

Independent performance review: final report



CRDC

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DISCLAIMER

The information contained in this document has been gained from anecdotal evidence and research. It has been prepared in good faith and is based on a review of selected documents and interviews with stakeholders including CRDC Board directors and management, Commonwealth Department of Agriculture and Water Resources personnel, members and executive of Cotton Australia, research providers and other stakeholders. Neither Forest Hill Consulting nor its servants, consultants, agents or staff shall be responsible in any way whatsoever to any person in respect to the report, including errors or omission therein, however caused.

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EXECUTIVE SUMMARY

This report presents the findings of an independent performance review of the Cotton Research & Development Corporation. The purpose of the review, in broad terms, was to assess how well CRDC has met its obligations to levy payers and other stakeholders, as set out in its Funding Agreement 2015-19 with government, and in the *Primary Industries Research & Development Act 1989* (PIRD Act). The Funding Agreement requires that the review be completed six months before the expiration of the agreement, that is by 5 June 2019.

The review involved an extensive review of documents (listed in Appendix 1) and consultation through face-to-face or telephone interviews with 55 stakeholders: CRDC Board and management, Cotton Australia, Cotton Grower Associations, individual cotton growers, private consultants, Cotton Seed Distributors, the Department of Agriculture and Water Resources, the Council of Rural R&D Corporations (CRRDC), cotton ginners and service providers (including research agencies and consultants). All stakeholders were provided the opportunity to make a submission to the review via a dedicated website.

The review has found that CRDC is a very well-managed, high-performing company that is highly respected by its stakeholders. Corporate governance is a key strength, compliance with the considerable obligations conferred upon statutory RDCs is exemplary, the Board and management are very well regarded and there is good evidence for the delivery of benefits to industry. CRDC has an excellent relationship with the Commonwealth government and is highly collaborative with other RDCs, research providers and other cotton industry organisations.

There is no evidence for CRDC having failed to fulfil, or being at risk of not fulfilling, all of the obligations imposed by its Funding Agreement with the Commonwealth or the PIRD Act.

A summary of the review findings against the terms of reference is shown below.

TERMS OF REFERENCE	SUMMARY
Assess the performance of CRDC in meeting its obligations under the [Primary Industries Research & Development] PIRD Act and the Funding Agreement with the Commonwealth	CRDC has met all of its obligations under the PIRD Act and Funding Agreement. CRDC has a very strong focus on and systematic approach to managing compliance risk.

TERMS OF REFERENCE		SUMMARY
Assess CRDC's development and implementation of its R&D Plan, Annual Operational Plan, Risk Management Plan, Fraud Control Plan and Intellectual Property Management Plan, and the CRDC's effectiveness in meeting the priorities, targets and budgets set out in those plans		The R&D Plan and annual operational plans (AOPs) have been developed through extensive consultation and are very comprehensive. There is clear line-of-sight of priorities, targets and financials from strategic plan to AOPs and through to annual reports, although recommendations have been made for minor improvements in transparency of performance reporting. Risk management, fraud control and intellectual property plans are robust and actively followed.
Assess the efficiency and effectiveness with which CRDC has carried out these plans including:	Liaison with stakeholders	Liaison with stakeholders is a feature, especially the personal interactions between management and individual growers, other industry organisations and government.
	Cross-RDC collaboration	CRDC is a very active participant in the CRRDC and a highly collaborative co-investor in R&D, notably through the Rural Research & Development for Profit program.
	Corporate governance	Corporate governance is generally excellent. The appropriate documents are in place and there is a strong focus on and systematic approach to managing risk, particularly compliance risk. Two minor opportunities for improvement, concerning Board performance reviews and development of a significant document register, were identified.
	Industry strategy and delivery, including the opportunity for stakeholders to influence the investment of funds and the Return on Investment achieved	CRDC's consultative process for RD&E procurement provides for very strong industry input to its investment of funds. There is an opportunity to improve this process but the excellent industry ownership of the consultative process should not be compromised.

TERMS OF REFERENCE	SUMMARY
Assess the efficiency and effectiveness of CRDC's investments in RD&E	CRDC's investments in RD&E are delivering effectively and efficiently. A recommendation has been made for CRDC to consider rationalising its portfolio (fewer, larger projects and a program approach) with the aim of making more rapid progress in key areas.
Assess the delivery of benefits to the CRDC'S Sector and community in general, foreshadowed by those plans, including an assessment of the degree to which the CRDC's investments have met the needs of the CRDC'S Sector	CRDC uses a robust methodology to assess its delivery of benefits to the industry and community in general. The assessment shows that CRDC's investments are delivering substantial benefits.

The review has identified several areas in which improvements might be made to the performance of CRDC. These are, for the most part, concerned with RD&E processes and the reporting of performance. Eight recommendations are made. These are listed below, and each is rated either:

- ⊕ Critical: should be implemented as a matter of urgency in order for CRDC to meet its legal and regulatory obligations.
- ⊕ Important: actions that are expected to deliver significant benefits to the company and industry.
- ⊕ Better practice: expected to deliver incremental performance improvements.

RECOMMENDATION	PRIORITY
1 CRDC should engage with CA to re-design the RD&E consultative process so that it delivers better advice to CRDC and provides greater satisfaction to industry participants. This may include additional or extended RD&E forums, an independent technical panel, provision of panels with succinct project assessments to assist decision-making and/or more training of panel members.	Important
2 CRDC should consider whether some rationalisation (fewer, larger projects) and a focus on programs within the RD&E portfolio, to allow certain industry priorities to be more aggressively addressed, would deliver greater net benefit to the industry than is currently being achieved.	Important
3 The CRDC Board should institute a more regular schedule of Board performance reviews, including periodic external reviews.	Better practice

RECOMMENDATION		PRIORITY
4	CRDC should develop a register of all of its policies, procedures, plans, registers and other significant documents, showing when each was last reviewed, the approval process for the review and when the next review is due.	Better practice
5	CRDC should improve its engagement with and delivery of RD&E outcomes to large and corporate growers, which should include consideration of an extension program directly targeted at professional private consultants.	Better practice
6	CRDC should consider developing and publishing succinct stand-alone, industry-focussed summaries of the strategic plan, annual operating plan and annual report as well as a short annual performance evaluation report describing achievement against key performance indicators and results from impact assessments, including qualitative, non-measured benefits.	Better practice
7	CRDC should streamline its reporting of performance against targets across the strategic plan, annual operating plan, annual report and standalone performance reports, and make all relevant documents including detailed impact assessments available on the CRDC website in a separate, clearly identified 'Performance Evaluation' section, in order to improve performance reporting.	Better practice
8	CRDC should increase the value of its impact assessments by improving the collection of documented evidence on the adoption and impact of projects, as recommended by AgTrans, and by including commentary on the distribution of benefits between regions and/or sectors if practicable.	Better practice

ACRONYMS AND ABBREVIATIONS

ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ACRI	Australian Cotton Research Institute
AGM	Annual general meeting
AICD	Australian Institute of Company Directors
ANAO	Australian National Audit Office
AOP	Annual operational plan
BCA	Benefit-cost analysis
BCR	Benefit-cost ratio
BMP	Best management practice
CA	Cotton Australia
CCA	Crop Consultants Australia
CGA	Cotton Growers' Association
CRDC	Cotton Research & Development Corporation
CRRDC	Council of Rural Research & Development Corporations
CSD	Cotton Seed Distributors
DAWR	Department of Agriculture and Water Resources (C'th)
ED	Executive Director
EOI	Expression of interest
FRP	Full research proposal
FY	Financial year
GM	General Manager

GVP	Gross value of production
HR	Human resources
I(C)T	Information (& communications) technology
IP	Intellectual property
IRB	Industry representative body
IRR	Internal rate of return
M&E	Monitoring & evaluation
MIRR	Modified internal rate of return
NPV	Net present value
PGPA Act	<i>Public Governance, Performance and Accountability Act 2013</i>
PIRD Act	<i>Primary Industries Research and Development Act 1989</i>
PRP	Preliminary research proposal
PSPF	Protective Security Policy Framework
QDAF	Queensland Department of Agriculture and Fisheries
R&D(&E)	Research & development (& extension)
(R)RDC	(Rural) Research & Development Corporation
RRDP	Rural R&D for Profit (program)
SWOT	Strengths, weakness, opportunities and threats (analysis)
TIMS	Transgenic and Insect Management Strategies

1. INTRODUCTION

1.1 PURPOSE OF THE REVIEW

Clause 12 of the Funding Agreement 2015-19 between the Commonwealth Government and the Cotton Research & Development Corporation (CRDC) requires CRDC to engage an independent organisation to complete a comprehensive review of its performance six months prior to the end of the agreement, that is, by 4 December 2018.

The terms of reference of the performance review were as follows:

1. Assess the performance of CRDC in meeting its obligations under the [Primary Industries Research & Development] PIRD Act and the Funding Agreement with the Commonwealth.
2. Assess CRDC's development and implementation of its R&D Plan, Annual Operational Plan, Risk Management Plan, Fraud Control Plan and Intellectual Property Management Plan, and the CRDC's effectiveness in meeting the priorities, targets and budgets set out in those plans.
3. Assess the efficiency and effectiveness with which CRDC has carried out these plans including:
 - ✦ Liaison with stakeholders
 - ✦ Cross-RDC collaboration
 - ✦ Corporate governance
 - ✦ Industry strategy and delivery, including the opportunity for stakeholders to influence the investment of funds and the Return on Investment achieved
 - ✦ Corporate operations.
4. Assess the efficiency and effectiveness of CRDC's investments in RD&E.
5. Assess the delivery of benefits to the CRDC'S Sector and community in general, foreshadowed by those plans, including an assessment of the degree to which the CRDC's investments have met the needs of the CRDC's Sector.

The performance review focuses on the timeframe 4 June 2015 to 30 June 2019.

1.2 REVIEW METHODOLOGY

The following approach to the review was adopted. Note that the desktop review, consultation and reporting stages were overlapping.

1. Inception meeting: an inception meeting was held by videoconference, involving the Executive Director (ED) and General Manager (GM) Business & Finance of CRDC and the consulting team shortly after the project start. The meeting addressed the scope of the project, CRDC input requirements (including access to documentation, personnel, stakeholders to be interviewed), output and reporting requirements and finalisation of timeframes.
2. Establishment of communication channels: a simple dedicated website for the review was established with the address www.crdcreview.org. The site comprised a single page explaining the background to the

review and detailing the terms of reference. The site also provided an email address (submissions@crdcreview.org) by which any stakeholders could provide a submission to the review or seek further information. The purpose of the site was to provide a transparent communication channel with stakeholders that was clearly independent of CRDC.

The website and the review itself were publicised by CRDC by e-news bulletin to CRDC's contact list of 3,400 subscribers with an open rate of 40%. The review and participation in it were also promoted by CRDC via Twitter. By the closing date, four submissions had been received via the designated email address.

3. Desktop review: a large number of relevant documents were made available to the consultants via a secure portal and were progressively reviewed. During the document review, CRDC's fulfilment of its various Funding Agreement obligations was checked and points of interest noted for discussion during the consultation stage.

A list of the documents reviewed is provided in Appendix 1.

4. Consultation: a list of interviewees for the review, across a range of stakeholder groups, was drawn up in consultation with CRDC. Individuals on the list were approached and, if agreeable, were interviewed face-to-face (the majority of the CRDC and DAWR and some of the other interviews, depending on practicability) or by telephone. A semi-structured questionnaire was used as the basis for discussions. Interviewees were assured that their comments would be treated in confidence and, if reported, would be presented in a deidentified and aggregated way that did not allow the source to be identified.

A total of 55 interviews were conducted, distributed across stakeholder groups as follows:

- ⊕ CRDC executive team and management (6 individuals);
- ⊕ CRDC Board (7);
- ⊕ Cotton Australia (CA), Cotton Grower Associations, individual producers (16);
- ⊕ Cotton Seed Distributors (CSD), processors (4);
- ⊕ Department of Agriculture and Water Resources (DAWR) (4);
- ⊕ Council of Rural R&D Corporations (CRRDC) (1); and
- ⊕ Service providers to CRDC (research agencies, consultants and others) (17).

In addition, one of the team attended the annual CA / CRDC R&D Priority Forum held in Coogee, NSW, on 5 June 2018.

5. Presentation of interim findings: the interim findings of the review were presented to the Executive Leadership Team by videoconference, in order to test the findings for accuracy and completeness. Interim findings were also discussed in a face-to-face meeting with the CRDC Board at its August 2018 meeting.
6. Draft report: the draft report was submitted to CRDC.
7. Final report: feedback on the draft from CRDC and DAWR was considered by the review team and changes made where required to correct factual errors or misinterpretations.

2. OVERVIEW OF CRDC

2.1 LEGAL FRAMEWORK

The Cotton Research and Development Corporation (CRDC) was declared to be established, under section 8 of the *Primary Industries Research & Development Act 1989* (PIRD Act) from 1 October 1990, to 'co-ordinate or fund the carrying out of R&D activities including extension activities for the Australian cotton industry following passage of the *Cotton Research and Development Corporation Regulations 1990*'¹.

CRDC is a statutory, as distinct from an industry-owned, research & development corporation (RDC). It is a corporate Commonwealth entity under the *Public Governance, Performance and Accountability Act 2013* (PGPA Act) and is an agency in the Agriculture and Water Resources portfolio. As such, CRDC must meet the finance and administration arrangements as detailed in the PGPA Act and associated instruments such as various Rules.

