assessment (including criteria and process) and selection and approval of projects was detailed in the program guidelines, application template and application checklist, and responses to Frequently Asked Questions (FAQs) posted on the department's website.

Further, during the application period, the department was available to respond to questions via phone or email.

4.2.1 Numbers of applications and projects selected

Project information

Analysis of project information showed that the program had attracted sufficient numbers of applications to enable selection of suitable projects over the three funding rounds. Trends in the numbers of applications received and selected are shown in Figure 11.

Figure 11: Numbers of applications received and selected over Rounds 1, 2 and 3

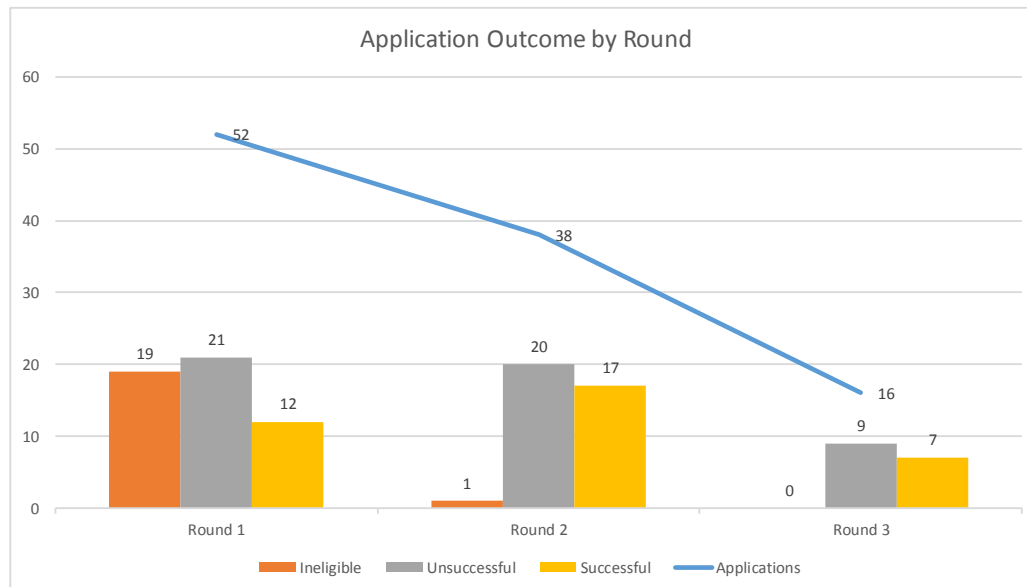


Figure 11 shows there has been:

- reduction in the total number of applications received over the course of three rounds, from 52 applications in Round 1, to 16 applications in Round 3
- reduction in ineligible applications from a high number in Round 1 (19 out of 52 or 37%) to none by Round 3
- a higher success rate of proposals in the later rounds, as a proportion of total applications received:
 - Round 1 – 23% success rate
 - Round 2 – 45% success rate
 - Round 3 – 44% success rate

National geographic distribution of partner organisations, and distribution of project study sites across urban, rural and remote areas was evident in the analysis of project documentation, interviews with RDCs and the partner organisation survey.¹⁷

¹⁷ Department of Finance, *Commonwealth Grant Rules and Guidelines 2017* - The ANAO has put an emphasis on geographic distribution of grant activities as a measure of equitable distribution and indicator of general equity of grant opportunity.

Case studies also evidenced the national spread of projects, for example, the Smarter Irrigation for Profit project involves 19 sites in Ayr, Emerald, Warwick, Dalby, Toowoomba, St George, Moree, Narrabri, Wee Waa, Tamworth, Whitton, Jerilderie, Numurkah, Shepparton, Macalister, Goulburn, Murray Irrigation District, Rocky Creek, Sisters Creek, South Riana, Montana, Cressy, Allendale, Eight Mile Creek, Mt Schank, and Harvey.

4.2.2 Eligibility and assessment criteria

Interviews with RDCs and non-participants (those partner organisations that had been unsuccessful in project bids) showed a perceived lack of clarity regarding eligibility and assessment criteria. Comments from partner organisations in the survey response also highlighted similar themes. While this was particularly apparent in Round 1, there was evidence that this confusion persisted into Round 3.

The perceived lack of detail and clarity around assessment and selection criteria has resulted in the following among some RDCs and potential partner organisations:

Lack of understanding of what projects are preferred	<p>For example, evidenced in the following comments from stakeholders interviewed:</p> <p><i>I just don't understand why some projects get up and some don't? (unsuccessful bidder, partner organisation)</i></p> <p><i>Proposals which had a very high chance of success missed out while other proposals which were pie-in the sky, were funded. Clearly there are no links to probable success of proposals and funding success. (RDC)</i></p>
Applicants misinterpreting as to why their bid was unsuccessful	<p>For example:</p> <p><i>...when our proposal was unsuccessful, it sent the message that bigger projects were not wanted. (RDC)</i></p>
Perceived bias towards particular RDCs	<p>For example:</p> <p><i>There also appears to be a bias to some organisations. (unsuccessful bidder, partner organisation)</i></p>

4.2.3 Debriefing unsuccessful applicants

In particular, the partner organisations associated with unsuccessful bids felt there was opportunity to improve the debriefing process. As demonstrated in the following comments:

... there were no protocols in place for a loss review process. (partner organisation)

I saw the department's letter, but the feedback was general – there was no detail for us to address for next time. (partner organisation)

The department identified and implemented improvements made to the debriefing process for unsuccessful applicants over Rounds 1, 2 and 3. Across all three rounds, if the RDC requested feedback, the departmental program team personally called and provided detailed feedback to the lead RDCs as to why an application was unsuccessful. Partner organisations were also permitted to attend the debriefing if invited by the lead RDC.

Further if an applicant is dissatisfied with the way an application has been handled, there is a complaints process set out in the program Guidelines.

Stakeholder comments suggested a requirement for greater clarity and improved communication around the feedback process for unsuccessful applications, to ensure that RDCs are provided with adequate detail and that this feedback is relayed to partner organisations involved in the bid.

4.2.4 Timeframes for application, selection and approval

Application

Some RDCs and partner organisations suggested that the timeframes for putting an application together were too short. This was particularly the case when the project bid involved numerous partners, as developing new collaborations was identified as one of the tasks that took up most of the time.

In Rounds 2 and 3, key program dates were as follows:

Milestone	Round 2	Round 3
• Applications open and guidelines released	23 September 2015	28 September 2016 (Guidelines released) Applications opened 6 October 2016
• Applications close	1 December 2015	6 December 2016
Assessment period	December 2015 – February 2016	December 2016 – February 2017
Announcement of successful projects	April 2016	2017
Grant agreements signed and commencement of successful projects	May – June 2016	May – June 2017

In sum, the application period for Round 1 allowed approximately 8 weeks, and Round 2 allowed 10 weeks.

The *Commonwealth Grants Rules and Guidelines* are not prescriptive regarding timeframes for the application stage, suffice applying the principle of proportionality.¹⁸ That is, the timeframe allowed should be proportionate to the bid writing requirement and reflect the complexity of proposals.

Analysis of other external and comparable research grants identified variance in timeframes allowed for the application period. For example, some grant programs allowed nearly five months between release of guidance and closing date for proposals. Others allowed approximately 12 weeks (three months).¹⁹ By comparison

¹⁸ Department of Finance, *Commonwealth Grants Rules and Guidelines* 2017.

¹⁹ Included analysis of Australian Research Council (ARC) grants programs.

with some other external grant programs, Rural R&D for Profit's application period, particularly in Round 1, was shorter.

A shorter timeframe for applications can result in the following:

- lower quality bids being submitted (applicants do not have the time to develop a quality bid)
- fewer bids being submitted (applicants choose not to apply because they do not have the time to put a bid together in a concentrated period, as opposed to a more measured approach to bid writing over a longer period)
- to save on time, applicants may choose to go to a limited number of partners, as developing the relationships for collaborations was noted to take considerable time.

Assessment, selection and notification

There was lapsed time between submission and announcement of successful /unsuccessful projects Rural R&D for Profit projects of approximately 5-6 months. RDCs and non-participants regarded this as too long, particularly if a project had been unsuccessful.

The main implication of a lengthy selection and notification process is that over that time, unsuccessful bidders have missed out on opportunities to pursue other research options. (Applicants allocate funding to the proposed Rural R&D for Profit project and this funding is held in reserve during the assessment and selection process in the anticipation of a positive result.) As one RDC commented:

'if its dead, just tell us. We need to get on with our business.'

