

CRRDC Impact Assessment Guidelines
Revision – April 2018

COMPANION DOCUMENT

Prepared For

**The Council of Rural Research and
Development Corporations**

Submitted By

Agtrans Research

Contents

1. Introduction	3
2. Background & Rationale	3
3. Amendments to the CRRDC Impact Assessment Guidelines	4
3.1 Required Reporting Timeframes	4
3.2 Treatment of Costs of Adoption.....	4
4. Conclusion	6
5. References	7

1. Introduction

Innovation, performance and improvement of Australia's rural industries is largely driven by investment in research, development, technology transfer and adoption.

In 2014-15, the 15 Rural Research and Development Corporations (RDCs) invested around \$580 million per year in research, development and extension (RD&E) to improve the profitability and sustainability of rural industries and communities. The funding is a combination of levies on production paid by producers, and contributions from government, paid by taxpayers.

As managers and stewards of this money on behalf of the government and industry, it is imperative that the RDCs are fully accountable and transparent for expenditures, and able to demonstrate the impact and performance of the work they do.

To assist this program all RDCs support and have implemented a set of guidelines for impact assessment (CRRDC, 2017).

2. Background & Rationale

In 2016, The Council of Rural RDCs (CRRDC) commissioned an evaluation team, consisting of Agtrans Research and Consulting (Agtrans) in association with AgEconPlus Consulting and EconSearch, to conduct a Cross-RDC Impact Assessment and Performance Reporting Update.

The project was undertaken in two stages carried out concurrently. Stage 1 was to review and report on existing impact assessment and performance information covering the period 1 July 2009 to 30 June 2015. Stage 2 set out to identify and develop a future framework for the collection and reporting of data and evidence of impact across the RDCs, building on the existing CRRDC Impact Assessment Guidelines and Procedures.

The Cross-RDC Impact Assessment process (Stage1) identified and reported several issues to be considered for future assessments. These included a lack of continuing commitment to the CRRDC evaluation approach, inconsistent evaluation reporting (including neglect of adherence to a standardised process and inconsistent estimation of investment costs), absence of specific data on co-investment, loss of corporate memory, and limited reporting of cross-RDC collaborative investments (Agtrans Research, AgEconPlus, & EconSearch, 2016).

The CRRDC's Impact Assessment Working Group discussed the findings of the 2016 reports and concluded that the information in the CRRDC Impact Assessment Guidelines (CRRDC, 2014a) required some minor revisions to improve RDC evaluation and reporting consistency, comparability, and aggregation. The Working Group decided also that the CRRDC's Impact Assessment Procedures document required a complete rewrite and simplification to provide an improved framework for conducting and reporting economic evaluation analyses of RD&E by the all the RDCs.

Thus, in January 2018, Agtrans Research was contracted to complete an update of the existing CRRDC Impact Assessment Guidelines (CRRDC, 2014a) and Impact Assessment Procedures (CRRDC, 2014b) documents consistent with the discussions and suggestions of the Cross-RDC Impact Assessment Working Group.

The following document serves as a companion to the revised CRRDC Impact Assessment Guidelines and describes the amendments made and the rationale behind the changes.

3. Amendments to the CRRDC Impact Assessment Guidelines

3.1 Required Reporting Timeframes

The 2016 Cross-RDC Impact Assessment found that many of the impact assessment reports submitted by the RDCs failed to report against rolling time frames (i.e. did not include results at intervals between the last year of investment and some final point in the future). This limited the population available for an analysis of cross-RDC impact over time. The minimum expectations for the reporting are covered in the CRRDC Impact Assessment Guidelines.

The 2014 version of the Guidelines stated that all relevant summary measures of total project/cluster results should be presented, expressed as net present value (NPV), benefit-cost ratio (BCR), modified internal rate of return (MIRR) and internal rate of return (IRR). The guidelines also asserted that, at a minimum, timeframes including current (0), 5, 10, 20 and 30-year NPV horizons were to be adopted.

Cash flows used to estimate investment criteria include costs and benefits from the first year of RD&E investment, with year zero (0) set as the last year of investment. This ensures that any benefits that may accrue before the end of the investment are captured in the analysis.

The 2016 report suggested that the Guidelines should explicitly state reporting at 0, 5, 10, 15, 20, 25 and 30-year time horizons. Therefore, Section 2.5 (p24) of the CRRDC Impact Assessment Guidelines has been amended in line with this suggestion.

The Working Group supports the reporting of cost-benefit analysis results at 5-year intervals because it facilitates the analysis and reporting of aggregate total RDC performance trends over time.

3.2 Treatment of Costs of Adoption

The 2014 Guidelines state:

“The costs of adopting or implementing a new technology or other innovation may be incorporated into the assessment either as an additional element in the estimation of costs of the R&D project, or by deducting them from the net returns realised by industry from adoption of the innovation.”

These alternative treatments of adoption and implementation costs in the Guidelines mean that there has been some inconsistency between RDC RD&E evaluations in terms of how the present value of costs (PVC) has been calculated. While not affecting the NPVs or IRRs, this choice will have had an impact on the results for the BCRs in the aggregate analyses (see Box 1 for a worked example).