In 2013, the PIRD Act was amended to permit the Minister to enter into formal funding agreements with statutory RDCs. These funding agreements were until that time restricted to the industry-owned RDCs. CRDC entered into its first such agreement, the Funding Agreement 2015-19, in June 2015. The Funding Agreement supports the compliance framework of the PIRD and PGPA Acts and introduces some additional obligations, including the requirement to conduct an independent performance review during the term of each four-year Funding Agreement.

The cotton levy is governed by the *Primary Industries (Excise) Levies Act 1999* and the *Primary Industries Levies and Charges Collection Act 1991*.

2.2 FUNDING

CRDC is funded by:

- ⊕ A grower levy of \$2.21 per 227 kg bale on cotton, and \$3.99 / tonne on seed cotton², the latter levy introduced on 1 April 2017;
- ⊕ Commonwealth matching contributions capped at the lower of levies received, 0.5 percent of the industry's gross value of production (GVP), or 50 per cent of eligible RD&E expenditure;
- ⊕ Commonwealth Government grants;
- ⊕ Royalties;
- ⊕ Interest; and

¹ Funding Agreement, Recitals

² The total levy paid is \$2.25/bale and \$4.06/t, but \$0.04 (\$0.07) is remitted to Plant Health Australia for cotton industry membership. The levy is payable by the person who owns the cotton or seed cotton immediately after harvest

⊕ Other sources.

A summary of CRDC's financials over the review period is provided in Table 1.

Table 1: Key financial figures for CRDC, 2014/15-2018/19 (source: *Annual Report 2016-17, ^Annual Operational Plan 2018-19 and CRDC)

\$M	2014/15*	2015/16*	2016/17*	2017/18^	2018/19^
Total revenue	20.073	18.935	21.600	25.908	22.931
Industry levies	7.298	6.054	6.131	9.610	8.920
Australian Government	7.295	6.053	6.129	9.608	8.920
Royalties	1.707	0.745	0.585	1.069	1.221
Interest	1.596	1.282	1.078	0.798	0.720
Research grants	0.925	4.127	6.719	4.412	2.900
Other	1.252	0.674	0.958	0.411	0.250
Total expenditure	22.826	20.555	24.089	26.007	24.331
Cotton RD&E activities	19.244	17.052	20.318	22.051	20.342
Total equity position	41.645	40.025	37.536	37.437	36.037

The current Board has endeavoured to maintain the company's level of investment at over \$20m per annum. But whilst total revenues have been reasonably even over the review period, levy receipts and therefore matching government contributions (the major sources of revenue) can vary significantly depending on seasonal conditions (Figure 1).

The fixed nature of the levy means that, all other factors being equal, the value of levy revenue declines by the consumer price index (CPI) over time – although yield increases are continuing to drive levy revenue per hectare up by 3 per cent per annum. It also means that the cotton industry may access less than the full available amount of matching government funding when cotton prices are high, because the industry GVP cap exceeds the levy revenue.

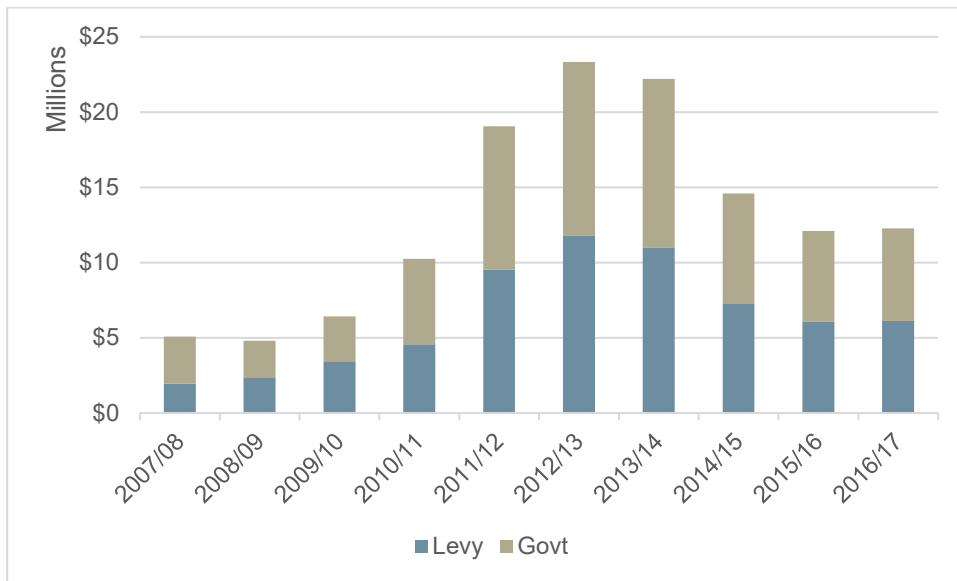


Figure 1: CRDC levy and matching government revenue over the last 10 years. Note that levy revenue for a given financial year is drawn from two consecutive crops as ginning occurs from March to September of each year (source: annual reports)

The wide variability in levy and government matching revenue makes budgeting a challenge. Furthermore, as a government entity, CRDC does not directly control its reserves. To draw upon its reserves, CRDC must gain the approval of the Minister for Finance through a 'loss application'. The current reserve of around \$37 million would be drawn down quickly if revenue was substantially reduced. The Board, Audit Committee and management are well aware of and actively manage this risk.

It can be seen from Table 1 that revenue from competitive government research grants has increased in recent years to become an important part of the overall CRDC revenue mix. In 2012/13, grants contributed five per cent of CRDC revenue; in 2016/17, through the government's Rural R&D for Profit (RRDP) program, they contributed 31 per cent.

3. OPERATING ENVIRONMENT

A brief review of the organisation's operating environment over the period is provided here as context for the review. The state of an industry does have significant impact on the perceptions of the performance of an industry services company, even when the company may have little or no influence over particular issues (such as cotton prices).

3.1 INDUSTRY PROFILE

While the Australian cotton industry has roots back in the 1850s, it is from the 1970s onwards that it has grown spectacularly. From production of over 400,000 bales in 1980, the industry produced 5.3 million bales in the 2011/12 season.

While Australia only produces about three per cent of the world's cotton, Australian cotton is recognised as among the highest yielding and highest quality cotton produced globally and enjoys significant price premiums compared to competitor product. Some key features of the Australian cotton industry are³:

- ✦ It is a significant contributor to the gross value of production (GVP) from both agriculture and rural and regional Australia with over \$1.9 billion dollars in export revenue annually.
- ✦ Over 99 per cent of production is exported.
- ✦ Australia is the third largest exporter of cotton in the world, behind USA and India.
- ✦ China is the largest importer of Australian cotton (buying 30 per cent of Australia's raw cotton exports).
- ✦ There are approximately 1436 cotton farms in Australia with 99 per cent (66 per cent in NSW and 33 per cent in Qld) being based in ten recognised regions or valleys across the east coast.
- ✦ The average area of cotton grown in Australia per farm is approximately 305 hectares.
- ✦ Australian cotton is renowned for high yields with current expectations of 10.1 bales / ha from irrigated and 1.3 bales / paddock hectare from dryland production (it is estimated that yields are increasing at 3.1 per cent per annum with improved varieties and better management practices being the primary drivers of that change).
- ✦ It is estimated that over 10,000 people are indirectly employed / engaged in the Australian cotton industry.
- ✦ It is further estimated that over 95 per cent of cotton farms have either specialist internal or external consultants that advise on a range of agronomic, integrated pest management and marketing strategies.

Whilst production has traditionally been centred around major water catchments of the Gwydir, Namoi, Macintyre and Macquarie rivers, new technologies and management practices that provide alternative growing seasons, pest management and water management are allowing cotton to expand into new and emerging

³ Cotton Australia 2018, Cotton Annual 2018: Australian Cotton Industry Statistics

regions. The fastest growing region is in southern NSW and is based around the Riverina (Murrumbidgee) region.

Cotton production in Australia over the last decade has been highly volatile and has been influenced primarily by stored water availability in major dams and on-farm water reserves, and rainfall throughout the growing season. In the 2017/18 season the industry was expected to produce 4.6 million bales from an estimated 452,000 hectares of both irrigated and dry-land cotton. Irrigated cotton still dominates the industry with 92 per cent of the current season's crop being irrigated. However, it is acknowledged that whilst it is currently a small part of the industry, expansion in dryland cotton area offers significant potential for growth.

As management practices to control both weeds and insect pests often involve rotation with other crops, the Australian cotton industry works collaboratively with other industries to ensure significant issues such as water use efficiency, weed control and spray drift are managed effectively across the regions.

In addition to the cotton lint, cotton seed (a by-product of the ginning process) is an important resource that is predominantly used either as a high-quality protein supplement for livestock production or processed into cottonseed oil which has a strong market due to its cooking temperature and flavour profiles. Cottonseed meal (a by-product of the oilseed crushing stage) is also highly valued as a protein feed source for livestock.

3.2 TRENDS IN PRODUCTION, PRICES AND MARKETS

Table 2 shows the key production and economic indicators of both the international and Australian cotton industries. Australian cotton production is heavily dependent on and responsive to seasonal rainfall levels and production may fluctuate by more than 100 per cent between growing seasons. This presents significant challenges for the production, trading and processing of cotton, along with (from a CRDC perspective) forecasting the likely quantum of levy revenue that the industry will collect and the consequent impact on expenditure on R&D activities.

Cotton forecasts produced by the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) in March 2018, June 2018 and September 2018 indicate very favourable conditions for demand for and price of Australian cotton. These forecasts also suggest an above-average cotton crop in 2018/19, although drought conditions with historically very low rainfall in major cotton-producing regions are likely to temper that view (most regions indicate that water allocations are well below requirements and that will have a very dramatic effect on both planting and crop size).

Table 2: Key production and pricing indicators for world and Australian cotton production (source: ABARES)

COTTON PRODUCTION AND OUTLOOK (FOR REVIEW PERIOD 2015-2019)					
	2015/16	2016/2017	2017/2018	2018/19f	2019/2020f
WORLD					
Production (Mt)	20.9	23.2	26.3	27.1	27.3
Consumption (Mt)	24.2	25.0	26.0	26.9	27.4
Price (USc/lb)	70	83	81	85	79
AUSTRALIA					
Area harvested ('000 ha)	270	557	500	415	355
Lint production (kt)	629	891	995	830	710
Export volume (kt)	536	764	887	930	777
% of international production	2.6%	3.3%	3.4%	3.4%	2.8%
Export value (A\$m)	1,269.223	1,788.422	2,058.489	2,399.952	1,917.511
Value per bale (A\$/bale)	572	621	600	600	590

3.3 INDUSTRY ISSUES AND DEVELOPMENTS

The industry has a strong record of recognising the importance of innovation to maintain both industry competitiveness and acceptance by the Australian community. The 2017 CRDC grower survey⁴ found that 92 per cent of growers were positive about the industry and its future, while 59 per cent believed that it is an innovative business and that R&D provides better yields, pest control and water use efficiency.

There are several key challenges for the Australian cotton industry which influence the priorities of the industry and its RD&E needs:

⁴ Intuitive Solutions and CRDC 2017, Grower Survey 2017

- # **Water and resource use efficiency:** Climatic variation and the current (2018) drought conditions being experienced in eastern Australia are continuing to increase Australian community focus on water use, particularly the efficiency of water use and the allocation of water between urban (human), agriculture and environmental requirements. This places irrigated cotton production firmly in the public eye.

The Australian cotton industry has focussed significant RD&E and communication resources towards improving water use efficiency and the associated public perception of water use efficiency by the industry. Providing clear information to the wider community has been a clear goal to improve the perception of cotton production. The cotton industry has achieved a 40 per cent improvement in water productivity (megalitres of water required to produce one tonne of cotton lint) since 2003. Despite these substantial improvements, further continual improvements in water use are required, particularly as cotton is now starting to compete with high-value horticultural crops for water availability.

Another important challenge is the comparatively high cost of energy in Australia relative to competing countries. Australian cotton production is highly dependent on energy for most of the production practices of sowing, spraying and harvesting. A key nutrient, nitrogen, is derived from natural gas. Energy is also one of the major costs associated with the ginning process.

- # **Productivity:** Cotton production within Australia competes with several alternative agricultural commodities including grain, livestock (wool, beef and sheep meat), rice, horticulture and emerging plant industries. Retaining competitive advantage through improved productivity, particularly with rising water, land and labour costs, is one of the critical performance areas in which CRDC invests and improving yield by 3 per cent per hectare per annum is a stated target.
- # **Chemical use and spray drift:** Maintaining community trust and social license is fundamental to the Australian cotton industry, especially in relation to chemical use and spray drift. myBMP is an industry regulated quality assurance program for the cotton industry. It has a very strong focus on chemical use and a target to have over 85 per cent of cotton growers adhering to best practice within this program.
- # **Quality:** Australian cotton enjoys significant price premiums as a result of its excellent quality. Cotton plant breeding and management activities are strongly focussed on elements of quality including colour, strength, micronaire and contamination (trash content). In 2017, 40.7 per cent of Australian cotton was graded as premium and therefore attracted higher prices. Retaining or indeed enhancing quality differentials remains an essential focus for the industry.
- # **Labour and skilled capacity:** As the demographic profile of most regional areas has changed over the last 20 years, all agricultural industries have experienced significant declines in availability of labour and skills.

Most cotton farms experience problems in attracting and retaining farm labour, especially at key times of the year. The cotton industry has recognised that skills development, enhancing both capacity and capability to implement innovative technologies and management practices, and improving the image of cotton production as a career choice are industry priorities.

3.4 INDUSTRY BODIES

In relation to a performance review of CRDC, there are two important industry bodies that warrant introduction.