Even successful bidders commented on delays in the notification process, whereby the start of projects were delayed due to having to wait for public announcement of project approvals.

4.2.5 Project administration and management

Administration and management of projects by the department showed alignment with the *Commonwealth Grants Rules and Guidelines* in that analysis of reporting showed projects were being managed against the established funding agreements:

- grantees have provided regular milestone and final reports to the department as per agreements.
- six variations (mainly due to requirements for extension of timeframes) were undertaken for Round 1 projects.
- each project had a dedicated departmental program team member with responsibility for oversight of the project by the department
- department project managers also participated in key project meetings and forums as appropriate to keep abreast of project developments.

Stakeholder feedback

Feedback from the majority of RDCs and partner organisations was positive²⁰ in relation to administration and management of projects by the department:

- the majority of RDCs were satisfied with administration and management of projects and were complementary and enthusiastic about the rapport built up with the department program team. They welcomed the department's responsiveness in actioning stakeholder feedback to make improvements to the program over successive rounds.
- 80% of partner organisation survey respondents were satisfied with the department's administration of the program.

Interviews with a sample of departmental Sustainable Agriculture Facilitators indicated that some saw benefit in the departmental program team undertaking more information sharing activities throughout the department. For example, so that facilitators could 'advertise' the program in their local networks and were aware of projects in their local area in order to be of assistance to that project group.

4.2.6 Project monitoring and reporting

Grantees are responsible for project planning and developing project M&E strategies, milestones, key performance indicators (KPIs) and the reporting schedule. Each project is required to develop a M&E plan at inception and provide both mid-term²¹ and a final evaluation reports.

Some RDCs and partner organisations accepted the monitoring and reporting requirement 'as a government requirement' whereas a number of others viewed the requirement as 'arduous' and a case of 'over management' that 'lacked understanding of the research space we are working in'.

Feedback from many RDCs and the majority of partner organisations showed there is an opportunity for the department to reduce and streamline project monitoring and reporting. Whereby these stakeholders viewed the requirement as:

- excessive and time consuming
- disproportionately detailed, relative to the size and risk of the projects, and compared to reporting requirements for other major research projects they participated in outside the program

Some also queried whether the evaluation requisite added value (particularly the mid-point evaluation) and if it was appropriate for all projects.

Key pain points related to the level of detail required in milestone reports and the specific nature and volume of KPIs. Most RDCs and a number of partner organisations felt there was a need for a reduced number of KPIs and more flexibility in reporting.

As highlighted by one partner organisation:

²⁰ Notwithstanding, suggestions for improvement were identified. Discussed in sections 4.2.6 and 4.3

²¹ (Not all Round 1 projects have this requirement.)

...the department should consider the level of effort required when establishing performance reporting requirements.

The *Commonwealth Grants Rules and Guidelines* are not prescriptive regarding the extent of reporting of grants; suffice, the principle of proportionality should be applied that strikes a balance of reporting and acquittal with the level of complexity, risk, outcomes and transparency:

Officials should use the proportionality principle to inform the choice of the application and selection process, the grant agreement to be used and the reporting and acquittal requirements.²²

Despite the department making refinements over rounds to reduce reporting (for example in relation to financial and technical reporting), feedback from a number of RDCs and partner organisations, indicated the amount of reporting was still viewed as excessive and disproportionate. This was identified as an area the department could simplify and provide greater clarity and guidance. This is discussed further in section 4.3.

4.3 Monitoring, evaluation and KPIs

4.3.1 KPIs identified as area for improvement

Program and project KPIs

KPIs were highlighted as an area for improvement in the ANAO audit in September 2016, which recommended the department expand existing performance measures and/or develop additional measurement tools which better inform assessment of achievement of program objectives.²³

Review of program level reporting showed an emphasis on reporting of inputs and output level information, and did not directly link to the extent to which the program contributes to the department's outcome of: *'More sustainable, productive internationally competitive and profitable Australian agriculture, food and fibre industries through policies and initiatives that promote better resource management practices, innovation, self-reliance and improved access to international markets.'*

For example, in the department's most recent annual performance statement²⁴ program results were reported under the performance measure 'Investment in rural research and development corporation programs demonstrates positive returns'.

TARGET	RESULT AGAINST PERFORMANCE
<ul style="list-style-type: none"> 100% of allocated funding under the Rural Research and Development for Profit program expended 	<ul style="list-style-type: none"> Met: The Rural Research and Development for Profit program aims to improve farm-gate productivity and profitability and deliver real outcomes for Australian farmers. Total funding available for the program is \$180.5 million over eight years, ending on 30 June 2022.

²² Department of Finance, *Commonwealth Grants Rules and Guidelines* 2017.

²³ ANAO Report no. 17 2016-17, *Design and Monitoring of the Rural Research and Development for Profit Programme*.

²⁴ Department of Agriculture and Water Resources, *Annual Report 2016-17*.

in accordance with the agreed timetable

- Grant funding of \$114.7 million has already been awarded to 36 projects over the first three rounds of the program, matched by almost \$170 million in cash and in-kind contributions from successful applicants and their partners.
- Round three grant agreements were executed in June 2017.
- Seven projects, worth \$35.8 million, were funded under round three.
- Grant agreements for all projects are in place and projects are progressing in accordance with agreed timeframes.

A focus on activities and input and output related performance data was also evident at the project level. A review of project KPIs showed a focus on project milestones (inputs and outputs) rather than project outcomes. Further, as milestones and KPIs were developed by grantees, they were project specific, hence there were rarely two KPIs the same – making it difficult to aggregate project data to inform a picture of performance at the program level.

Notwithstanding refinements made by the department to address this over successive rounds, the program’s focus on measuring activities and progress against milestones did not align with better practice outlined in the *Commonwealth Grant Rules and Guidelines 2017*. The Guidelines emphasise the importance of an outcomes oriented performance framework that utilises input, output and outcome measures that link to an entity’s strategic direction (see extract from the Guidelines in Table 6).

Table 6 An Outcomes Orientation²⁵**AN OUTCOMES ORIENTATION – COMMONWEALTH GRANT RULES AND GUIDELINES**

- In adopting an outcomes orientation, officials should ensure that outcome, output and input measures are clearly specified, as this will facilitate effective and efficient evaluation of granting activities and the services and activities funded by the grant.
- Outcome measures assess the extent to which the granting activity is meeting both the strategic directions and operational objectives of the entity. Outcome measures relate to changes effected in the community and may include: the level of usage of facilities built with the grant; the level of community involvement resulting from projects; and levels of service delivery.
- Output measures show the extent to which the granting activity's operational targets or milestones have been achieved. Output measures may include: the numbers of completed projects; the numbers of new applicants; and the numbers and/or value of grants awarded.
- Input measures show the inputs, such as cash and resources, consumed by grants administration and may include: the costs of administering a granting activity; the number of staff employed and the costs of processing applications.

The evaluation found a number of performance related documents for the program, including a program plan and program evaluation plan. These refer to program outcomes, success measures and criteria for program success (extracts provided in Attachment B). However, analysis showed a lack of alignment and inconsistencies in how these were articulated, and there was no specificity relating to how performance data would be collected, analysed and reported at program and project levels.

In sum, performance data and reporting related to inputs and outputs and was not aligned to program objectives. There was not an agreed M&E framework in place.

M&E framework

A M&E framework articulates program outcomes and the corresponding success measures and data sources, as well as an overview of the evaluations to be conducted over the life of the program. A M&E framework would assist the department to measure the success of the program in achieving outcomes and describe what routine data needs to be gathered on a regular basis. The framework would identify:

- program outcomes and how these contribute to departmental outcomes
- measures of success or KPIs – the information that indicates whether the program is achieving the intended outcomes
- corresponding data sources that would provide the information to support evidence or otherwise of KPIs

²⁵ Department of Finance, *Commonwealth Grant Rules and Guidelines*, extract, p. 25

- a schedule detailing when and how the information should be collected (eg via milestone reports) and when and how it will be reported, (eg monthly program reports, annual performance statement).

The program logic developed to inform this evaluation articulated program activities, outputs and short, medium and long-term outcomes and how these contribute to the department's portfolio outcome.

This would serve as a useful starting point for developing a M&E framework, and ensure an outcomes orientation for project and program KPIs. The framework would provide the foundation, or road map to guide data collection, reporting and evaluation requirements at both project and program levels.

Such a framework would also assist in identifying options for simplifying and/or reducing project reporting (to address stakeholder feedback relating to the extent of reporting).

While developing a M&E framework was beyond the scope of this evaluation, an element of consultations with the department included how this might be developed and KPIs derived. A draft starting point for the department's consideration is at Attachment C.