Box 1: Worked Example Showing Potential Consequences of Two Alternative Treatments of RD&E Adoption Costs in a Cost-Benefit Analysis

Assume that a completed R&D project cost \$50,000 p.a. was conducted over a three-year period and produced outputs that lead to gross benefits valued at \$75,000 p.a. for five-years. Further, assume that there is a cost to producers to adopt the new output, and this cost is given as \$15,000 p.a. for the life of the output. The discount rate is 5% and all values are in real dollar terms. Table A shows the discounted cash flows for this example.

Table A: Discounted Cash Flows - Example

Year	-2	-1	0	1	2	3	4	5
R&D Costs (\$)	55,125	52,500	50,000	0	0	0	0	0
Adoption Costs (\$)	0	0	0	14,286	13,605	12,958	12,341	11,753
Gross Benefits (\$)	0	0	0	71,429	68,027	64,788	61,703	58,764

From the cash flows shown in Table A, a two sets of investment criteria were calculated. The first used method 1 for the calculation of the PVC and present value of benefits (PVB). That is, the first set of investment criteria are the result of treating the adoption costs as an additional element of the R&D costs. The second set of investment criteria were calculated using method 2, adoption costs were deducted from the benefits realised by producers. Table B shows the results for the investment criteria calculated using each method.

Table B: Investment Criteria for the Example Case – Two Alternative Cost Methods Used

Investment Criteria	Method 1	Method 2
PVC (\$)	222,567	157,625
PVB (\$)	324,711	259,769
NPV(\$)	102,144	102,144
BCR	1.46	1.65
IRR (%)	19.55	19.55

The results reported in Table B show that using method 1 leads to a higher PVC and PVB. The NPV and IRR results remain the same regardless of which method is used. However, the BCR, a key criterion often reported and used to assess the performance of an R&D investment, is lower when the adoption costs are treated as an additional element of the R&D costs.

Section 3.1.4 of the Guidelines was amended and now states:

‘For CRRDC impact assessments, it is preferred that the costs of adopting or implementing a new technology or other innovation are incorporated into the assessment by deducting them from estimated gross benefits (e.g. gross benefits – additional adoption/implementation costs = net benefits) to ensure that the investment criteria reported (e.g. present value of costs, benefit-cost ratio, and internal rate of return) relate directly to the costs of the R&D project(s) being evaluated (e.g. benefit-cost ratio = PV of net benefits / PV of RD&E costs).’

The change has been made for three key reasons:

- 1) To improve the consistency and comparability of RDC RD&E evaluations.
- 2) To improve the CRRDC’s ability to analyse and report performance aggregated across all RDCs.
- 3) To ensure that results report reflect the performance of the particular RD&E project(s) funded and managed by the RDCs.

Though both methods are academically valid, RDC investment decisions are generally made at the R&D project or program level. As such, Section 2.3.1 of the Guidelines notes that the primary purpose of the CRRDC Impact Assessment Program is to estimate the benefits derived from R&D funded and managed by the RDCs. This concept is emphasised further in Section 5.3, where the Guidelines state that the primary purpose of an impact assessment

report is to inform RDCs about the impacts generated by their investment in the R&D projects.

4. Conclusion

The CRRDC required that the Impact Assessment Guidelines document be updated based on issues identified in the 2016 Cross-RDC Impact Assessment and Performance Update report.

Agtrans Research revised the Guidelines in January 2018 based on discussions with, and feedback from, the CRRDC Impact Assessment Working Group. Two changes were made to the Impact Assessment Guidelines document:

- Reporting timelines - RDC RD&E Impact Assessments now are required to report results across additional time intervals. Results such as NPV, BCR, and IRR are to be reported at 0, 5, 10, 15, 20, 25, and 30-years from the final year of the RD&E investment being evaluated.
- Treatment of costs of adoption – the costs of adopting or implementing a new technology or other innovation should be incorporated into an assessment by deducting them from the gross returns realised by industry from adoption of the innovation.

The changes aim to improve the consistency and comparability of RDC RD&E impact assessments and, in turn, improve the ability of the CRRDC to aggregate, analyse and report performance results across all RDCs in future years and over time.

5. References

- Agtrans Research, AgEconPlus, & EconSearch. (2016). *Cross-RDC Impact Assessment and Performance Reporting Update*. Canberra: Council of Rural Research and Development Corporations. Retrieved from <http://www.ruralrdc.com.au/wp-content/uploads/2016/12/161021-CRRDC-Cross-RDC-Impact-Assessment-2010-2015-FINAL-REPORT.pdf>
- Council of Rural Research and Development Corporations. (2014a). *Impact Assessment Guidelines*. Canberra: Council of Rural Research and Development Corporations. Retrieved from <http://www.ruralrdc.com.au/wp-content/uploads/2016/04/CRRDC-Impact-Assessment-Guidelines-V.1-070514.pdf>
- Council of Rural Research and Development Corporations. (2014b). *Impact Assessment Program Management Procedures*. Canberra: Council of Rural Research and Development Corporations.
- Council of Rural Research and Development Corporations. (2017). *Impact Assessment & Performance*. Retrieved from Rural R&D Corporations: <http://www.ruralrdc.com.au/impact-assessment-performance/>