Cotton Australia

Cotton Australia (CA) was formed in 2008 from the merger of the Australian Cotton Foundation and the Australian Cotton Growers Research Association, both of which had been established in 1972. CA is the peak body for Australia's cotton producers, with over 1200 members across the major cotton-growing regions of Australia. Its primary role is to develop policy and advocate for the cotton industry to Commonwealth and state governments. CA also provides grower services, biosecurity, industry best practice management (myBMP) and promotion and communication between the cotton industry and broader Australian community⁵.

CA is declared as a representative organisation in relation to CRDC under section 7 of the PIRD Act. The declaration means that CRDC must consult with CA in carrying out its activities, such as in preparing strategic and annual operational plans. These roles are further described in the relevant sections of this report.

Cotton Seed Distributors

Cotton Seed Distributors (CSD) was established in 1967 and was an important catalyst in the development of the Australian Cotton Research Institute (ACRI) with the Commonwealth Scientific and Industrial Research Organisation (CSIRO). In 1987 a strategic partnership was established with CSIRO to develop cotton varieties for the Australian industry, with CSD having the exclusive rights to those varieties. This partnership was formalised in 2007. Currently CSD is the sole provider of cotton seed in Australia. To purchase seed and access CSD services a grower must sign a grower agreement each season.

In addition to seed sales, CSD plays an important role in extension through a network of 'extension & development' (E&D) agronomists who assist in a range of activities relating to varietal selection and seedling development.

Because CSD manages variety development, a very important component of the RD&E portfolio for any plant-based industry, CRDC does not fund any research in this area. It does however work closely with CSD on related matters such as crop protection and management of pest resistance.

⁵ <https://cottonaustralia.com.au/about/>

4. THE BOARD AND GOVERNANCE

4.1 STRUCTURE OF THE BOARD

Under the PIRD Act, the Board comprises:

- ⊕ A Chair, appointed by the Minister for a term of up to three years with eligibility for reappointment;
- ⊕ A Deputy Chair, appointed by the Minister from among the nominated Directors;
- ⊕ An Executive Director (ED), appointed by the Board, with no fixed term except as set by contract; and
- ⊕ Between five and seven other directors appointed by the Minister for terms of up to three years.

Directors are nominated by a Selection Committee, which is overseen by a Presiding Member appointed by the Minister. The Presiding Member nominates, and the Minister appoints, up to four additional members of the Committee. In CRDC's case, CA must be consulted about the membership of the Committee and consideration must be given to diversity of expertise, experience and gender.

The Selection Committee must nominate people having one or more of the skills listed in section 131 of the PIRD Act. It must also consult the Chair on the appropriate balance of expertise and experience for the Board, and CRDC may nominate additional skills for inclusion in the selection process. In 2017, for example, it proposed 'knowledge management' and 'digital technology'. The Minister has the power to reject any nomination and request an alternative.

There are currently seven non-executive directors in addition to the Chair, including the Deputy Chair. The current Board members were appointed in October 2017 (the Chair in August 2016). Of the current Board, four were new appointments while three carried over from the previous Board.

Table 3 shows the membership of the Board since October 2014. There has been reasonable continuity over the period, and this has been helped by the changeover of Chair occurring part-way through the three-year cycle.

Table 3: CRDC Board composition during the review period

	TO OCT 14*	OCT 14-SEP 17*	OCT 17-PRESENT
Corbett	Chair	To 12/8/16	
Miller			
Haire		Chair	From 29/8/16
Rogan			
Robinson			
Stephenson			
Adams			
Alexander			
Kauter			
Burdon			
Copeland			
Richards			

* During the period 2-19 October 2014 the Board comprised only the Chair and the Executive Director, due to a delay in the appointment of the new board.

The Board is reported by stakeholders to be highly skilled and appropriate for the role. Certainly, it appears that all of the skills listed in the PIRD Act are well covered by the mix of directors. Some stakeholders expressed the view that there should be at least one producer on the Board, but others point out that there are strong skills in commercial cotton production present even if none of the directors actually owns a cotton business. 'Skin in the game' is not necessarily a criterion for director appointment.

The director selection and appointment processes are outside the control of CRDC, but we feel compelled to note that the appointment process represents suboptimal governance. Whilst director rotation has been managed well over the review period, we understand that on at least one occasion prior to 2014 all but one member of the Board was replaced, creating a serious discontinuity problem and significant transaction costs in enabling new directors to develop a good understanding of the organisation and its environment. Furthermore, we understand that ministers have rejected nominations of the Selection Committee without advising the committee of the reasons. It is understandable that government requires a mechanism to safeguard boards of government agencies from perverse outcomes, but the current provisions appear excessive in this regard.

4.2 COMMITTEES

There are three Board committees:

1. **Audit:** established in compliance with section 45 of the PGPA Act and section 17 of the PGPA Rules, 'Audit committee for Commonwealth entities'. The Audit Committee's 'primary role is to ensure CRDC's

financial reporting is a true and fair reflection of its financial transactions. The Committee also provides a forum for communication between the Directors, the senior managers of CRDC and the internal and external auditors. It carries responsibility for identifying areas of significant business risk and stipulating the means of managing any such risk⁶.

The Audit Committee comprises three directors, one of whom is chair, and an external member. The ED attends as an observer. The Committee has met three to five times per year over the review period.

2. **Intellectual Property (IP):** whose role 'is to assist CRDC's Board in fulfilling its responsibilities and to monitor the adequacy and effectiveness of CRDC's policies and procedures relating to the management of IP. The Committee's specific responsibilities are to review the operation of CRDC's IP policy and IP operating principles and to consider IP matters directed to it by the Board for consideration'⁷.

The IP Committee comprises of a minimum of three directors. The ED attends as an observer. The committee has met three to four times per year over the review period.

3. **Remuneration:** which 'advises the Board on the Executive Director's remuneration and senior staff remuneration adjustments'⁸. The Remuneration Committee comprises three directors and is chaired by the Board Chair. The Committee has met two to four times per year over the review period.

The structure, roles and responsibilities of the committees are detailed in the Charter of Corporate Governance. The committees reportedly work effectively, with an appropriate balance between the work of the committees and the Board.

4.3 BOARD PRACTICE

The Board meets five times face-to-face per year and there will typically be one or two teleconferences per year. Each face-to-face meeting lasts for two days and involves a field trip and/or stakeholder meeting.

The dynamics of the CRDC Board have reportedly varied over time as its composition and life-cycle stage have changed, as would be expected. Directors and senior management report that the current board works constructively, cohesively and effectively. The environment exists in meetings for robust but respectful discussions. Decision-making is reported to be by consensus rather than voting and there is a strong culture of adherence to board decisions and policies.

The relationship between the Board and management is reportedly positive and constructive. The current board is described as being more directive of management than previous boards. It has a standing *in camera* session that excludes the ED, at the start of every meeting, which is a normal part of good governance, although it appears there are times when the ED is out of the room for longer than is necessary. It is interesting that the summary report of the board performance review conducted in 2016 (see below) has as its first finding

⁶ Annual Report 2017-18

⁷ Annual Report 2017-18

⁸ Annual Report 2017-18

'The Board to recognise (and remember) that the Executive Director is a Board member' and there is some sense that this might still be something for the Board to work on.

Conflict of interest appears to be handled appropriately. A declaration by directors of any update of conflicts of interest is a standing agenda item at the beginning of each meeting.

There is a template for board papers and it includes fields for 'strategic implications', 'political, legal or other implications' and 'risk considerations'. The volume of information contained in the board packs has been reduced over time to around 80-90 pages and directors appear to be generally satisfied with this level of detail. Directors noted that there is an intranet portal that allows directors to find additional information if required which provides them with confidence that they can satisfactorily fulfil their director obligations.

The performance of the Board was most recently reviewed in January 2016 by the (then) Chair. There was no performance review in 2017 because of director rotation that year and there has been no review during 2018, although we understand the Board is planning a review in late 2018 or early 2019. The AICD notes that it is usual practice for boards to run an evaluation every year, and that every three to four years the process should be externally facilitated⁹. How a program such as this should be applied in a situation where the board is substantially rotated every three years is open to discussion. We suggest that CRDC considers board evaluations at least two years out of three, at around the 12- and 24-month marks in the life of a given board. All should incorporate an appraisal of each of the committees and of the Board and committee chairs. One of these reviews might be externally facilitated.

Recommendation: The CRDC Board should institute a more regular schedule of Board performance reviews, including periodic external reviews.

4.4 GOVERNANCE DOCUMENTATION

CRDC has a very comprehensive and well-structured Charter of Corporate Governance that sets out the corporate governance framework for the organisation. The Charter covers:

- ⊕ Purpose / governance statement;
- ⊕ General statement of risk appetite;
- ⊕ Vision, purpose and values;
- ⊕ Roles, powers and responsibilities;
- ⊕ Delegations of authority;
- ⊕ Board processes;
- ⊕ Board committees; and

⁹ AICD 2016, Board evaluation and director appraisal – Board performance, AICD Director Tool

⊕ Variation of the Charter.

Whilst CRDC is not a Corporations Act company, it is worth noting that the charter includes all of the information recommended by the AICD¹⁰, with the minor exception of describing the role of the company secretary. The Board's approach to reviewing its own performance, and that of individual directors, is also non-specific and could be strengthened (see also section 4.3).

The current version of the charter was adopted in 2016 and is due for review in 2019.

In 2017, CRDC consolidated its corporate governance documentation into a series of five 'handbooks':

- ⊕ Finance and Administration Policy;
- ⊕ Human Resource Management Policy;
- ⊕ Intellectual Property Policy;
- ⊕ Risk Management Policy Framework; and
- ⊕ Workplace Health and Safety Policy.

These handbooks significantly simplify the organisation's governance documentation. Each handbook references the relevant sections of the PIRD Act and PGPA Act and PGPA Rules.

The handbooks refer to a number of plans and procedures, including crisis management, fraud control and IP management plans. CRDC is currently reviewing and reorganising these plans and procedures.

There is a standing board item and paper with a register of the all of the policies and the Board and committees have work plans incorporating registers for all significant documents. There may be value, however, in having only one central register of significant documents that is used across all forums.

Recommendation: CRDC should develop a register of all of its policies, procedures, plans, registers and other significant documents, showing when each was last reviewed, the approval process for the review and when the next review is due.

4.5 RISK MANAGEMENT AND COMPLIANCE

The Board has a duty under section 16 of the PGPA Act to 'establish and maintain an appropriate system of risk oversight and management for the entity'.

Compliance is clearly well embedded and culturally recognised in CRDC. Evidence of compliance with the requirements of the PIRD Act, PGPA Act and Rules is contained in annual:

- ⊕ PGPA compliance checklists and reports;

¹⁰ AICE 2016, Board charter – role of the board, AICD Director Tool. This incorporates the Australian Stock Exchange (ASX) Corporate Governance Council Corporate Governance Principles and Recommendations 3e (2014)

- # Independent audit reports on compliance with the clauses 6 and 7 of the Funding Agreement;
- # Internal audit reports on fraud control; and
- # Australian National Audit Office (ANAO) closing letters and auditor's reports.

In addition, CRDC has an annual program of internal audit of its policies and procedures, conducted by an external consultancy, and there is evidence that recommendations from these audits are acted upon.

Risk management more broadly appears to be well embedded at CRDC. A Risk Management Policy Handbook was developed in 2017 and includes policies on protective security, risk management, fraud risk management, information security risk management, business continuity and privacy. There is a risk register and management plan and separate registers and plans for fraud, and information and communication technology (ICT) security. The Audit Committee receives and reviews a risk management report, covering the top risk items in the corporate register, at each meeting. The Audit Committee then provides an updated register and report for approval by the Board. There is an annual review of the entire corporate risk register by the Board and this is next due at the November 2018 meeting.

The fraud and ICT risk registers are reviewed annually by the Audit Committee and Board. CRDC also has an annual audit to provide assurance of its compliance with the Commonwealth Government's Protective Security Policy Framework (including ICT). The most recent such audit was in August 2018 and showed no incidents of non-compliance.

Management of the risks associated with commercialisation of IP is overseen by the IP Committee. A 'managed IP report' is tabled at each IP Committee meeting for review and recommendation for approval by the Board. The managed IP report is detailed and comprehensive. IP management is further discussed in section 6.5.

CRDC has a very strong focus on and systematic approach to managing compliance risk. The GM Business & Finance maintains a compliance checklist identifying every individual obligation of under the Funding Agreement, PIRD Act, PGPA Act and PGPA Rules, and for each obligation identifying when it is to be reported upon, internal controls, sources of evidence of compliance and the individual or group responsible for ensuring fulfilment of the obligation. The checklist is mapped across to the workplans of individuals, committees and the Board. A compliance report against all obligations is completed annually and approved by the Audit Committee and Board.

4.6 MANAGEMENT TEAM

The CRDC management team is small (13 staff as at June 2018) and the organisational structure appropriately flat. The leadership team comprises the ED and two GMs (R&D Investment, and Business & Finance – the latter also referred to as the Chief Financial Officer in the annual report).

The workload of the organisation has reportedly increased in recent years. The Cotton Catchment Communities Cooperative Research Centre closed in 2012, leaving some ongoing activities to be managed by CRDC, and CRDC has also taken on the management of three Rural Research and Development for Profit (RRDP) projects on behalf of multiple investors. The organisation commissioned an external human resources (HR) consultancy to review its workforce needs in 2018. CRDC continues to work with an external consultant on a range of HR and staff development procedures. This is commendable given the size of the organisation and allows key staff to focus on the operations of CRDC.