4.4 Meeting the needs of RDCs and government

4.4.1 Program design

In assessing the appropriateness of the program's operating model (a competitive grants program administered by the department) the evaluation investigated views of the department and RDCs relating to:

- appropriateness of the competitive grants approach as the best mechanism for realising outcomes
- relevance of program design including:
 - alignment with the broader national rural R&D agenda
 - emphasis on collaboration and cross-sectoral innovation
 - satisfaction with the operating model in meeting their needs.

4.4.2 ANAO finding

The Grants Rules and Guidelines²⁶, state:

It is important that officials determine that a grant is the most appropriate mechanism. There may be alternative means to realise a desired outcome, such as the use of statutory powers or the procurement of goods or services.

²⁶ Department of Finance, *Commonwealth Grants Rules and Guidelines*, 2017

The recent ANAO audit found that:

Selection of a competitive grants delivery model for the Rural R&D for Profit Program, in favour of existing mature funding arrangements was not informed by an appropriately structured and documented assessment of alternative delivery models. The absence of such an assessment limited the department's ability to demonstrate the most appropriate model was selected.²⁷

4.4.3 Stakeholder views

RDCs

The majority of RDCs:

- observed the focus of program outcomes and priorities was in keeping with contemporary national rural R&D frameworks, such as the National Primary Industries Research Development and Extension Framework²⁸
- thought the emphasis relating to collaboration and cross-sectoral research was also consistent with government policy. For example, evidenced in the White Paper²⁹ and the Productivity Commission report.³⁰
- were broadly satisfied with the competitive grants approach under the auspice of the department, and that it was successfully enabling delivery (or was on track to deliver) program outcomes.

However, a small number of RDCs indicated the program would be better implemented via existing structures and institutions that are devoted to rural R&D, such as individual rural RDCs, or via the Council of Rural RDCs. As commented some RDC representatives interviewed:

...we are in the business of managing rural RD&E. It's our bread and butter.

...there are well tested project management and administration structures. There would be significant benefits in using these.

Non-participants

A small sample of interviews were conducted with individuals who had made attempts to participate in the program but were unsuccessful in gaining entry even to the application stage. In these instances, they looked to an RDC as a 'post box' to submit their application in the program and the RDC had 'knocked them back' because proposals had not aligned with their research priorities.

²⁷ ANAO Report No. 17 2016-17, Design and Monitoring of the Rural R&D for profit programme, p. 23.

²⁸ Jointly developed in 2009 by Primary Industries Ministerial Council (PIMC), state and NT governments, Rural RDCs, CSIRO and universities to: encourage greater collaboration and promote continues improvement in the investment of RD&E resources nationally.

²⁹ Department of the Prime Minister and Cabinet, *Agricultural Competitiveness White Paper*, July 2015.

³⁰ Productivity Commission, *Rural Research and Development Corporations*, February 2011.

As the rural RDCs are the only organisations eligible for grant funding, these instances highlighted that the RDCs can essentially ‘block’ participation of what might be legitimate R&D ideas. This was also highlighted by some partner organisations in their survey response, for example:

Rural R&D for Profit is a good initiative, but it is important that the normal funding given directly to industry R&D organisations continues in order to deliver on research requirements which are diverse and on a smaller scale.

4.4.4 Community Grants Hub

The department highlighted the importance of the program in providing a link between Government and RDCs, providing a mechanism that fosters communication and shared understanding.

As part of the Streamlining Government Grants Administration agenda, Australian Government agencies have been centralising administration of their grants since July 2016.

There are two grants administration Hubs for government, serviced by two systems:

- the Community Grants Hub (Department of Social Services or DSS) for individuals, the community and /or health sectors
- the Business Grants Hub (Department of Industry, Innovation and Science) for the business sector.

The department is currently transitioning grants programs to the Community Grants Hub, including Rural R&D for Profit, scheduled to transition in June 2018. DSS has responsibility for the Hub and coordinates and supports client agencies by administering community grants to support their policy outcomes.

The Community Grants Hub is a relatively new development, which has been progressively working towards providing end-to-end grants administration services. Currently there is not a full suite of services available.

Interviews with the department program team highlighted the importance of the program in assisting the department to better understand the rural R&D agenda and strengthening linkages with the RDCs. It was observed that if the program were to be housed wholly with the Hub it runs a number of risks:

- department stakeholder relationships and interaction with the RDCs would be lost or reduced
- key information used to inform departmental policy decisions could be diluted.

As the Community Grants Hub primarily provides grant administration services to client agencies that deliver grant programs to individuals and the community sector challenges are likely to present with respect to managing the different nature of R&D projects.

It was also observed that there are more synergies between Rural R&D for Profit and the Business Grants Hub, housed in the Department of Industry, Innovation and Science and where department portfolios are more closely aligned. Transition to the Business Grants Hub should be tested by the department as an option.

In the context of:

- the relative immaturity of the Community Grants Hub,
- the fact that it typically deals with community oriented grants, as opposed to research and development stakeholders and projects
- Round 4 applications opening in March 2018.

It would be appropriate to adopt a cautious and staged approach to transitioning across the program's remaining funding rounds. Key policy and stakeholder management components of the program should always be retained by the department.

4.4.5 Program legacy: what next?

A key question raised by both RDCs and partner organisations related to the legacy of the program: what happens in four years when the program ends?

As summed up by partner organisation respondents:

The main concern is the consequences of the program finishing in four years' time and the scale of the impacts it is, and will provide in R&D delivery coming to an abrupt end, and the new capability and knowledge will not be sustainably managed.

...Adoption beyond the life of RRnD4P will need attention to ensure implementation of the R&D deliverables.

As the program moves into the latter half of its life cycle, the department will need to plan so that momentum built up is leveraged and outputs and achievements are not stymied or lost with the cessation of Rural R&D for Profit.

As identified in section 3, networks and organisations external to the program were identified as fostering rural R&D collaboration and research (eg Council of Rural RDCs and CRCs). These were identified in RDC interviews as potential mechanisms for supporting future collaborations and research associated with the program.

Further, in building on the success of the program, the department should also consider in moving forward, how sharing of research outcomes might be done and communicated more broadly.

5 Conclusions and recommendations

5.1 Achievement of outcomes

5.1.1 Collaboration

Notwithstanding the absence of a documented baseline, the program has contributed to fostering new and innovative collaborations, evidenced by:

- successful leveraging of funding across projects undertaken to date
- a prevailing view across stakeholder groups that it has fostered pursuance of innovative collaborations between RDCs and universities, research organisations and private companies
- the projects undertaken to date, which demonstrate a breadth and variety of collaborations resulting from participation in the program.

The nature of collaboration and extent of involvement in the program varies considerably among RDCs, and a minority of RDCs are represented very strongly. The department may need to consider strategies to better understand why some RDCs have limited or no involvement, and how they might participate more fully.

The extent of new collaborations, particularly inter-RDC, and therefore new cross sectoral collaborations, appears to be dwindling over successive rounds and there is evidence of repeated inter-RDC collaborations across projects.

Recommendation 1

Revise the program's current emphasis on establishing 'new' collaborations such that there is broader application towards supporting collaboration more generally. This would include fostering of new collaborations as well as sustaining collaborations already developed.

Recommendation 2

The department may need to consider strategies to better understand why some RDCs have only limited involvement, and how they might participate more fully.

5.1.2 Generation of knowledge, technologies, products or processes

Early indicators are positive that the program is on track to achieve outcomes relating to generation of knowledge, technologies, products or processes that benefit primary producers. This is evidenced by:

- the 36 projects resulting from the program (including one completed project) that aim to benefit primary producers and
- relative distribution of projects across priority areas.

However, due to the inherent complex nature of research, realisation of project outcomes may not eventuate, or be evident for some time.

Recommendation 3

The department should continue to monitor distribution of projects across program priorities in future rounds to assess adequacy of representation and if action is required to address any imbalance.

5.1.3 Extension pathways and barriers to adoption

Early indicators suggest that the program is on track to achieve outcomes relating to strengthening of extension pathways and understanding barriers to adoption. This is evidenced by:

- the requirement for each project to develop a plan to undertake extension and communication activities
- 20 projects that address the priority of adoption and
- positive views expressed by RDCs and partner organisations that their projects were on track to meet extension and adoption objectives, with the caveat that results against this outcome are likely to be evident in the longer term.

5.1.4 Lessons learned

Lessons learned about successful collaboration are being collected via project reporting. For example, the evaluation found that factors for successful collaboration include trust, shared vision and benefits. Barriers identified primarily referred to the costs associated with collaboration.

Via project reporting, the department is also collecting information regarding factors for success, or barriers to, extension and adoption from project participant (either in relation to specific extension projects or more generally). As more projects mature and finish, the department will have a rich source of data for analysis which could be used to inform future policy and be shared more broadly with stakeholders.

Other areas of the department, specifically dealing with extension activities in the rural R&D context, identified a need for greater engagement with the program. This was with a view to furthering their understanding of the program and individual projects, to assist them promulgate program information and learnings in their broader networks.

Recommendation 4

Undertake meta-analysis of project final reporting and evaluations to build up a knowledge base of success factors for, and better understanding of barriers to, collaboration, extension and adoption. Share learnings with other areas of the department, program participants and the broader rural R&D community.

5.1.5 Appropriateness of program approach and operating model

The majority of RDCs were supportive of the competitive grants operating model, however a minority did think the grants program would be better placed with other existing structures such as the Council of Rural RDCs.

The program helps the department better understand the rural R&D agenda and strengthens linkages with the RDCs. In the broader context of the Government's streamlining grants agenda, key policy and management responsibilities should be retained by the department and a staged approach be adopted in transitioning to the Community Grants Hub.

Recommendation 5

As part of the Streamlining Government Grants Administration program, a staged approach to transitioning to the Community Grants Hub should be adopted with key policy and management responsibilities to be retained by the department.

5.2 Efficiency and effectiveness of program management by the department

Administration and management of projects by the department showed alignment with the *Commonwealth Grants Rules and Guidelines* in that analysis of reporting showed projects were being managed against the established funding agreements.

Feedback from the majority of RDCs and partner organisations was positive in relation to administration and management of projects by the department.

Notwithstanding there were opportunities for improvement identified, particularly in relation to application and selection processes and program and project monitoring and reporting.

5.2.1 Application and selection

There is a downward trend in numbers of applications being submitted over rounds.

There is a degree of confusion evident among RDCs and partner organisations regarding the selection criteria and why projects are successful or unsuccessful.

Communication around options for debriefing unsuccessful bidders was identified as an area to address - to assist RDCs and partner organisations to better understand assessment and selection criteria and to improve their future proposals.

The application timeframe was regarded as too short by some RDCs and partner organisations, particularly because of the lead time required to organise collaborations. Comparison with other research grants programs showed Rural R&D for Profit has one of the shortest application periods.

The length of time taken to select and publicly announce projects was identified as an opportunity for improvement by RDCs and partner organisations. The length of time taken to notify unsuccessful bidders was also regarded as too long. Implications of a lengthy selection process included:

- successful bidders experiencing delays in getting projects started
- unsuccessful bidders missing out on opportunities to pursue other research proposals, as funding allocated to their Rural R&D for Profit bid was held in reserve while awaiting notification of their proposal's outcome.

Recommendation 6

The department continue to monitor numbers of applications and successful projects selected to assess if criteria need further refinement.

Recommendation 7

The department increase publicity regarding the debriefing process for unsuccessful bidders to assist RDCs and associated partner organisations to access this feedback. This is with a view to increasing their understanding of the assessment and selection criteria, improving their bids, and increasing their chances for successful applications in future rounds.

Recommendation 8

The department explore options for extending the timeframe for the application stage.

Recommendation 9

The department explore options to reduce timeframes in the assessment and selection process, including time lags associated with notification of unsuccessful applicants and public announcement of successful projects.

5.2.2 Monitoring and reporting

Milestone reporting and monitoring has been complicated, perhaps 'overcomplicated'. While the department has simplified reporting of project KPIs over successive rounds, there is still opportunity to simplify monitoring and reporting requirements through the development of an M&E Framework that will link data

collection to program outcomes and enhance the visibility of achievement at project and program levels.

Recommendation 10

The department develop a M&E framework, using the program logic diagram as a starting point, to drive the development of outcomes oriented KPIs, and associated data and data sources.

Recommendation 11

Based on the M&E framework developed, revise project reporting, including consideration of reduced and more flexible reporting options.

5.2.3 Program legacy

As the program moves into the latter half of its life cycle, the department will need to plan so that momentum built up is leveraged and outputs and achievements are not stymied or lost with the cessation of the program.

There are networks and organisations, external to the program, which are fostering rural R&D collaboration (eg Council of RDCs and CRCs). These could provide ongoing mechanisms and infrastructure to support future rural R&D collaborations.

Further, in building on the success of the program, the department should also consider how sharing of research outcomes might be undertaken and communicated more broadly.

Recommendation 12

The department consider options to build on current success into the future. This would include consultation with the RDC community regarding suggested approaches.

Attachment A: List of projects (taken from Rural R&D for Profit website³¹)

Round 1

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Partners	Summary
Smarter irrigation for profit	Cotton R&D Corporation (CRDC)	\$4,000,000	\$3,435,000 cash \$2,906,949 in-kind	Dairy Australia (DA); AgriFutures; University of Southern Queensland (USQ); Tasmanian Institute for Agriculture (TIA); Gwydir Valley Irrigators Association; VicDEPI; NSW DPI; SARDI; CSIRO; DairyTas Board; Cotton Australia; Dairy SA; Sugar Research Australia (SRA); Sundown Pastoral Company; Auscott; Irrigated Cropping Council; Irrigation R&D Committee; Southern Growers Inc.	The project will lead to improved irrigation practices on cotton, rice, sugar and dairy farms. It will help approximately 3000 farmers to optimise their water-use decisions, leading to yield increases and reduced input costs and water use.
Stimulating private sector extension in Australian agriculture to increase returns from R&D	Dairy Australia Limited	\$1,595,000	\$810,000 cash \$785 000 in-kind	MLA; University of Melbourne; CRDC; APL; SRA; HIAL; VicDEPI; NSW DPI	The project will research methods of increasing private extension services to primary producers in order to increase producer uptake of new technology and profitability. The project will identify user needs, demand for services and barriers to using these services. Tools and an online portal will be developed to support extension and make sure R&D results are available. The project will build

³¹ As at October 2017 (contribution amounts and partners occasionally change through variations to grant agreements).

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Partners	Summary
					professional extension capacity in the private sector.
Improved use of seasonal forecasting to increase farmer profitability	Rural Industries R&D Corporation	\$1,829,249	\$900,973 cash \$829,226 in-kind	CRDC; GRDC; MLA; SRA; HIAL; SARDI; DAFWA; BoM; USQ; Birchip Cropping Group; VicDEPI; NSW DPI; Monash University	The project will help farmers make the best of seasonal climate forecasts to maximise their productivity.
Adaptive area-wide management of QFly using SIT: Guidelines for efficient and effective pest suppression and stakeholder adoption	Horticulture Innovation Australia Limited (HIAL)	\$2,350,000	\$1,175,000 cash \$1,175,000 in-kind	Australian Grape & Wine Authority; Biobee; CSIRO; Queensland University of Technology (QUT); NSW Department of Primary Industries (DPI); Primary Industries South Australia (PIRSA); VIC Department of Primary Industries & Environment (DEPI)	The project will help to control the Queensland Fruit Fly, a major pest of Australian horticulture. It will integrate the release of sterile male flies into area-wide integrated pest management programs. This will reduce crop losses caused by Queensland fruit fly damage, and will help Australian horticulture industries to access new markets for their products.
A profitable future for Australian agriculture: Biorefineries for higher-value animal feeds, chemicals, and fuels	Sugar Research Australia (SRA)	\$3,090,564	\$1,545,282 cash \$1,544,030 in-kind	Forest and Wood Products Australia; CRDC; Australian Pork Limited; QUT; Southern Oil; NSW DPI; Agrifuels Ltd	The project will develop and demonstrate a range of innovative biorefinery technologies that will add value to primary products and by-products. It will develop animal feeds from biomass residues, create chemicals from crops and crop by-products, advanced fuels from agricultural feedstocks, and assess pathways to biorefinery developments in Australia. The project is expected to provide pathways to new markets and reduce input costs for primary producers.
Multi-scale monitoring tools for managing	Horticulture Innovation	\$3,428,248	\$1,890,000 cash \$1,538,248 in-kind	University of Queensland (UQ); University of Central Queensland; University of New	The project will integrate the latest imaging and robotics technologies to provide mango,