CRDC has identified the need for a senior commercialisation manager. This is in response to both a recognition of the need for additional staff in the R&D team and a view that CRDC needs to be more capable of exploiting commercialisation opportunities arising from R&D. This would potentially benefit CRDC and industry both by increasing the efficiency of pathways to market for technological developments and boosting revenue streams. There is a strong expectation among directors and senior management that the new position will bring a greater focus on innovation and 'design thinking' rather than a conventional commercialisation management approach with a primary focus on IP management (see section 4.7).

The challenge for CRDC in managing its staffing is that its headcount is limited by the organisation's status as a government agency. A freeze on public service numbers imposed in 2014 means that CRDC cannot appoint additional permanent staff without an offsetting reduction in headcount among DAWR or its other agencies. This is an invidious situation, and CRDC's lack of control over the size of its own workforce is one of the main reasons cited by advocates from within the cotton industry for a change to an industry-owned rather than statutory model for CRDC.

The location of the CRDC office in Narrabri brings both advantages and disadvantages. It means that CRDC staff are very much part of the cotton-growing community and closely co-located with important stakeholders such as CSD and ACRI. The Narrabri location is undoubtedly a significant contributor to the positive industry perceptions of CRDC as accessible, responsive and understanding of industry needs. It also significantly improves empathy of staff with the industry.

On the negative side, airport access and flight availability is poorer than in capital or larger regional cities. Recruitment can also be more difficult, and several staff work in locations other than Narrabri. To offset these constraints, CRDC installed a videoconferencing facility and appointed a fulltime IT Manager in 2017. Having staff off-site does not appear to affect CRDC's performance. The presence of staff in other cotton-growing regions (such as Emerald) was recognised by growers within those regions as being very valuable, and in fact there were suggestions that CRDC staff could be located in the more distant regions, especially southern NSW where there is currently no CRDC presence.

4.7 CORPORATE PERSONALITY AND CULTURE

The culture of CRDC appears to be very positive. Staff report a high level of satisfaction working at CRDC, although the workload has increased in recent years (see section 4.6). Senior management are highly approachable and staff contributions to decision-making are encouraged and acted upon. Most external stakeholders interviewed for this review described staff as accessible, responsive, engaged and genuinely working for the good of the industry.

On the other hand, some significant stakeholders believe that CRDC places too much emphasis on compliance at the expense of innovation and entrepreneurship. We do note however that the concept of 'compliance' sometimes appears to be confused with 'lower risk appetite' and/or 'inflexibility in project management'. Compliance is not negotiable for any organisation, and statutory RDCs have a higher compliance burden than most other types of organisation. Risk appetite, in respect to the balance of the R&D portfolio, and the agility with which the portfolio is managed, are settings to be established by the Board, in conjunction with management, and delivered on by management. Interestingly, a risk appetite survey of directors, senior

executive and staff conducted by an external consultancy on CRDC's behalf in 2014¹¹ found that the Board generally had a higher appetite for risk than did management, especially in respect to innovation and IP.

The balance of the R&D portfolio is further discussed in section 6.4. It should be noted here, though, that CRDC has allocated at least ten per cent of its R&D budget to blue sky research since 2013.

Senior management is very conscious of the culture of the organisation, and in particular talk of the concept of 'cognitive diversity'. An HR consultancy led the management team through an exercise in team collaboration profiling. More significantly, the team has been working with a consultancy on a project – 'Catapult' – that seeks to transform the R&D culture within CRDC towards one that is more:

- # Customer-focused [vs technically-focused]
- # Iterative (agile) [vs linear (waterfall)]
- # Risk-seeking (ambitious) [vs risk averse (rigorous)]and
- # [Characterised by] Experimentation (commercial) [vs experimentation (scientific)]¹².

This contemporary approach to R&D management incorporates elements such as 'design thinking', 'lean startup' and 'agile development'. These ideas generally have their origins in software and other tech-orientated developments that are strongly commercially focussed, rather than in biological systems or public sector environments, and it remains to be seen whether these approaches can deliver significant additional value in the CRDC / cotton environment. Nonetheless, 'Catapult' is a very good initiative, and even if only parts of it are implemented then CRDC and the industry should benefit. It is notable that other RDCs are trialling similar approaches.

¹¹ ACIL Allen 2014, Results of the risk appetite survey, July

¹² X-Lab 2018, Presentation to IP Committee, 30 July

5. PLANNING AND REPORTING

5.1 OVERVIEW

The form of CRDC's planning and reporting processes and mechanisms is highly prescribed by the Funding Agreement, the PIRD Act, the PGPA Act and the PGPA Rule 2014¹³.

There are three principal documents:

- ⊕ The five-year strategic plan (referred to as the 'R&D Plan' in the PIRD Act and Funding Agreement);
- ⊕ The annual operational plan; and
- ⊕ The annual report.

The ED, in conjunction with the Board, is also developing an overarching 'organisational strategic plan' that will link the RD&E strategic plan, workforce, communications and other strategies.

The understandable requirement for a high degree of public transparency in CRDC's plans and reports does, to some extent, conflict with the desirability for these documents to be accessible, readable and understandable to the majority of stakeholders, i.e. producers, ginners, consultants, researchers and others. Throughout the interview phase of this review several stakeholders indicated that the volume and complexity of the reports resulted in very minimal engagement with them. There was a consistent theme that ancillary summary documents are needed that are targeted and structured towards the needs of these groups.

5.2 STRATEGIC PLAN

Two strategic plans are relevant to the review period:

- ⊕ Strategic Research & Development Plan 2013-2018; and
- ⊕ Strategic Research, Development & Extension Plan 2018-2023.

The current strategic plan was developed over 15 months through a formal strategic foresight process, facilitated by the Melbourne Business School, which is well described in the plan itself. The process involved building upon 'Vision 2029', developed by CRDC and industry in conjunction with a foresight consultancy in 2009¹⁴. A joint meeting of the CRDC and CA boards contributed to the initial environmental scanning and goal identification stages. Industry stakeholders were widely consulted throughout the strategic planning process and CA reviewed the draft document before its final approval.

¹³ The latter is a disallowable legislative instrument made by the Finance Minister under sections 101 to 105 of the PGPA Act 'prescribing matters required or permitted by the PGPA Act or necessary or convenient to be prescribed for carrying out or giving effect to the PGPA Act' (see <https://www.finance.gov.au/resource-management/pgpa-glossary/rules/>)

¹⁴ Emergent Futures 2009, Cotton industry vision 2029 – Final report

The inclusion of a foresight process in the development of the strategic planning is highly commendable. We are not aware of any of the other RDCs that have done so. When applied properly, foresight prompts strategic planners to work both towards a defined 'preferred' future and away from 'non-preferred' futures. In this way, risk management becomes embedded in the plan rather than being developed as an afterthought.

The 2018-2023 plan organises corporate activities into three 'goals' and two 'enabling strategies'. (Interestingly, adoption falls under one of the enabling strategies ('Strengthening partnerships and adoption'), separate to the goal of 'Building adaptive capacity of the cotton industry'.) The plan is well written and laid out, with excellent use of infographics, colour, images and space to assist readability and identification of key components. There is a logical flow from identified trends impacting the industry to goals / enabling strategies, key focus areas, outcomes and activities.

The plan establishes a framework and strong visual identity that forms the basis for the corresponding annual operational plans and annual reports (see below). The plan complies with all of the requirements of the PIRD Act and Funding Agreement with respect to content, namely descriptions of:

- ⊕ CRDC's operating environment including its strengths, weaknesses, threats and opportunities, and trends;
- ⊕ Collaboration with other RDCs;
- ⊕ Priorities and outcomes from stakeholder consultation;
- ⊕ Consultation with industry;
- ⊕ Key planned strategies, objectives, investment priorities and outcomes;
- ⊕ Intended R&D activities;
- ⊕ Key deliverables;
- ⊕ Performance indicators;
- ⊕ Alignment of R&D activities with the Guidelines¹⁵;
- ⊕ Extension, technology transfer, and commercialisation of R&D;
- ⊕ Estimates of income and expenditure; and
- ⊕ CRDC's approach to ensuring a balanced portfolio.

On the matter of portfolio balancing, the plan lists the dimensions on which the portfolio will be balanced (RD&E strategies; basic, applied, blue-sky, development and delivery; risk, linkage to national priorities and so on), and the expected allocation of funds across the three goals and two enabling strategies. It does not explain the rationale behind the allocations. In an ideal world, there would be a rigorous economic impact model and analysis underpinning the allocations between strategies, similar to that of the Meat Industry Strategic Plan

¹⁵ The 'Guidelines', as referred to in the Funding Agreement, include the Rural R&D Priorities, the Strategic Research Priorities, any other guidelines and priorities notified to CRDC by the Commonwealth and the 'Levy Principles and Guidelines'

2020¹⁶, but facilities such as these are very expensive and may offer little incremental benefit over a bottom-up process for the cotton industry.

The previous strategic plan (2013-18) organises CRDC's activities slightly differently: there are three 'RD&E programs' and two 'integrating programs', each with three 'strategies' containing 'themes' which then have individual activities listed. The earlier plan is also very logical and readable and meets the requirements of the PIRD Act and Funding Agreement. The 2018-23 plan, though, provides a more persuasive and impressive situation analysis and is better presented than its predecessor.

In August 2014, CRDC produced a publication, 'World leaders: achievements in cotton research, development and extension 2008-2013', which reported on CRDC's investments over the life of the Strategic Plan R&D 2008-13. This is a commendable initiative. The report describes the estimated economic benefit from the five-year investment, the quantifiable benefits attributable to a number of specific projects and a large number of achievements across the various RD&E programs.

Corresponding future publications (a review of the 2013-18 R&D plan would be due next year) would benefit from a more transparent listing of the performance targets that were set for the plan and the actual achieved results. In the 2014 report, there is no ready way to tell whether the achievements described exceeded, met or fell short of the original targets.

5.3 ANNUAL OPERATIONAL PLANS

The current annual operational plan (AOP), for 2018/19, follows the architecture and aesthetic of the Strategic RD&E Plan 2018-2023. Like the strategic plan, it is well set out, logical and easy to navigate. A particularly impressive feature is the table on page 6 that summarises, for each of the goals and enabling strategies, the performance criteria, end-of-plan (2023) targets and the 2018/19 targets. An example is shown in Table 4.

Table 4: Example of linkage between RD&E plan and AOP 2018-19 (source: adapted from AOP)

GOAL	PERFORMANCE CRITERIA	END-OF-PLAN (2023) TARGETS	2018-19 TARGETS
GOAL 1: Increase productivity and profitability on cotton farms	Improved yield and quality	Increase in average bales/ha to 11.6 bales/ha for irrigated cotton, and 4.7 bales/ha for dryland cotton	Annual increase of 0.35 bales per hectare for irrigated cotton, and 0.14 bales per hectare for dryland cotton

¹⁶ Red Meat Advisory Council 2015, Meat Industry Strategic Plan 2020

This is a very transparent mechanism to show how CRDC is implementing its strategic plan. CRDC has the opportunity to present the same table in each of its annual reports (from 2019), with additional columns reporting actual achievement against the targets for both the previous year and the life of the plan to date.

The AOP 2018/19 meets all of the requirements of the PIRD Act and Funding Agreement¹⁷ with respect to content, that is:

- # How and to what extent R&D activities give effect to the R&D plan and the Guidelines;
- # The key R&D activities to be funded during the year under each program;
- # Key deliverables arising from the R&D activities;
- # Estimates of expenditure by R&D programs / groupings;
- # Performance indicators, timetables and milestones relating to the R&D activities and expenditure; and
- # CRDC's approach to ensuring a balanced portfolio.

The 2018/19 AOP is quite long (50 pages) but the information it contains is directly relevant. There is an excellent snapshot of the plan at the front and the final third of the document is a detailed listing of projects, so the main body of the plan can be read quite quickly. The readability could be improved by moving the performance criteria (Table 2.2) out of the financial budget statements and into a standalone section, although we note that the table and its location within the financials mirrors a requirement under the portfolio budgeting process from which the information is extracted. This minor observation aside, the plan is a very good document.

Previous AOPs of the review period (2017/18, 2016/17, 2015/16) also meet the PIRD Act / Funding Agreement requirements. The 2018/19 plan, though, like the 2017-18 strategic plan, benefits from an improved layout in comparison with the older plans.

As with the strategic plan, industry personnel interviewed for this review generally indicated that despite their awareness of the AOP, very few had actually read it. It should be noted that CRDC does produce a short document in May listing its investments for the upcoming financial year. This is undoubtedly of interest to some stakeholders, but it provides only the titles of the various projects, their start and finish dates and the name and institution of the lead researcher. It would be significantly enhanced by the inclusion of the 'snapshot' material from the AOP summarising the goals and performance criteria for the portfolio (see recommendation in section 8.4).

5.4 ANNUAL REPORTS

The annual reports for the period (2017/18¹⁸, 2016/17, 2015/16, 2014/15) are all very long, at around 200 pages each, and detailed. This is largely due to the requirement for the annual report to cover a very extensive list of content requirements as set out in the PIRD Act, the PGPA Act, the PGPA Rule 2014 and the Funding

¹⁷ The provisions of the PGPA Act relevant to annual operational plans are not applicable to RDCs

¹⁸ An embargoed draft version of the Annual Report 2017-18 was made available to the review

Agreement. These requirements are listed in detail in an appendix to each annual report, while a separate appendix indexes the location of the information in the report addressing each of the specific requirements of the various governing documents. These are very welcome inclusions as they significantly assist with demonstration of compliance with the various authorising documents and allow any element to be identified and investigated if required.