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Partners	Summary
Australian tree crops – Industry meets innovation	Australia Limited			England; University of Sydney; Avocados Australia; Simpson Farms; Australian Mango Industry Association; Australian Macadamia Society; QDAF; Agtrix Ltd	avocado and macadamia farmers with decision-support tools to help improve production and profit. The data collected through this project, and the tools it develops, will help farmers to predict fruit quality and yield, and to monitor tree health including early detection of pests and disease outbreaks.
Fast-tracking and maximising the long-lasting benefits of weed biological control for farm productivity	Meat and Livestock Australia Limited	\$1,897,918	\$948,959 cash \$948,959 in-kind	CSIRO; NSW DPI; PIRSA; Queensland Department of Agriculture, Forestry and Fisheries; VIC DEPI; TasWeed Biocontrol; Murdoch University; NSW Local Land Services; Victoria Gorse Taskforce and Landcare Groups; Pilbara Mesquite Management Committee; SA Grains Industry Trust; SA Government.	The project will improve the control of six national priority agricultural weeds (parkinsonia, parthenium, blackberry, silverleaf nightshade, cylindropuntia, gorse). Success will be achieved by fast-tracking delivery of eight biocontrol agents to producers and is expected to reduce weed competition and herbicide use.
Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish aquaculture industry: bringing 'white' fish to the market	Fisheries R&D Corporation	\$3,000,000	\$1,650,000 cash \$1,400,000 in-kind	South Australian Research and Development Institute; Clean Seas Tuna Ltd; NSW DPI	The project aims to develop more cost effective Yellowtail Kingfish feeds and feeding strategies. This will drive immediate production gains for Yellowtail Kingfish aquaculture. An additional focus is to build a Yellowtail Kingfish aquaculture R&D network to strengthen adoption of research outcomes.
Waste to revenue: novel fertilisers and feeds	Australian Pork Limited	\$862,693	\$569,376 cash \$569,000 in-kind	DA; SRA; AgriFutures; MLA; UQ; UWA	The project will find ways to turn agricultural waste into feed, fertilisers and soil conditioners. This recycling can reduce on-farm input costs, enhance sustainability and provide producers with new opportunities to generate income from waste.

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Partners	Summary
Market and Consumer Insights to Drive Food Value Chain Innovation and Growth	Meat and Livestock Australia Limited	\$2,873,500	\$3,440,000 cash \$2,237,000 in-kind	Victorian DEPI; HIAL; CSIRO; Australian Seafood Cooperative Research Centre; FRDC	The project will identify opportunities in export markets and help producers and their supply chain partners respond effectively to those opportunities to grow their businesses. It aims to build the capacity of agri-food supply chains to innovate and collaborate for market advantage by creating easy-to-access tools and strategies, including online resources and face-to-face workshops.
MIR for profit: integrating very large genomic and milk mid-infrared data to improve profitability of dairy cows	Dairy Australia Limited	\$927,273	\$518,182 cash \$510,000 in-kind	Victorian DEPI; National Herd Improvement Association; Australian Dairy Herd Improvement Scheme; Teagasc; University of Liege; Walloon Agricultural Research Centre	The project will develop new tools to help dairy farmers manage and select the most profitable cows by using technology to scan milk samples for genetic, health and production information. The outcomes would then inform breeding decisions to improve the genetics gain of the national herd.
Consolidating targeted and practical extension services for Australian Farmers and Fishers (The foundation to address Priority 4a)	Rural Industries R&D Corporation	\$815,000	\$600,000 cash \$300,000 in-kind	VIC DEPI; TIA; NT Department of Primary Industries and Fisheries; NSW Local Land Services	The project will provide Australian agricultural extension services with greater national coordination and leadership. Fragmentation of extension activities may be one of the causal factors for recent declines in productivity and profitability growth in Australian agriculture. By addressing this problem, greater productivity gains can be realised. This project was completed in December 2016. The final report is now available

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Round 2

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
Securing Pollination for More Productive Agriculture: Guidelines for effective pollinator management and stakeholder adoption	Rural Industries R&D Corporation (now AgriFutures)	\$5,255,000	\$2,627,714 cash \$5,227,563 in-kind	Horticulture Innovation Australia (HIAL); University of Sydney; University of Adelaide; University of New England (UNE); Primary Industry and Resources South Australia (PIRSA); Department Environment, Water and Natural Resources South Australia (DEWNRSA); O'Connor NRM; Native Vegetation Council (NVC); Trees for Life (TFL); CSIRO; Lucerne Australia; South Australia Apiarist Association; Northern and York NRM Board; Apple & Pear; Costa Group; Australian Melon Association (AMA); Australian Mango Industry Association (AMIA); Terrestrial Ecosystems Research Network (TERN); Greening Australia (GA); Almond Board of Australia	The project will realise significant productivity and profitability gains for farmers by improving yield and rates of pollination. The project will assess the contribution of pollinators to nine crops, re-establish native vegetation to support pollinator food and nesting resources, and use new technologies to communicate the findings to crop farmers.
Taking the Q (query) out of Q fever: developing a better understanding of the drivers of Q fever spread in farmed ruminants	Rural Industries R&D Corporation	\$514,500	\$735,000 cash \$367,800 in-kind	University of Melbourne; Meredith Dairy; Australian Rickettsial Research Laboratory; University of Sydney; University of Queensland; University of Adelaide; Charles Sturt University; Goat Veterinary Consultancies; Victorian Department of Economic Development, Jobs, Transport and Resources (DEDJTR), QDAF	The project will develop a better understanding of factors influencing the risk of Q fever spread within and between Australian ruminant livestock enterprises, and develop national guidelines for an emergency response plan to be used in the event of Q fever outbreak in humans.

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
New biocontrol solutions for sustainable management of weed impacts on agricultural profitability	Rural Industries R&D Corporation	\$6,230,437	\$3,179,818 cash \$3,603,635 in-kind	Grains Research and Development Corporation (GRDC); CSIRO; NSW DPI; QDAF; Victorian DEDJTR; PIRSA; Queensland Bulk Water Supply Authority (SEQWater); Shire of Ravensthorpe; NSW Weed Biocontrol Taskforce; North West Local Land Services; NSW Office of Environment & Heritage; Bundaberg Regional Council; Gladstone Regional Council; HQ Plantations; Goulburn Murray Water Corporation; Murrumbidgee Irrigation Ltd; Coleambally Irrigation Cooperative Limited; Goulburn Broken Catchment Management Authority; Murray Local Land Services; and the United States Department of Agriculture Agricultural Research Service (USDA-ARS) Australian Biological Control Laboratory, Wyong Shire Council, NSW National Parks Service, Central Murray County Council, Murrumbidgee Landcare Inc	The project will improve the profitability of farmers by developing new biocontrol solutions for ten priority weed species across multiple agriculture sectors. Experts from Australia and international research agencies will work together to develop new biocontrol agents to target weed species of national significance, weeds that are difficult to control with current methods and weeds that have substantial impacts on agriculture productivity.
Phosphorus Efficient Pastures: delivering high nitrogen and water use efficiency, and reducing costs of production	Meat and Livestock Australia Limited (MLA)	\$3,460,000	\$1,730,000 cash \$3,247,829 in-kind	Dairy Australia; Australian Wool Innovation; CSIRO; DPI & Office of the NSW Department of Trade & Investment in Regional Infrastructure & Services; University of Western Australia; Murdoch University; Bookham Agricultural Bureau; Tablelands Farming Systems; Central	The project will reduce the phosphorus dependence of Australian farmers by delivering pasture systems that require less phosphorus fertiliser. This will achieve multiple benefits including nitrogen use efficiency, water efficiency and improved productivity

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
across Southern Australia				Ranges Grassland Society; Monaro Farming Systems; Association for Sheep Husbandry, Excellence, Evaluation and Production (ASHEEP); Southern Dirt; Boggabri grazing group; Purlewaugh NSW Farmers	for Australia's pasture systems. The project will also develop the knowledge and necessary protocols to equip and inform farmers about how to improve their phosphorus efficiency.
Improved surveillance, preparedness and return to trade for emergency animal disease incursions using FMD as a model	Meat and Livestock Australia Limited	\$5,869,968	\$2,934,984 cash \$2,934,984 in-kind	CSIRO; Animal Health Australia; Charles Sturt University; Bureau of Meteorology; Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES); Australian Government Department of Agriculture and Water Resources – Animal Health Policy Branch.	The project will strengthen preparedness and facilitate a return to trade for Australia in the event of an emergency animal disease (EAD) incursion, using Foot and Mouth Disease as a model. The project will take a strong multi-disciplinary approach, working closely with animal industries to deliver a systems based approach to optimise EAD management systems in Australia.
Advanced measurement technologies for globally competitive Australian meat	Meat and Livestock Australia Limited	\$4,850,000	\$4,255,000 cash \$2,842,000 in-kind	APL; Scott Technology Ltd; Murdoch University; University of Technology Sydney; Department of Agriculture and Food Western Australia; Victorian Department of Economic Development, Jobs, Transport and Resources; NSW DPI; South Australian Research and Development Institute; JBS Australia; Australian Cattle and Beef Holdings; Australian Country Choice Pty Ltd; Teys	The project will enable beef, sheep and pig farmers to have access to more accurate measurements of meat produce to inform and improve decisions on breeding and animal husbandry. The project will deliver advances measurement technologies and enhanced feedback systems to provide producers with new information to improve