The length of the annual report makes it a daunting document for all but the most dedicated reader. Consultations for this review confirmed that few stakeholders, except possibly some peak body and government personnel, actually read the report. However, it is set out as well as can be expected. There is an executive summary of around 14 pages describing progress against the strategic plan, RD&E achievements and organisational highlights. The two most recent reports (2016/17 and 2015/16) also include a two-page summary of 'investment and impact'. This section is very good, providing an easily digestible snapshot of the company's performance over the year using infographics and colours.

Unfortunately, the investment and impact summary is probably not read by many stakeholders because it is hidden among the other 200 or so pages of the annual report. It has been published in Spotlight magazine. CRDC should also consider publishing it as a standalone document, perhaps with some augmentation to more fully explain key points (see recommendation in section 8.4). This should help to improve stakeholder awareness of outcomes and impacts from CRDC RD&E. Sugar Research Australia produces an annual performance report that provides a good example for CRDC to consider.

6. RD&E MANAGEMENT AND DELIVERY

6.1 RD&E PROCUREMENT PROCESS

CRDC has an annual call for project proposals. The annual cycle is summarised below.

May-June (13-14 months before the funding year)	Research priority forums are held to review the goals of the strategic plan and determine the priorities for funding in the upcoming period
June-July	Expression of interest (EOI) guidelines and researchers' handbook are prepared
August	The guidelines are released with a call for full research proposals (FRPs)
October	The period for submission of FRPs closes
October-December	CRDC management and the CA panels review the FRPs
January	Recommendations are made to the CRDC Board
February	The CRDC Board decides on successful projects
March	Preliminary advice is provided to applicants on the outcome of their application
May	The Parliamentary Budget Statement is approved by the Minister
May-June	Final advice is provided to applicants and contracts are sent
1 July	Contracts commence

The procurement process is very structured and transparent. The EOI guidelines identify each of the issues to be addressed, provide some indication of the project (without being too prescriptive), define the outputs and outcomes to be achieved and list the selection criteria to be met. They may also provide an indication of available budget. The researchers' handbook provides a succinct but comprehensive overview of CRDC; its strategic objectives; key documents; funding available; the funding application process; and conditions associated with the funding agreements. The handbook is updated annually.

For 2017/18, 56 research priorities were identified. These were developed into 47 EOIs, 26 of which were put to competitive tender, the other 21 being addressed by direct investment. Examples of EOIs were 'Novel tactics for resistance management or pest management' and 'Identifying high value uses for recycled cotton'.

Funding applicants complete an FRP Word® document and Excel® budget spreadsheet, as well as a Clarity® (project management system) access form. When the applicant is ready, they email the Clarity® access form to CRDC and enter the FRP into Clarity® once access has been provided. The CRDC procurement process formerly included a preliminary research proposal (PRP) stage. A large number of PRPs would be submitted, and an analysis indicated that only around 18-19% of PRPs led to funded projects, which caused a high degree

of frustration among researchers as well as a high workload for management. PRPs were removed from the process in favour of greater guidance being provided on FRP development.

CRDC managers review the FRPs received, in conjunction with the CA advisory panels, against a series of eight selection criteria and a number of portfolio parameters (see section 6.4). There is generally a high level of agreement – 92 per cent for the 2018/19 project cohort¹⁹ – between management and the panels on which projects should be supported or not. Management renegotiates proposals with applicants where needed.

CRDC does not use *ex-ante* benefit/cost analysis (BCA) as part of its project evaluation process. It takes the view that *ex-ante* BCAs are too subjective – because of the numerous assumptions that must be made about future benefits – to justify the expense of preparing them. In the absence of solid data to justify modelling assumptions, this is a reasonable position (see section 8).

An ‘investment recommendation report’ is then provided to the Board at its February meeting. The report details:

- ⊕ The project evaluation process followed;
- ⊕ The research priorities identified and EOIs developed, with proposed budgets;
- ⊕ Number and value of FRPs received against the EOIs;
- ⊕ The recommended portfolio and its balance across various parameters including strategic plan goals; and
- ⊕ An evaluation of the diversity and strength of the research provider community.

For 2018/19, 72 FRPs were reviewed with 32 being recommended to the Board for funding. In addition to the recommendation report, the Board receives each FRP and an investment rationale for each project, whether or not it is recommended for funding. Members of the R&D team are made available to respond to directors’ questions as needed. The process of Board project review is reportedly a constructive one.

Research providers interviewed for this review were generally very complimentary about their relationship with CRDC. Several commented that CRDC was the best of the RDCs to work with. A stakeholder relationship study conducted by Intuitive Solutions in 2016²⁰ also showed researchers assigning ratings for CRDC of 8.5/10 for engagement, 8.9/10 for trust and 8.0/10 ‘overall’ (n=24).

Whilst overall feedback on CRDC RD&E procurement was very positive, five areas were highlighted by a small number of interviewees for the review as warranting attention:

- ⊕ Some growers felt that CRDC was insufficiently agile in responding to short-term, in-season R&D directed towards issues that emerge within regions and where a response may be required within weeks or months. CRDC has established the ‘Grassroots’ program which funds Cotton Grower Associations (CGAs) to deliver projects of up to \$10,000 that address region-specific issues and/or improve local skills. Grassroots does not necessarily provide a rapid-response capability, though. CRDC also funds season-

¹⁹ Investment recommendation report to Board, February 2018

²⁰ Intuitive Solutions 2016, CRDC – a barometer of partnership health (management summary)

and issue-specific response projects via CottonInfo. A discretionary fund that allows CRDC managers to invest in short-term projects within regions was advocated by some.

- # The Intuitive Solutions report reported some concern among researchers about CRDC moving towards a 'more directive and less collaborative posture' and reducing its emphasis on longer-term partnerships. This current review heard similar comments.
- # There was some comment about inefficiencies in the research management process. In interviews for the review, we heard comments from a small number of providers about some inflexibility of project management. These may simply reflect the personality differences that can occur within small communities.
- # Some research organisations expressed concern about protection of intellectual property (IP) of proposals put forward to CRDC under the targeted call process. Protecting IP rights in submission of research concepts is contentious as similar ideas will often be put forward by different researchers in response to a call, and there may be perceptions that IP is transferred during the procurement process. CRDC may need to consider a separate call for innovative and/or transformational project concepts where IP is maintained exclusively by the provider throughout the review process, in order to increase the likelihood of innovative and/or transformational project concepts to be submitted.
- # Finally, some researchers (and growers) also observed that highly novel, more innovative projects may not be coming forward due to perceptions that they are unlikely to be endorsed by the grower representatives. Some providers thought that as growers often fail to see the value in more strategic blue-sky, high-risk and especially value-chain-orientated R&D that projects of this nature are biased against in the procurement process (see section 6.4).

The Intuitive Solutions report recommended a more structured process for engagement with researchers, consideration of a review of R&D commissioning processes and provision by CRDC of further clarity on its approaches to identifying, selecting and supporting research partners. Since the study was done, CRDC has introduced 'Science Partnership Forums' in order to 're-enfranchise' researchers by providing them with the opportunity to contribute to CRDC's R&D prioritisation. The Science Partnerships Forums are centred around programs of work and collectively bring researchers, consultants, growers, and extension officers together to discuss progress against research objectives, how research outcomes will be adopted (market readiness and commercial readiness), research gaps and opportunities for future investment. The process enables a greater focus on customer-centricity, more open innovation and ensuring knowledge or product readiness to meet market needs.

6.2 INDUSTRY CONSULTATIVE PROCESSES

CRDC utilises a series of advisory panels convened by CA and comprising growers from across the various regions. There are panels for each of:

- # Customers:
- # Industry:
- # Farmers: and
- # People.

These are four of the five core programs of the Strategic Plan 2013-18 (the fifth, 'Performance', is an internal CRDC focus). Collectively, there are 34 people on the panels. The panels meet separately to discuss priorities and the FRPs received to address those priorities.

In addition to the panels, CA coordinates the Transgenic and Insect Management Strategies (TIMS) Committee. This committee comprises growers, consultants, researchers and members of the grains and pulse industries and provides stewardship oversight of technologies used by the cotton industry. The TIMS Committee receives technical advice from four technical panels supported by CRDC: Transgenic Crops (Bt); Herbicide Tolerant Crops; Insecticides; and the Troubleshooting Committee. In addition to these panels CRDC supports a Disease technical panel that meets annually. These panels monitor the relevant science and provide recommendations to CRDC for RD&E.

The CA panels come together in May for an 'R&D priority forum' co-hosted by CRDC and CA (see section 6.1). Prior to this, CA also convenes a series of workshops with each of the CGAs to identify research priorities. The panels present their recommendations to the forum, which may seek to clarify or challenge them. CRDC staff participate in the forum and provide guidance to the producer participants. The recommendations of the forum are provided to CRDC by CA in a formal document.

The review team attended the 2018 forum in Sydney. The forum was externally facilitated and input from panel members was constructive and well-considered. However, the forum lasted only 5.5 hours, which in our experience is a very short period of time in which to gain sufficiently robust input to an annual program of R&D. The agenda made good use of information gathered prior to the forum, such as the CGA priorities, but it did not allow for more than a fairly superficial consideration of the three external goals of the new strategic plan.

The fact that RD&E prioritisation is owned and driven by the industry representative body is a great asset for CRDC and possibly unique among the rural industries. Most other RDCs drive the process of RD&E prioritisation for their industries much more than CRDC does, in varying degrees of collaboration with their respective industry body(ies). The strength of the relationship between CRDC and CA is excellent, and CA's ownership of the RD&E prioritisation process ensures growers have a strong sense of engagement with CRDC's strategic and annual operational planning.

We note also the results from the 2016 CRDC survey²¹ in which 74 per cent of growers indicated that they have input to CRDC's research and 95 per cent 'know that they can have this input'. Furthermore, 66 per cent 'totally agreed' or 'agreed' that 'the cotton industry has effective collaborative structures for prioritising RD&E', while only seven per cent were in disagreement. These would be very positive results in any industry.

CRDC should certainly respect and preserve its consultative arrangements. Very strong support for the process was expressed by almost all interviewees for this review.

Notwithstanding, the industry would benefit from a revitalisation of the CA/CRDC consultative process, including the R&D prioritisation and FRP review. Commentary by a number of interviewees for this review, including CA members, suggested that industry participants do not always have the skills required and that insufficient time is afforded at the R&D priority forum to genuinely review the current portfolio, consider

²¹ Roth Rural and CRDC 2016, Cotton growing practices 201516: Findings of CRDC's survey of cotton growers

developments in the industry environment and debate future courses of action. The view was also expressed that the panel process tends to favour the prioritisation of shorter-term, farm-based projects. It may also tend to deliver the large number of EOIs and projects that characterise the portfolio if the R&D priority forum does not sufficiently synthesise and aggregate the various regional priorities. The implications of this effect are further discussed in section 6.4.

Similarly, there is some sentiment that insufficient time is allowed for the FRP review process. A number of participants also felt that they did not have sufficient expertise to review the FRPs and would prefer to be provided with a one-two page summary of the proposals. Independent technical advice on proposals, perhaps from an independent expert panel, and skills development of panel members were also suggested by interviewees.

We appreciate that RD&E is not CA's only priority but it requires greater prominence if CRDC is to gain the quality input it needs to continue to deliver an RD&E program that meets the needs of the industry.

CRDC and CA should review the RD&E consultative process, acknowledging that:

- # CA must continue to 'own' and manage the process;
- # CRDC has specific skills and knowledge in RD&E management and therefore has an important role to play in designing and facilitating the process; and
- # CRDC may have to increase its contribution to CA if a more comprehensive process is to be instituted. In 2016/17, CA received \$40,400 from CRDC for its industry consultation role, including a review of the strategic plan, RD&E priority-setting and review of applications, support for capacity building of research advisory panels, meeting to receive and discuss the annual report and joint publications with CottonInfo²². This is a very small investment in industry consultation in comparison with those made by other RDCs.

Recommendation: CRDC should engage with CA to re-design the RD&E consultative process so that it delivers better advice to CRDC and provides greater satisfaction to industry participants. This may include additional or extended RD&E forums, an independent technical panel, provision of panels with succinct project assessments to assist decision-making and/or more training of panel members.

6.3 PROGRAM MANAGEMENT AND REPORTING

The R&D Investment team comprises a GM and three R&D Managers, supported by project administrators. Given the small size of the organisation, the allocation of portfolios among R&D managers pragmatically reflects the individuals' skills and backgrounds rather than aligning strictly with the goals of the strategic plan.

²² From the Annual Report 2016-17, p. 109. These amounts do not include a fee for service but are a contribution to the expenses incurred by CA in carrying out the listed activities, as authorised by section 15 of the PIRD Act

The GM himself directly manages part of the portfolio ('Building adaptive capacity' and two enabling goals) in addition to his team leadership role.

The team is well versed in R&D portfolio management and aims to achieve best practice, with the aims of:

1. Maximising the value and impact of the portfolio;
2. Appropriately balancing the portfolio;
3. Having a portfolio that truly reflects the strategic direction of the business; and
4. Having the right number of projects.

CRDC uses the online system Clarity® for project management. Milestones, including 'stop/go' and 'pivot' milestones, are used to minimise project risks.

In addition to the portfolio analysis provided to the Board as part of the investment recommendation report in February, a 'traffic light' progress report is provided to the Board in November.

6.4 PORTFOLIO DIMENSIONS AND BALANCE

As noted in section 4.7, a number of the interviewees for this review were of the opinion that CRDC's portfolio is 'not brave enough'. To some, this means that there is insufficient investment in high-risk / high-return R&D. It is not our remit to comment on the portfolio balance, which is ultimately a matter for the Board, but we note that the proportion of R&D expenditure on blue-sky research has been at or over ten per cent over the last few years (see below), and this is a typical allocation at the blue-sky end.

There is an arguably more valid view, among some internal and external stakeholders, that CRDC has not genuinely identified the two or three 'game-changing' opportunities and threats confronting the industry over the medium to longer term and put in place concerted, well-resourced, long-horizon (if required) programs of activity to address these. Such an approach would inevitably mean that certain areas would not receive funding, which in itself is a form a risk-taking.

The numbers of projects funded by CRDC throughout the review period are shown in Table 5.

Table 5: Numbers of projects (source: Annual Report 2016-17)

PROJECTS	2014/15	2015/16	2016/17
Active projects (opening no.)	118	150	155
New projects funded	162	141	205
Projects completed	130	136	193
Active projects (closing no.)	150	155	167

The numbers in Table 5 point to a portfolio characterised by a large number of relatively small projects. A rough calculation puts the average value per project at around \$58,000 per annum. As noted in section 6.1 above, the consultative process also tends to produce a large number of R&D priorities – 56 in 2018, translating to 47 EOIs. The largest proposed investment for any EOI is \$325,000 per year, but many are much smaller.

The review methodology has not allowed us to quantify the extent of the desire among stakeholders for CRDC to be more focused with its portfolio. Feedback on the development of the strategic plan and the delivery of RD&E generally was very positive which generally indicates an endorsement of the portfolio balance. We note too that the RD&E procurement process is heavily grower-influenced, so the portfolio arguably reflects the expectations of industry. A counter-argument to this last point is that the grower panels will have a limited perspective on what RD&E could deliver. CRDC has a responsibility to lead discussions with them about different risk postures.

A wide, shallow portfolio ensures that the greatest number of stakeholders is kept happy because the concerns of even a small section of the industry can be addressed. It also reduces the risks associated with neglecting a minor opportunity or threat that later emerges as an important issue. The cost of such a portfolio, of course, is that progress on any one front is slow because of the limited resources devoted to it.

Another issue is the relatively high transaction costs associated with running a large number of projects. This includes labour with specific skills. Staff appear to be quite stretched with their workloads (see section 4.6) and the number of projects may be a contributing factor: around 300 projects are being managed by five staff²³, including the GM who, in many organisations, would not directly manage projects. This is a high number. There may also be a hidden cost due to management being unable to oversee and review projects as diligently as they might otherwise.

There is no optimum project number or size and we do not necessarily conclude that CRDC should fund fewer, larger projects. However, we suggest that CRDC Board and management should at least develop and debate alternative approaches to constructing the RD&E portfolio such that (say) one or two ‘game-changing’ priorities are pursued with aggressive, well-resourced programs. These programs might include projects that exceed the standard three-year timeframe (but with the normal safeguards built into the milestones); that take different and possibly even competitive approaches to reaching the program target; that have different risk/reward profiles; and involve the collaboration of multiple parties. The program might be assembled and overseen by a group of growers, researchers and even experts from relevant fields outside the cotton industry.

There are certainly risks in rationalising the portfolio, as noted above. It would be critical that CRDC seek guidance from the industry by presenting alternatives and trade-offs. This is unlikely to be possible under the current consultative arrangements because they are designed to support a business-as-usual approach (see section 6.2).

We understand that CRDC has recognised the large number of projects in its portfolio and has started to review its approach.

²³ This includes the CottonInfo Program Manager

Recommendation: CRDC should consider whether some rationalisation (fewer, larger projects) and a focus on programs within the RD&E portfolio, to allow certain industry priorities to be more aggressively addressed, would deliver greater net benefit to the industry than is currently being achieved.

In respect to portfolio balance, CRDC actively considers the distribution of projects across a number of parameters, namely:

- ⊕ R&D strategies / programs (e.g. productivity, sustainability etc);
- ⊕ Type of research (basic, applied, blue-sky, development, delivery);
- ⊕ In-project risks;
- ⊕ Researcher experience and capacity;
- ⊕ Research providers;
- ⊕ Timeframe;
- ⊕ Likely return on investment; and
- ⊕ R&D management.

The two main parameters of RDC portfolios are the focus of the research and the type of research. Both strategic plans make clear CRDC's heavy weighting of investment towards productivity R&D (60-70 per cent), which is not unreasonable. The earlier strategic plan proposes an indicative distribution of RD&E investments by research type. Interestingly, the new strategic plan does not include a similar breakdown. Each of the AOPs has a comprehensive section on intended portfolio balance by:

- ⊕ Priority areas;
- ⊕ Research type;
- ⊕ Sector (cotton-specific vs cross-sectoral);
- ⊕ CRDC vs Rural R&D for Profit investments; and
- ⊕ Key research partners.

Over the period of the review, the balance of research by type has been weighted towards more applied R&D (Table 6).

Table 6: Intended portfolio balance by research type (source: respective annual operational plans)

	2014/15	2015/16	2016/17	2017/18	2018/19
Blue-sky	3%	8%	15%	12%	12%
Basic	18%	23%	20%	22%	11%
Applied	51%	54%	35%	52%	65%
Extension*	11%	9%	10%	6%	3%
Capacity & education	8%	6%	6%	8%	9%
Corp RD&E			4%		
Reporting			1%		
Contingency			9%		
Commissioned	9%				

* Referred to as 'Development & delivery' in 2014/15 and 2015/16

It is difficult to find a definition of the different types of research among the strategic plan and AOPs and the annual reports. This would be a useful addition to future AOPs as a few stakeholders questioned how CRDC defines 'blue-sky' research. Nor does CRDC report the actual portfolio balance achieved over the previous year in the annual report.

6.5 RD&E COLLABORATION

CRDC places a very strong emphasis on collaborative R&D. Within cotton, CRDC is one of the parties to the Cotton Sector RD&E Strategy, which forms part of the National Primary Industries Research Development & Extension Framework. This strategy was initially released in 2011 and then reviewed in 2014. In 2012, the Cotton Innovation Network was developed to implement and coordinate the strategy (see section 7.2).

CRDC's Strategic Plan 2018-2023 has a stated target of achieving 40 per cent of investments that include cross-sectoral partnerships and notes that 40 per cent of CRDC investments were in cross-sectoral RD&E at the commencement of the plan.

During the review period CRDC managed five ongoing projects under the Federal Government's grant programs, contributing a combined \$13.4 million into RD&E funding across the life of the projects, for the benefit of the Australian cotton industry, the community and other industries. These projects, all administered by DAWR, are as follows:

- # 'Carbon farming in the Australian cotton industry' (funded 2013-17, with \$1.3 million from the Carbon Farming Futures Extension and Outreach program);
- # 'Determining optimum nitrogen strategies for abatement of emissions for different irrigated cotton systems' (funded 2013-17, with \$770,000 from the Carbon Farming Futures Action on the Ground program);
- # 'Smarter irrigation for profit' (funded 2015-18, with up to \$4 million from the Rural R&D for Profit (RRDP) program – round one), involving Dairy Australia, AgriFutures and Sugar Research Australia;
- # 'More profit from nitrogen: enhancing the nutrient-use efficiency of intensive cropping and pasture systems' (funded 2016-20, with \$5.9 million from the RRDP program – round two), involving Dairy Australia, Sugar Research Australia, and Horticulture Innovation Australia; and
- # 'Accelerating precision agriculture to decision agriculture' (funded 2016-18, with \$1.4 million from the RRDP program – round two), involving 13 of 15 RDCs.

CRDC was also involved in four other projects under rounds one and two of the RRDP program led by other RDCs and administered by DAWR.

Given the success of this collaboration with other RDCs and DAWR and the quantum of R&D investment that has been secured or leveraged for the Australian cotton industry, it was surprising that these activities and their success were not widely recognised by the growers interviewed for this review. Growers do appear to value CRDC's proactive approach to collaboration, however, so CRDC may need to look at increasing the visibility of its collaborative R&D and emphasising the benefits it brings to the industry.

6.6 INTELLECTUAL PROPERTY MANAGEMENT

CRDC has an Intellectual Property (IP) Policy Handbook (see section 0). The Handbook describes the IP Management Framework, which comprises the:

- # IP Policy;
- # IP Strategy;
- # IP Management Plan;
- # IP Register of significant or commercially valuable IP;
- # Delegations listed in the Delegation of Authority Table;
- # The CRDC Research Deed and specifically the intellectual property management terms and conditions; and
- # Any other agreements for special projects not covered by the CRDC Research Deed.

The 'IP Strategy' referred to in the handbook is a basic document and does not appear in the IP Management Framework as described in the policy. Enabling strategy 1 (Strengthening partnerships and adoption) of the current strategic plan includes amongst its key focus areas and outcomes that 'CRDC will increase commercialisation of R&D through improved processes and by ensuring intellectual property assets are managed holistically and proactively. We will also work with research partners to improve adoption pathways and assist researchers to innovate and become more commercially focused' (p.36). Whilst there are no

performance targets for IP *per se*, there are targets relating to commercialisation (e.g. 'Number of projects with commercialisation potential').

The IP Management Plan sets out CRDC's approaches to various forms of IP. These are straightforward and appropriate, based upon the premise that 'CRDC's primary aim in investing in research is to provide a benefit to the Australian cotton industry. The maximisation of commercial returns is a secondary aim, which the parties to research projects agree will not be pursued to the detriment of the primary aim' (p.3). IP generated through CRDC projects may be:

- ⊕ Freely disseminated in the public domain;
- ⊕ Disseminated to the Australian cotton industry through the myBMP industry portal;
- ⊕ Subject to restricted access to allow further R&D;
- ⊕ Commercialised; or
- ⊕ Treated through other pathways agreed by CRDC.

A decision on which of these pathways is to be pursued in a particular case is made by management or the IP Committee and Board, depending upon delegations of authority. The fact that the CRDC Board has an IP Committee is notable, as this is unusual among RDCs (some have R&D committees or the like, which may include IP as part of their remit).

6.7 EXTENSION AND ADOPTION

Adoption of innovation by the cotton industry is generally regarded as high in comparison to many other agricultural industries. This is considered to be the result of several factors, including the industry itself being quite young; the grower population being relatively young (and more educated); a willingness to take risks; and growers having an 'internal locus of control' (that is, a belief that they control their own success or otherwise).

CRDC's extension is managed through CottonInfo, formed in 2012 following the closure of the Cotton CRC, by three joint venture parties: CRDC, CSD and CA, who contribute approximately \$2.5 million, \$1m and \$0.5m per year, respectively. CottonInfo was established in response to the decline in public extension activities by state departments of agriculture. CottonInfo has been structured to enable research outcomes to be delivered directly to growers through a common extension platform. This platform comprises:

- ⊕ Information resources;
- ⊕ Regional extension officers, funded by CSD, who are responsible for a range of activities within regions; and
- ⊕ Technical specialists, funded through a CRDC project, who provide high level advice and direction in the key areas of cotton production.

CottonInfo has a dedicated manager within CRDC. The manager reports to the ED on a day-to-day basis and to a management committee, comprising representatives of the joint venture partners, on the implementation of the program. The CottonInfo team comprises 18 people, but they report to their own employing organisations rather than to the CRDC CottonInfo Manager. There is a strategic plan for CottonInfo that links closely to the strategic plans of the partners.

Extension has been built into CRDC projects, which now include a specific milestone requiring the development of an 'adoption pathway' where applicable to the project. Researchers are not expected to be extension specialists but are encouraged to work with CottonInfo to ensure the results of their research are effectively extended.

CottonInfo integrates closely with myBMP (best management practices), a 'voluntary farm and environmental management system which provides self-assessment mechanisms, practical tools and auditing processes to ensure that Australian cotton is produced according to best practice'²⁴. myBMP was established in 1997 and is driven by CRDC and CA. Essentially, myBMP provides the best practice framework which resources from CottonInfo feed into. The myBMP team sits within CottonInfo and CottonInfo encourages participation in myBMP.

Also, CRDC and CottonInfo jointly produce two publications each year, the Australian Cotton Production Manual and the Cotton Pest Management Guide. These two resources are another means by which CRDC captures, integrates and extends its latest R&D outcomes.

CottonInfo is held in highly regard by industry. Growers interviewed for the review believe that it addresses a fundamental market failure in extension and that the CRDC investment in the joint venture is both warranted and returning value to industry. This observation is supported by survey outcomes described in the Annual Report 2016-17 showing that 90 per cent of growers and 98 per cent of consultants were aware of CottonInfo, while 86 per cent and 87 per cent respectively used information sourced from the program.

The success of CottonInfo is heavily dependent on the engagement and relationships that the regional extension officers can generate and maintain within the cotton regions. Most regions have a very positive opinion of this engagement and believe that the regional extension officers are an important component of the extension activities. There was some comment that more engagement between the CGAs and the regional extension officers would strengthen outcomes, particularly in regard to workplans, in-season R&D trials and proof-of-concept demonstrations on private farms. We understand that CRDC has received this feedback and is currently acting upon it.

Also, it appears that engagement between CottonInfo and some private consultants could be improved. Crop Consultants Australia (CCA; see section 7.1.6) and some individual consultants interviewed for the review noted that, whilst CottonInfo provides very good generic extension and support for cotton growers, most of the key management decisions that are made in cotton production are usually completed in conjunction with either a private consultant or a company agronomist / consultant. They believe that there is a gap in CRDC extension to private consultants who are looking for information from R&D that can be translated into management options for their clients. This information would need to be provided at a higher technical level than that which is delivered by CottonInfo.