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
				Australia Management Pty Ltd; Harvey Beed; Carometec; PorkScan Private; University of Melbourne	competitiveness, and profitability in the meat value chain. The project will also capitalise on the cooperation of industry stakeholders to maximise effective decision making, reduce risk and optimise profits.
Enhancing the profitability and productivity of livestock farming through virtual herding technology	Dairy Australia Limited (DA)	\$2,600,000	\$1,365,000 cash \$1,871,805 in-kind	MLA; AWI; APL; CSIRO; Tasmanian Institute of Agriculture at University of Tasmania; University of Sydney; University of New England; University of Melbourne; Agersens Pty Ltd	The project will evaluate the on-farm application of virtual fencing and herding technology, demonstrate its implementation and extend its benefits across the major livestock industries. Specifically, the project will develop an understanding of the learning, management and ethical challenges associated with the adoption of virtual fencing on farms. The introduction of a change in both pasture management, and the way that livestock are herded and managed, will enable significant productivity and profitability gains for Australia's pastoral farmers.
Easy-Open Oysters	Fisheries R&D Corporation (FRDC)	\$236,275	\$193,325 cash \$57,950 in-kind	Seafood CRC Company Ltd; Scott Technology Pty Ltd; Oyster Bob Pty Ltd; Angelakis Bros Pty Ltd; Tassal Operations Pty Ltd	The project will investigate the use of technology such as robotics and improve the way oysters can be delivered to customers. The project will develop innovative systems to open

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					and reseal oysters making them easily opened and extending the shelf life by allowing the oyster to be kept alive for a longer time between opening and consumption.
Accelerating precision agriculture to decision agriculture	Cotton R&D Corporation (CRDC)	\$1,397,561	\$750,000 cash \$1,410,415 in-kind	Meat and Livestock Australia; Dairy Australia Limited; Grains Research & Development Corporation; Sugar Research Australia; Rural Industries Research & Development Corporation; Australian Wool Innovation; Horticulture Innovation Australia; Australian Pork Limited; Wine Australia; Forest & Wood Products Australia; Fisheries Research and Development Corporation; Australian Farm Institute; Data to Decisions CRC; University of New England; Griffith University; University of the Sunshine Coast; CSIRO	The project will design a solution for the use of big data in agriculture in order to increase the profitability of producers and improve farming strategies. The project will help producers understand data ownership and access rights and will increase the adoption of new technologies to improve farm profits.
More profit from nitrogen: enhancing the nutrient use efficiency of intensive cropping and pasture systems	Cotton R&D Corporation (CRDC)	\$5,889,286	\$4,170,652 cash \$5,626,295 in-kind	Dairy Australia; Sugar Research Australia; Horticulture Innovation Australia; NSW Department of Primary Industries; Queensland University of Technology; University of Melbourne; Tasmanian Institute of Agriculture; Queensland Department of Science, Information, Technology and Innovation; Herbert Cane	The project will improve the nitrogen use efficiency for the cotton, dairy, sugar and horticulture industries. Farmers will gain a better understanding of the various influences on nitrogen use efficiency, and improved confidence to adopt fertiliser management practices tailored to

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
				Productivity Services Limited; Farmacist Pty Ltd; Southern Cross University; Queensland Department of Agriculture and Fisheries; Sunshine Sugar; University of Queensland; University of Southern Queensland; Northern Territory Department of Primary Industry and Fisheries; Cherry Growers Australia; Australian Mango Industry Association	specific crop requirements allowing greater farm productivity and profitability. More efficient use and management of nitrogen by primary producers will also result in significant natural resource benefits, with improved soil health, reduced leaching and run-off to creeks and rivers, and lower greenhouse gas emissions.
Lifting farm gate profit through high value modular agroforestry	Forest and Wood Products Australia (FWPA)	\$520,000	\$260,000 cash \$638,674 in-kind	CSIRO; Private Forests Tasmania; DA; AgriFutures; University of Tasmania; GA; Forico; Tasmanian Farmers and Graziers Association	The project will develop new approaches for the introduction of trees in agricultural lands to increase farm profitability. Outcomes will include direct benefits to farmers including shelter for livestock, higher animal productivity, resilience to weather events, establishment of floral resources for honeybees, sequestration of carbon, and production of timber resources for sale.
Advanced production systems for the temperate nut crop industries	Horticulture Innovation Australia Limited (HIAL)	\$5,000,000	\$4,450,000 cash \$808,470 in-kind	Almond Board of Australia; Victorian Department of Economic Development, Jobs, Transport and Resources; South	The project will develop advanced production systems for nut industries using almonds and walnuts as model crops. Plantings of superior varieties of almond and walnut trees will be

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
				Australian Research and Development Institute; and NSW DPI	established and cultivated using optimal water and soil management strategies. The project will measure the impact of temperate nut production on orchard soils, and develop alternative techniques to enhance overall soil quality, reducing inputs and negative impacts. The project will demonstrate how multiple industries can collaborate to form an integrated research program that is capable of delivering advanced change to production systems.
National Centre for Post-harvest Disinfestation Research on Mediterranean Fruit Fly (Australian Medfly R&D Centre)	Horticulture Innovation Australia Limited	\$1,647,636	\$1,655,746 cash \$1,763,455 in-kind	Murdoch University; Western Australia Department of Agriculture and Food; Queensland Department of Agriculture and Fisheries; Kalang Consultancy Services Pty Ltd; DAWR	The project will establish a new Mediterranean Fruit Fly (MedFly) facility and undertake research to develop endpoint treatments for killing medfly in horticulture produce. The project will also assist in maintaining and expanding market access to other countries by providing evidence that Australian horticulture exports are not infected by Medfly.
Digital technologies for more dynamic	Australian Grape and Wine	\$2,987,635	\$4,804,082 cash \$5,721,593 in-kind	CRDC; HIAL; CSIRO; Fraunhofer Institute; Tasmanian Institute of Agriculture (TIA); Tolpuddle Vineyard; Lastek Pty Ltd;	The project will develop innovative processes and precision technologies for the cotton and grape growing

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
management of disease, stress and yield	Authority (now Wine Australia)			University of Queensland (UQ); Australian Wine Research Institute (AWRI); Accolade Wines; University of South Australia; Barton Vale Technologies; Pernod Ricard Winemakers: Treasury Wine Estates;	industries. The introduction of new digital technologies will provide for more accurate yield forecasts, earlier disease detection in grapes and cotton and better management decisions about crop condition and nutrient levels. The project will extend the use of the technology by trialling equipment on properties and demonstrating the benefits through the use of extension networks
Mitigation of Climate Change Impacts on the National Wine Industry by Reduction in Losses from Controlled Burns and Wildfires and Improvement in Public Land Management	Australian Grape and Wine Authority	\$1,466,000	\$1,466,000 cash \$723,156 in-kind	AWRI; Victorian Department of Economic Development, Jobs, Transport and Resources; La Trobe University; Cooperative Research Centre for Polymers; Wine Victoria	The project will generate knowledge and new technologies to inform the development of bushfire risk management activities that are less likely to damage grape and wine production. For example, critical distances which reduce the risk of controlled burns to vineyards will be determined and early warning systems for smoke exposure will be developed to enable the targeted application of protective sprays in vineyards at risk of smoke damage. This project will also assist industry by providing a range of effective tools and techniques to remediate affected grapes and wine to

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					promote the viability of affected business.
Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers	Australian Pork Limited (APL)	\$711,668	\$754,905 cash \$259,021 in-kind	South Australian Research and Development Institute; Victorian Department of Economic Development, Jobs, Transport and Resources	This project aims to develop standards for the consistent reporting, recording and analysis of peri-mortem information for beef, sheep meat and pork. This will assist in developing a national approach to reporting peri-mortem information for use by producers, processors, regulators and other key stakeholders and will contribute to streamlining and investments in systems that are commonly used in these livestock sectors. This project will improve productivity by providing consistent data to producers for the monitoring of health incidences and enable informed production decisions to be made to maximise yield outcomes.
Enhancing the Sugar Industry value chain by addressing mechanical harvest losses through research, technology and adoption	Sugar Research Australia (SRA)	\$3,551,000	\$1,925,000 cash \$2,649,643 in-kind	Norris Energy Crop Technology; QUT; Sugar Research Institute; MSF Sugar; AGTRIX Pty Ltd; QDAF	The project aims to increase sugar industry profitability by introducing new harvesting technologies and information to deliver higher yields and lower milling and transport costs. The project will deliver new software and harvesting information in real time

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					to improve the harvest management and minimise damage to plants.

Round 3

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
Wastes to profits: Technologies and business models for the management of wastes in the animal industries	Meat and Livestock Australia (MLA)	\$6,000,000	4,651,826 cash \$3,721,903 in-kind	Australian Meat Processor Corporation; Dairy Australia Ltd; Australian Pork Ltd; Queensland University of Technology; University of Queensland; University of Southern Queensland; Murdoch University; Pacific Northwest National Laboratory; JBS Australia; Teys Australia; Australia Country Choice; Australian Lamb Company; Harvey Beef; Ridley Corporation Ltd; Aduro Biopolymers; Zeolite Australia Pty Ltd; Barwon Water; Queensland Urban Utilities	Australia's red meat, dairy, and pork industries produce significant quantities of wastes during on-farm production, intensive feeding and processing of animals. Waste management costs these industries more than \$200 million per year. This project will research and develop technologies and business models to reduce this cost as well as capture a market opportunity in excess of \$100 million per year by converting wastes into valuable products such as fertilisers, feeds, chemicals and energy products for use in agriculture.
Increasing farm gate profits, the role of	Forest and Wood Products	\$900,000	\$450,000 cash \$801,018 in-kind	CSIRO; Cotton Research and Development Corporation; Fisheries Research and Development Corporation; Ecological	Natural capital is the soil, air, water and biodiversity – the natural resources used for food and fibre production. This

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
natural capital accounts	Australia (FWPA)			Australia; HVP Plantations; Vic Forests; Australian Bureau of Statistics; Australian Bureau of Meteorology; OneFortyOne Plantations	<p>project will apply Natural Capital Accounting to the forestry, cotton and fisheries industries allowing producers to:</p> <ul style="list-style-type: none"> • incorporate natural assets into farm business systems to help identify risks and costs associated with depleting these assets and manage accordingly • access cheaper finance, drawing on opportunities from finance organisations who explicitly incorporate natural capital in the credit risk calculations and offer lower interest rates for landholders who manage these assets • demonstrate best practice management of natural assets and increase profitability by accessing premium markets.
Improving plant pest management through cross industry deployment of smart sensor, diagnostics and forecasting	Horticulture Innovation Australia (HIA)	\$6,758,797	\$6,494,284 cash \$8,404,311in-kind	Cotton Research and Development Corporation; Grains Research and Development Corporation; Australian Grape and Wine Authority; Forest and Woods Products Australia; Rural Industries Research and Development Corporation;	This project will develop a mobile, cross-industry plant pest surveillance network to monitor and report the presence of pests that threaten major agricultural sectors across Australia, including grains, cotton, sugar, horticulture, wine and

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
				Plant Health Australia; South Australian Research and Development Institute; Victorian Department of Economic, Development, Jobs, Transport and Resources; CSIRO;WA Depart of Agriculture and Food; Rothamsted Research; Nursery & Garden Industry Australia;B3Co\Plant & Food Research New Zealand; Sugar Research Australia; AusVeg	<p>forestry industries. The surveillance network will cover:</p> <ul style="list-style-type: none"> • Advanced surveillance technologies, such as automated trapping and sampling, for detecting and monitoring a wide range of endemic and exotic plant pests. The project will also produce a number of flexible surveillance hubs with trapping technologies that can be mobilised in response to industry needs, such as in response to incursions. • Improved pest forecasting through linking pest detection with weather forecasting and modelling systems. • Fast, reliable and cost-effective means to identify pests, such as high volume data collation and distribution, and advanced molecular diagnostics for pest identification. • A cloud based virtual coordination centre (AUSPestCheck) to improve information exchange on pests to producers, industry and government. <p>Producers will receive timely and accurate information about pests in their region, helping with management</p>

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					decisions, reduce pest resistance and demonstrate pest-free status to export markets.
Forewarned is forearmed: equipping farmers and agricultural value chains to proactively manage the impacts of extreme climate events	Meat and Livestock Australia (MLA)	\$6,198,942	\$3,660,370 cash \$4,803,123 in-kind	Grains Research and Development Corporation; Rural Industries Research and Development Corporation; Cotton Research and Development Corporation; Sugar Research Australia; Australian Grape and Wine Authority; Dairy Australia Ltd; Australian Pork Ltd; Bureau of Meteorology; University of Melbourne; University of Southern Queensland; Queensland Department of Agriculture and Fisheries; Suncorp, Monash University; South Australian Research and Development Institute	Australian farmers and agribusiness operate in one of the most variable climates of any country in the world, with extreme events and climate variability the largest drivers of fluctuations in annual agricultural income and production. This project will deliver direct value to farmers through improving the seasonal forecast of extreme climate events, including low and high rainfall, heat, cold and frost. It will equip farmers with the information and tools to be forewarned and change their management practices so they are proactively prepared. The project outputs will decrease the impacts of extreme climate events on farm and industry profit.
Boosting profit and reducing risk of mixed farms in low and medium rainfall areas with newly discovered legume pastures	Grains Research and Development Corporation (GRDC)	\$5,516,075	\$4,995,503 cash \$5,841,475 in-kind	Australian Wool Innovation; Meat and Livestock Australia; Murdoch University; South Australian Research and Development Institute; Western Australia Department Agriculture and Food; Charles Sturt University; CSIRO; Birchip Cropping	This project will develop recently discovered pasture legumes together with innovative management techniques to improve profitability for mixed farms (cropping and livestock) in the low and medium rainfall areas of WA, SA, Victoria

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
enabled by innovative management methods				Group; Eyre Peninsula Ag Research Foundation; Mallee Sustainable Farming; SA Sheep Advisory Group; Upper North Farming Systems; Corrigin Farm Improvement Group; Grower Group Alliance; Northern Agri Group; Farmlink; Ravensthorpe Agricultural Initiative Network; Pasture Producers Association WA; Ag Excellence Alliance; Asheep	and southern NSW. The new legume varieties will reduce nitrogen requirements, increase soil fertility, reduce weeds and diseases for following crops and be a source of quality feed for livestock. The project will also develop whole farm economic modelling to equip farmers with tools to adopt new pasture varieties and management practices, improving productivity and profits for grain, meat and wool producers. The project is expected to boost average farm profit by 10 per cent and halve economic risk.
High throughput technology for defining antimicrobial resistance status of pork and chicken meat enterprises leading to a competitive advantage in the global market place	Australian Pork Limited (APL)	\$1,274,000	\$648,286 cash \$999,157 in-kind	Rural Industries Research and Development Corporation; Murdoch University; University of Adelaide; Tecan Australia; Thermo Fisher Scientific; NSW Department of Primary Industries; Illumina	This project aims to provide Australian pig and chicken meat producers with a competitive advantage in the international marketplace by developing a world's best practice for objective description of the occurrence of antimicrobial resistance (AMR) at the herd/flock level. Using laboratory robots that can work extremely quickly, precisely and cost-effectively, the project will develop an industry-wide scheme where herds and flocks can be accurately described to define their level of AMR risk. This information will help producers

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					demonstrate their AMR status, to not only improve market access but also provide a mechanism for monitoring progress of the on-farm control measures which will be based on antimicrobial stewardship principles.
Dung beetle ecosystem engineers – enduring benefits for livestock producers via science and a new community partnership model	Meat and Livestock Australia (MLA)	\$9,174,174	\$4,587,087 cash \$8,929,774 in-kind	CSIRO; Invetec Pty Ltd; University of Western Australia; Landcare Research New Zealand; Mingenew Irwin Group; University of New England; Charles Sturt University; Western Australia Department of Agriculture and Food; Dung Beetles for Landcare Farming; Dung Beetle Solutions Australia; Warren Catchment Council; Leschenault Catchment Council	<p>Dung beetles can improve the soil, reduce the spread of flies, pests and diseases, increase pasture health and reduce nutrient run off into waterways. This project will investigate how dung beetles can improve profitability and productivity for primary producers by:</p> <ul style="list-style-type: none"> • rolling out national and regionally-specific dung beetle services to a network of over 1000 producers and producer groups • improving access to information such as a dung beetle database, infield training and online educational packages to improve delivery of the best adapted dung beetle species • quantifying the benefits of dung beetles to encourage changes in farming practices to improve production and land management

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Project title	Applicant	Grant funding (GST excl)	Applicant/partner contributions (GST excl.)	Contributors	Summary
					<ul style="list-style-type: none"> importing four new species of dung beetles to manage sheep and cattle dung, and encouraging producer-led rearing and distribution of two recently imported dung beetle species.