Given that over 95 per cent of cotton growers directly engage with consultants, and that between about 70 and 95 per cent of recommendations made by consultants are implemented by growers²⁵, this is potentially a key

²⁴ www.mybmp.com.au

²⁵ CRDC and CCA 2017, Qualitative report on the 2016-17 cotton season: a survey of consultants

delivery mechanism for CRDC. CRDC has identified this opportunity and CCA has been participating as an observer on the CottonInfo Management Committee since early 2018, an opportunity that has been favourably acknowledged by CCA.

We note that CRDC does support the provision of a Cotton Production Course by the University of New England, and that this course is highly regarded as a professional development pathway for consultants. The recommendation above refers to the more immediate dissemination of up-to-date research to consultants who have already attained or are not currently studying through formal channels.

6.8 MONITORING AND EVALUATION

In 2015, CRDC developed a monitoring and evaluation (M&E) framework specifically structured to evaluate the 2013-2018 strategic plan²⁶. This framework is comprehensive, well-structured and detailed. It effectively describes the investment logic for each of the programs and the themes and then the measures and data required to evaluate each of the objectives within the themes. It also outlines the baseline data and where data should be sourced. The logic framework of inputs > outputs > intermediate outcomes > outcomes > impacts is well-defined and the same or similar to the logics adopted by other RDCs. The framework demonstrates a transparency of evaluation processes to industry and to the R&D provider network (although there was little awareness of it amongst the R&D providers interviewed for the review).

A spreadsheet was developed to accompany the framework. The spreadsheet identifies the various sources of evidence and enables the collection of the data required for CRDC to report against the outcomes in the strategic plan. Population of the spreadsheet with the relevant data was completed early in 2018 and an external data audit was carried out. A report of performance against the strategic plan, using the framework, will be published in February 2019.

A Board paper from 2017 on the M&E framework identifies some lessons learned from the development of the 2013-18 framework. Most of these relate to the framework having been retrofitted to the strategic plan, which meant that the M&E was not fully integrated into organisational processes, and that the strategic plan's measures of success were not developed with full consideration of the cascade of indicators underpinning them.

These issues seem to be reflected in the performance reporting of the corresponding annual reports (2015/16, 2016/17 and 2017/18) against the targets set by the framework. Reporting of individual program performance in the 'annual performance statement' section of the annual reports is quite text-heavy and often does not directly address the performance measure. A traffic light system in this section, indicating the extent to which annual targets have been achieved, partially achieved or not would be preferable, at least to supplement the explanatory text. We note that a traffic-light system is used to report on progress the strategic plan in the executive summary, and this works well in showing how the company is tracking.

²⁶ CRDC 2015, A framework for evaluating performance of the Cotton Research & Development Corporation's 5 year Strategic R&D Plan 2013-2018, September

A specialist external consultancy was retained to develop an M&E framework to accompany the new (2018-23) strategic plan. The two documents were developed in parallel, ensuring fuller integration between them. We understand that a draft of the new framework has recently been provided to the Board for review.

7. LIAISON WITH STAKEHOLDERS

7.1 LIAISON WITH LEVY PAYERS AND INDUSTRY

7.1.1 GENERAL LEVY PAYER COMMUNICATIONS

CRDC publishes a quarterly magazine, 'Spotlight on Cotton R&D'. 'Spotlight' presents a range of stories relating to CRDC's funded RD&E and other technical matters. It is posted to subscribers within CRDC's contact list of 3,400 industry and external persons, it is available electronically via the CRDC website and it is distributed via e-newsletter and social media.

CRDC issues a monthly e-newsletter to the cotton research community about important information and key dates for research procurement. In addition, CRDC's R&D outcomes are communicated to levy payers via CottonInfo's e-newsletters on a fortnightly basis (part of a suite of communication tools utilised by CottonInfo to disseminate R&D outcomes).

Consultations for this review indicated that CRDC is well regarded by growers for its communications with industry. CRDC staff were rated very highly for their accessibility and responsiveness to growers' requests. CRDC's emails, website, newsletter and the information portal provide every opportunity for growers to be informed and to find information if needed. This is supported by the positive findings about CRDC's communications from the 2015-16 grower survey²⁷ (**Figure 2, Figure 3, Figure 4**).

²⁷ Roth Rural and CRDC 2016, Cotton growing practices 201516: Findings of CRDC's survey of cotton growers

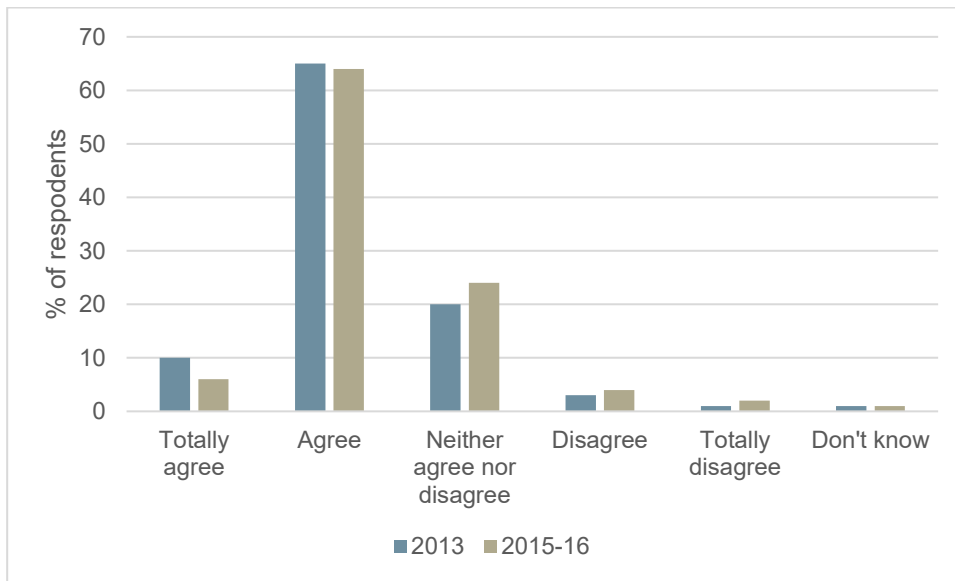


Figure 2: Responses to the question: 'I have ready access to research information in a way that suits my needs', from 2015-16 grower survey (also shows 2013 results)

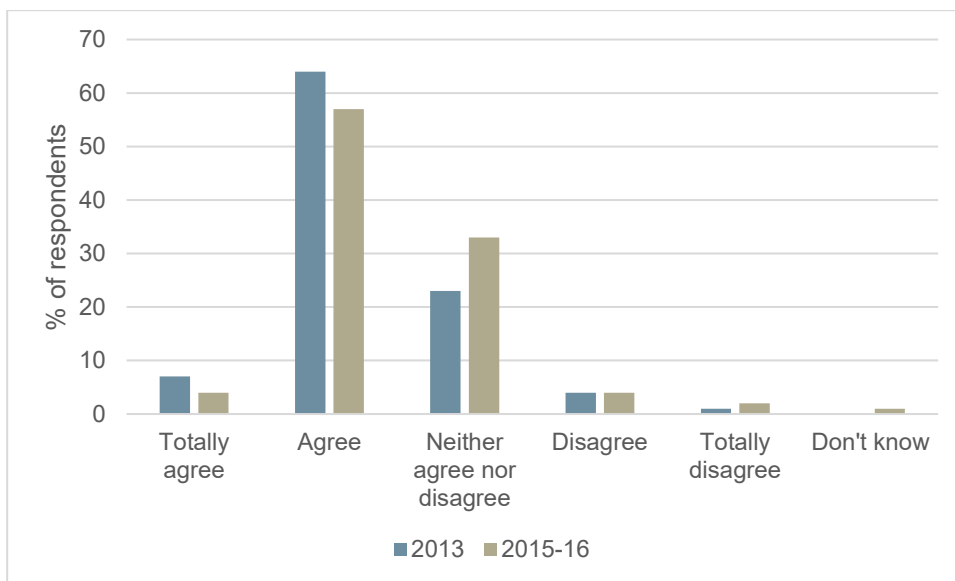


Figure 3: Responses to the question: 'Cotton industry R&D is effectively communicated to me', from 2015-16 grower survey (also shows 2013 results)

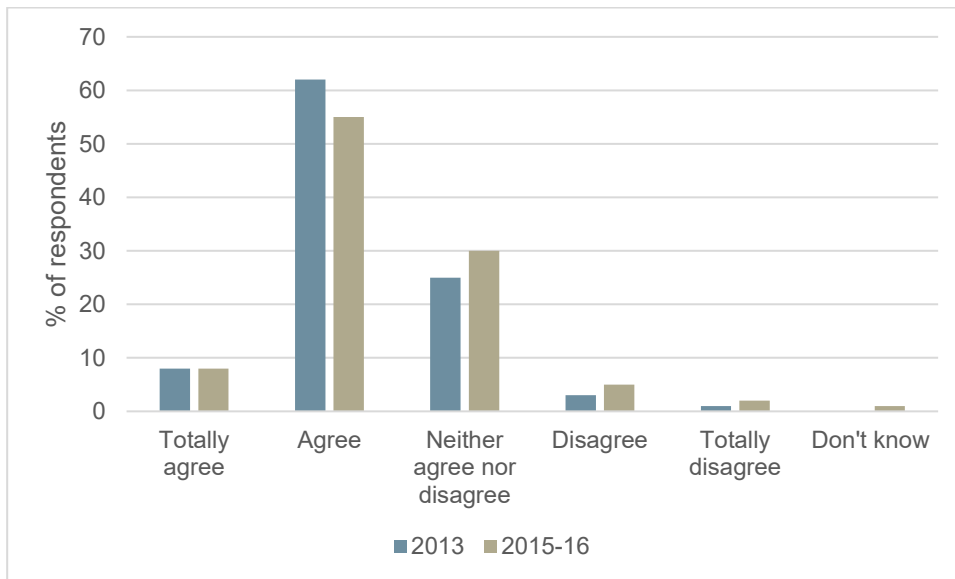


Figure 4: Responses to the question: 'Cotton R&D information is readily available to me at the time I need it to aid my farming decisions', from 2015-16 grower survey (also shows 2013 results)

7.1.2 COTTON AUSTRALIA

Under section 14.2 of the Funding Agreement, CRDC must 'comply with section 29 of the [PIRD] Act and meet with its declared Representative Organisation at not more than 6-monthly intervals to: (a) review Industry priorities for Research and Development investments and Marketing investments, including any regional equity considerations; and (b) report on CRDC's performance against the R&D Plan and the Annual Operational Plan'. Section 29 of the Act requires the Chair of CRDC to provide copies of each annual report to CA as soon as practicable after it has been submitted to the Minister, and to make arrangements to present the report to CA's annual conference or a meeting of its executive. The Chair's address must also address intended activities for the upcoming financial year.

These obligations have been complied with over the review period. There are frequent meetings between the boards of CRDC and CA and the two chief executives meet monthly. It is clear that there are strong lines of functional separation between CA and CRDC. There is no evidence to suggest that CRDC is engaged in any advocacy or policy activities.

CRDC and CA have a very strong collaborative relationship. Several industry interviewees indicated that this relationship is one of the key strengths of the industry. Both organisations are very strongly focussed on grower requirements and co-invest in a range of activities including myBMP, CottonInfo and leadership development. Inevitably, the close collaboration between the two organisations means that there is some confusion about which body is the source of a particular service or publication, although this does not appear to present any real problems.

7.1.3 COTTON GROWER ASSOCIATIONS

CA's grower membership base is distributed across 15 Cotton Grower Associations (CGAs). Not all cotton growers are members of the CGAs, although the number is very high at around 80 per cent²⁸. The CGAs are primarily located around the major water catchment regions in which cotton is grown in eastern Australia from northern Queensland through to southern New South Wales. CGAs are comprised of members of CA from across the cotton supply chain, including growers, ginners and consultants. The CGAs are administered directly by CA and delegates from each CGA are elected to the CA R&D advisory panels (see section 6.2).

There is strong engagement and interaction between the CGAs and CRDC. The ED of CRDC and the GM R&D Investment aim to visit each of the CGAs every year. CRDC management were complimented by CGA interviewees for the time that they invest in relationship-building with key cotton growers and regions. Several CGA chairs indicated that they have frequent personal interaction with CRDC staff and that staff make considerable effort to create face-to-face opportunities for presentations on the strategic plan, priorities and R&D outcomes for the regions.

7.1.4 LARGE CORPORATE GROWERS

A small number of large corporate cotton-growing companies were interviewed as part of this review. Very large (especially corporate) producers in every industry tend to have RD&E needs that differ in some respects from those of smaller producers. For example, they are more likely to have a strict focus on return from investment, to have their own capacity to conduct R&D and to be interested in new technologies and practices where scale is an advantage.

The large cotton corporates interviewed indicated that they tend to operate outside of the CGA network (although staff may be involved). In general, they receive most of their information and therefore decision-making advice either from private consultants or from in-house expertise. They are less likely to be engaged with CottonInfo than smaller growers. They also indicated that they are interested in the outcomes from the larger and more strategic R&D (automation, blockchain, big data and satellite telemetry) which they have the capacity to implement potentially earlier than smaller-scale farms.

Some RDCs profile and segment their levy payer base to allow targeting of consultation and communication. We are aware of at least one RDC with a targeted engagement program involving its largest 25 levy payers. Chief executives of these enterprises meet periodically with senior management of this RDC to discuss its activities. CRDC may benefit from a similar initiative, perhaps involving a 'key account' function within the organisation.