Attachment B: Extracts from program and evaluation plans

Benefits and measures identified in the program plan

BENEFIT	MEASURE
Potential for agricultural productivity gains	Projects that deliver research outcomes that have the potential to increase agricultural productivity, and an estimation (based on project reports of impact).
Potential for increased profitability of farm businesses	Projects that deliver research outcomes that have the potential to increase farm profitability and an estimation (based on project reports of impact).
New networks and research collaborations established	New research partnerships established (based on information provided by applicants during application phase and project reporting).
New products, technologies	New products and technologies (including number of existing technologies adapted for use in the agriculture sector), range of industries that are likely to benefit from the new products or technologies.
More efficient production processes	Research results that lead to more efficient production processes being available for use by producers.
More effective and sustainable natural resource management	Tools or processes available to producers to assist with more effective and sustainable natural resource management.
New extension materials developed	New communication materials developed, and extension activities carried out because of the funded projects.
Evaluations	Both internal and external evaluations will lead to better processes; possible new funding priorities; and more streamlined documentation.

Critical Success Factors identified in the program plan

CSF TITLE	DESCRIPTION	INDICATOR
1. Completion of research projects on time and budget	Research projects that receive funding need to be completed within the time frames specified in the grant agreement.	100% of projects meet the conditions of the original or varied grant agreement
2. Spread of funded projects	Funded projects are spread across the found program priorities	Project profiling shows a spread of projects across the program priorities.
3. Collaboration	New networks and research collaborations are established	Project profiling shows that new networks and research collaborations are established through the program

Attachment C: Draft outcomes hierarchy and KPIs

The following is a draft example of how the outcomes hierarchy detailed in the program logic would form the starting point for developing measures of success, or KPIs. It is provided by way of demonstration, to illustrate how the department could develop a M&E framework for the program. The following does not consider associated data sources, baselines, targets and frequency for data collection and reporting, nor does it drill down to performance reporting at the project level.

In brief the purpose of KPIs is to highlight the most important aspect for regular measurement and reporting. KPIs:

- provide a snapshot of the 'health' of the program
- drive desired behaviours which will contribute to the program achieving objectives.

KPIs should be:

- reviewed regularly
- not be used in isolation to determine success of the program, rather they are one element of performance
- Derived from program outcomes
- Well-defined, relevant and informative
- Based on data that is available and cost-effective.
- Comparable with a benchmark or previous results

KPIs alluded to in the table are merely to provide the department with a starting point for consideration. For example, the following would be onerous for individual project reporting. Project reporting could consider use of descriptors across a standard set of objectives, which could then be aggregated at a program level.

Developing a M&E Framework is an iterative process and should be done in consultation with stakeholders.

Performance against the KPIs should not be used in isolation to determine success. Rather KPI results are one element of performance and should be used in conjunction with broader evaluation methods to assess success or otherwise of the program.

EVALUATION OF THE RURAL RESEARCH AND DEVELOPMENT (R&D) FOR PROFIT PROGRAM

Outcomes hierarchy and KPIs

LONG TERM OUTCOME	KPI	DATA SOURCES	COLLECTION AND REPORTING REQUIREMENT
<ul style="list-style-type: none"> Significant productivity and profitability improvements for primary producers 	<ul style="list-style-type: none"> Extent to which producers consider inputs costs have reduced and outputs increased since adoption (eg though reduced labour costs, reduced energy costs) Extent of return on investment (derived from an aggregate of project impact assessments).³² Degree of stakeholder satisfaction Degree to which program objectives are achieved 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Seamless extension of the results of rural R&D 	<ul style="list-style-type: none"> Extent of primary producer satisfaction with access to and quality of extension services Extent of extension provider satisfaction Extent of timeframes towards commercialisation of research and adoption 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Industry and research collaborations form the basis for the ongoing innovation and growth of Australian agriculture 	<ul style="list-style-type: none"> Extent of incidence of new collaborations by RDCs Extent of sustainment of collaborations developed Extent to which collaborations demonstrate factors associated with success 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
MEDIUM TERM OUTCOME	MEASURE		
<ul style="list-style-type: none"> Reduced input costs for producers 	<ul style="list-style-type: none"> Extent to which producers consider inputs costs have reduced since adoption 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
<ul style="list-style-type: none"> Enhanced production value or quality of Australian agriculture, fisheries or forestry products 	<ul style="list-style-type: none"> Extent to which producers consider production value or quality has been enhanced Extent of return on investment (derived from an aggregate of project impact assessments) 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">

³² The Council of Rural RDCs' Impact Assessment Guidelines which set out a standard methodology for assessing impacts of RDC R&D projects, *Impact Assessment Guidelines*, May 2014.

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

	<ul style="list-style-type: none"> Extent to which investments address government and industry priorities, and optimise partnerships with other research agencies 		
<ul style="list-style-type: none"> Improve sustainability of Australia's natural resources and or/agricultural industries 	<ul style="list-style-type: none"> Extent to which stakeholders consider there have been sustainability improvements Extent to which tools or processes have increased that assist producers to undertake more effective and sustainable natural resource management. 	•	•
<ul style="list-style-type: none"> Extension pathways are strengthened 	<ul style="list-style-type: none"> Extent of use and adoption of outcomes from extension projects Extent of primary producer satisfaction with access to and quality of extension services Extent of extension provider satisfaction 	•	•
<ul style="list-style-type: none"> Innovation research collaborations are established and sustained 	<ul style="list-style-type: none"> Extent of initiation of new collaborations by RDCs Extent of sustained collaborations Extent of industry involvement Extent to which collaborations demonstrate factors associated with success 	•	•
SHORT TERM OUTCOME	MEASURE		
<ul style="list-style-type: none"> Knowledge, technologies, products or processes are adopted by primary producers 	<ul style="list-style-type: none"> No. patents, inventions, trademarks, registered designs Extent of uptake and adoption by primary producers 	•	•
<ul style="list-style-type: none"> Barrier to adoption are understood 	<ul style="list-style-type: none"> No. and program% of adoption priority projects Program \$ allocated and % funding allocated to adoption priority projects 	•	•
<ul style="list-style-type: none"> Research collaborations are sustained 	<ul style="list-style-type: none"> Extent of ongoing collaborations Extent of new projects undertaken by collaborations Extent of ongoing industry involvement 	•	•

EVALUATION OF THE RURAL RESEARCH AND & DEVELOPMENT (R&D) FOR PROFIT PROGRAM

OUTPUTS	MEASURE		
<ul style="list-style-type: none"> New innovative knowledge, technologies, products or processes are produced to enhance profitability and productivity of primary producers 	<ul style="list-style-type: none"> Extent of research projects completed on time and budget Extent of distribution of projects and funding across priorities 	•	•
<ul style="list-style-type: none"> Published research reports, other reports and articles 	<ul style="list-style-type: none"> No. of research publications % cited research publications cited 	•	•
<ul style="list-style-type: none"> Communication and extension activities and materials 	<ul style="list-style-type: none"> No. of new communication materials developed, and extension activities carried out because of the funded projects 	•	•
<ul style="list-style-type: none"> RDCs deliver projects with new and innovative research collaborations 	<ul style="list-style-type: none"> No. of new networks and research collaborations established resulting from funded projects Extent of participation by RDCs/industries in the program Extent of distribution of collaborations by industry sector and cross-industry Extent of primary industry involvement Extent of geographic distribution of projects and collaborators Number researchers, extension professionals and industry reps employed due to project funding 	•	•

CONTACT US

Evie Cuthbertson

t (02) 6274 9200 m 0438 628 442

e eviecuthbertson@grosvenor.com.au

abn 47 105 237 590 acn 105 237 590

e grosvenor@grosvenor.com.au

w grosvenor.com.au

level 15 379 collins street melbourne vic 3000 t (03) 9616 2700

level 7 15 london circuit canberra act 2601 t (02) 6274 9200

level 14 56 pitt street sydney nsw 2000 t (02) 8274 9200



subscribe to our news



follow us @GrosvenorMC



connect with us