²⁸ Intuitive Solutions and CRDC 2017, Grower survey 2017

Recommendation: CRDC should improve its engagement with and delivery of RD&E outcomes to large and corporate growers, which should include consideration of an extension program directly targeted at professional private consultants.

7.1.5 COTTON SEED DISTRIBUTORS

CSD is an important organisation and counterpart to CRDC in the cotton industry, effectively managing a significant part of the industry's innovation needs in the form of plant variety development (see section 3.4).

The relationship between CSD and CRDC is very strong. The two boards, chief executives and management interact frequently and the joint investment in CottonInfo is highlighted as a very significant initiative for industry. The co-location of CRDC and CSD in Narrabri / Wee Waa undoubtedly facilitates the relationship.

7.1.6 CROP CONSULTANTS AUSTRALIA AND PRIVATE CONSULTANTS

CCA is a not-for-profit organisation whose membership comprises both private and public agronomists and consultants. As the majority of CCA members service cotton grower clients it is an important intermediary between CRDC and growers via consultants. CCA has conducted a range of activities as a service provider or partner of CRDC, for example the development of the 2018-19 Cotton Pest Management Guide and egg collection for insecticide resistance testing. In recent years CCA has been involved in surveys and in strategic planning forums with CRDC.

Whilst there were tensions in the past, CRDC and CCA are reported to have a very good and active relationship presently, particularly through the research team and CottonInfo. Several CCA members are engaged through the CGAs and as representatives on the R&D advisory panels as well as being involved in CottonInfo planning and management. There is an annual meeting between the CCA Board and CRDC.

As noted in section 6.7, there is an opportunity for CRDC to provide more targeted extension materials to consultants.

7.2 LIAISON WITH RD&E PROVIDERS

As noted in section 6.1, CRDC was often identified during this review as being the best RDC to partner with. It was acknowledged that in the majority of circumstances, CRDC was approachable, accessible, open and willing to engage with and find solutions to issues that may emerge during the conduct of R&D.

In 2012, the Cotton Innovation Network was established to implement and coordinate the cotton industry's RD&E activity and ensures a collaborative and cohesive approach to achieving the cotton industry's objectives. Membership of the network comprises CRDC, CA and all of the all significant R&D providers in cotton: CSD, CSIRO, DAWR, NSW Department of Primary Industries, Qld Department of Agriculture and Fisheries (QDAF) and selected universities. CRDC provides the secretariat to the network. The network has an independent chair who is funded through contributions from the members.

CRDC is reported to be an active and valuable contributor to the network. The network itself is regarded as valuable for ensuring alignment of respective strategic plans and RD&E priorities across the industry. It also

provides an important reference point for CRDC to forecast R&D procurement themes with R&D providers. Some interviewees noted, though, that the R&D advisory panels from the CGAs could be provided with better exposure to the deliberations of the Network

7.3 LIAISON WITH GOVERNMENT

Under clause 14.1 of the Funding Agreement, the Chair of CRDC or other Board nominee must meet with the Commonwealth at no more than six-monthly intervals or at any other requested time to provide a briefing on a range of specified matters such as progress in implementing the AOP and R&D plan. CRDC has met this formal obligation throughout the review period.

It is apparent that there is a very good relationship and high level of respect between CRDC and DAWR. CRDC is regarded as transparent, open and easy to work with and has a very good reputation for compliance. There was no evidence from DAWR to indicate that CRDC is anything but fully compliant with all aspects of the Funding Agreement and the relevant acts. Meetings between CRDC Directors and management, and DAWR, are productive and effective.

7.4 COLLABORATION WITH OTHER RDCS

CRDC has a strong reputation as a 'good RDC citizen'. It participates actively in the Council of Rural R&D Corporations (CRRDC), in which the ED is the lead chief executive and an unofficial Deputy Chair. The GM Business & Finance, the GM R&D Investment and the Communications Manager were all acknowledged as being active contributors in the respective working groups of CRRDC. CRDC is reported to be highly respected by the other RDCs.

As noted in section 6.5 above, CRDC is also highly collaborative in its R&D investments.

8. DELIVERY OF BENEFITS

8.1 INTRODUCTION

Like all RDCs, CRDC faces the challenge of demonstrating the value and benefits of its activities and projects to its stakeholders. It does not have a 'bottom-line' to report, such as profit or dividends. It does not have a share price which can be used as a proxy for value. To establish value to its shareholders (government, cotton producers and others in the Australian cotton industry or the Australian public), CRDC relies on both quantitative economic measures and qualitative measures.

CRDC began a new systemised evaluation system in late 2015, replacing the previous system of less frequent and more *ad hoc* assessments. This new impact assessment system is part of a Monitoring and Evaluation Framework which was established to support the Strategic Plan 2013-2018 (see section 6.8). The impact assessments are based on triple-bottom line (economic, environmental and social) reporting and provide input to CRDC's tracking of project performance and informing investment decisions; CRDC's annual reporting to the Australian Government; CRDC's report to DAWR under the Funding Agreement; reporting to industry stakeholders; and contributing to the performance assessment of rural research and development corporations compiled by the CRRDC.

8.2 MEASUREMENT METHODOLOGY

CRDC contracted AgTrans Research and Consulting in late 2015 to prepare the economic impact assessments. These are *ex post* assessments of 'clusters' of projects, with each cluster including a number of projects related to a similar topic and objective. CRDC aims to undertake assessment of two-three clusters each year.

These *ex post* impact assessments follow the guidelines²⁹ set down by the CRRDC and are independent from CRDC. The methodology followed by AgTrans is sound and robust, producing conservative estimates of the economic benefits of projects. One divergence from the CRRDC guidelines is that the projects are not randomly selected. Rather, CRDC determines the 'clusters' to be assessed. All projects which have been completed within the year under consideration are included in the cluster. This means that some projects which have no measurable economic benefits are blended with projects that have a high measurable benefit. Of course, while these projects may have no measurable economic benefits, on the whole they produce industry, social or environmental benefits which are identified even if they are not measurable.

AgTrans conducted an assessment of three CRDC project clusters in 2016/17 and two clusters in 2017/18. The assessments over the two years 2016/17 and 2017/18 covered a total of 33 projects funded by CRDC:

- # The Water Use Efficiency cluster – report delivered in January 2017 and covering the period 2011 to 2015. Six projects included in this cluster.

²⁹ CRRDC 2014, 'Impact assessment guidelines'

- ⊕ The Nutrition cluster – report delivered in January 2017 and covering the period 2008 to 2016. Nine projects included in this cluster.
- ⊕ The myBMP cluster – report delivered in July 2017 and covering the period July 2012 to March 2016. Six projects included in this cluster.
- ⊕ The Sustainability cluster – report delivered in December 2017 and covering the period April 2012 to June 2017. Six projects included in this cluster.
- ⊕ The Bt Technologies cluster – report delivered December 2017 and covering the period July 2010 to June 2018. Six projects included in this cluster.

In addition to these five impact assessments by cluster, there was an impact assessment for the Queensland Department of Agriculture and Fisheries (QDAF) into six CRDC-supported research projects which collectively aimed to improve and strengthen the cotton production system in the Central Highlands of Queensland.

The AgTrans team which prepares the impact assessments is very experienced and conducts impact assessments for a number of RDCs. The team followed a clear, set routine in assessing each project within each of the five clusters and for the project for QDAF:

- ⊕ Qualitative assessment and description of the project;
- ⊕ Establishment of the investment in the project, both by CRDC and others (including a cost of managing the CRDC funding, based on a multiplier), deflated to a common year;
- ⊕ Clear identification and description of the triple-bottom line impacts (economic, social and environmental);
- ⊕ Identification of the private impacts versus the public impacts;
- ⊕ Commentary on the distribution of the private impacts, along the supply chain to the consumer, on other Australian industries and domestic versus overseas. AgTrans notes this will be affected by the elasticities of supply and demand, but does not specifically address how this distribution may play out based on known supply and demand elasticities;
- ⊕ Analysis of how the impacts match with Australian Government priorities and which priorities;
- ⊕ Valuing the impacts, based on interviews with research staff, program managers and others using experience and judgment to ensure that impacts are realistic;
- ⊕ Clearly setting out the assumptions used for each benefit in a summary table for each project (including scientific citations);
- ⊕ Setting probabilities of the impacts;
- ⊕ Describing the impacts that were not valued and why they could not be valued (this can be due to lack of data, a high degree of uncertainty about the impact or the likely low relative significance of the impact); and
- ⊕ Preparing the economic analysis of the impacts.

Most assessments are compared with a reasonable counterfactual – that is, what would otherwise have occurred if the R&D project was not done. This acknowledges that the world does not stand still. Some assessments were not made against a counterfactual because some benefits only applied to farms that were involved in the project.

Furthermore, the assessments also include all the costs involved in the project, both the project and fund management costs incurred by CRDC and the costs incurred by growers and other stages in adopting the new technology.

The assessments report on key economic investment measures: net present value (NPV), benefit cost ratio (BCR), internal rate of return (IRR) and modified internal rate of return (MIRR) for various time periods after the last year of investment (0, 5, 10, 15, 20, 25 and 30 years). Each assessment also reports on the sensitivity of the results to key assumptions. In addition, each report includes a table of confidence ratings of the coverage of benefits and of the assumptions. These confidence ratings are high, medium or low.

AgTrans notes that a lack of available documented evidence made it difficult to assess some of the benefits for many projects and that other benefits are conservative. It recommended that CRDC 'further develops its capacity to monitor, report and/or assess impacts and adoption from feedback from individual or grouped project investments.'

8.3 DEMONSTRATED BENEFITS

As noted in the previous section, AgTrans provided detailed reports on the five clusters of projects. Table 7 provides a summary of the results from the impact assessments for each cluster. These results are for a 30-year time period. Two of the clusters (Water Use Efficiency and Nutrition) were deflated to 2015/16 dollars and the remaining three clusters were deflated to 2016/17 dollars.

As can be seen from the table, all five clusters provided strong net benefits, with an NPV between \$7.41 million for the Sustainability cluster to \$91.54 million for the Bt Technologies cluster. A simple aggregation shows a net benefit of \$236.3 million.

The assessed BCRs ranged from 2.53 (Sustainability) to 9.10 (myBMP). In other words, these project clusters generated a minimum of \$2.53 for every dollar invested to a high of \$9.10 for every dollar invested. The MIRR were similarly impressive.

These results demonstrate that CRDC's activities are delivering significant value to industry. This may not be evident to all in the industry. This is likely to be due to a lack of understanding about the benefit/cost methodology leading to scepticism about the results. This is always a challenge for RDCs, so a focus needs to be on clear communication of the methodology and the results, perhaps using case studies.

Table 7: Summary of ex-post evaluations of CRDC projects completed in 2015/16 and 2016/17

ECONOMIC MEASURE	CLUSTER				
	Water Use Efficiency	Nutrition	myBMP	Sustainability	Bt Technologies
Present value of benefits (\$m)	40.62	61.15	58.15	12.26	103.72
Present value of costs (\$m)	4.90	11.32	6.39	4.85	12.19
Net present value (\$m)	35.72	49.83	51.76	7.41	91.54
Benefit-cost ratio	8.29	5.40	9.10	2.53	8.51
Internal rate of return (%)	16.5	17.8	31.3	15.4	38.8
Modified internal rate of return (%)	10.0	11.1	12.5	9.1	12.8

Notes: Measures over 30 years. Water Use Efficiency and Nutrition clusters are deflated to 2015/16 \$, myBMP, Sustainability and Bt Technologies are deflated to 2016/17 \$.

Source: CRDC (November 2017), Evaluation of R&D projects completed in years ending June 2016 to June 2018: 2015/16 Evaluations (Year 1) Aggregate Summary Report. AgTrans Research

As noted in section 8.2, in addition to these assessments there was also an assessment of six CRDC-supported research projects which collectively aimed to improve and strengthen the cotton production system in the Central Highlands of Queensland. This impact assessment showed an NPV of \$19.06 million from the \$1.18 million invested by the partners (of which \$0.55 million was invested by CRDC). This is a BCR on CRDC investment of 17.14 and an MIRR of 15.4%.

8.4 COMMUNICATING THE BENEFITS

Finding the results from these impact assessments on the CRDC website is by no means straightforward. The 'Grower' section of the website suggests that the 'Research and Development' section of the website shows the benefits from CRDC's RD&E. This does not appear to be the case. A search of the CRDC website reveals that the two cluster impact assessment reports from 2015/16 (Water Use Efficiency and Nutrition) are on the website, as is the assessment of CRDC-QDAF cluster on strengthening the Central Highlands Cotton Production System. These are in the 'Publications' section of the CRDC website. The reports on the three assessments of work completed in 2016/17 are expected to be uploaded to the website soon along with other 2017/18 final reports. While having the reports available and easy to find would not guarantee that they will be

read, it would allow those inclined to access and read the results. These reports may be, however, difficult for the casual reader and layperson to read and understand.

The Annual Report 2016-2017 reported the summary results from the impact assessments for the Water Use Efficiency and the Nutrition clusters, as well as the CRDC-QDAF cluster on strengthening the Central Highlands Cotton Production System. This was reported in both the report from the Chair and Executive Director, as well as in the two-page infographic summary within the annual report. Further details were contained in the body of the annual report. This summary information only provided high level economic benefits, not the non-measured, qualitative benefits (social and environmental) that could not be valued but were detailed in the reports from AgTrans.

Other than the annual report, there is no document provided by the CRDC that summarises its performance, including the results of the impact assessments that are conducted. Such a report could include both the economic benefits as well as the delivered benefits which could not be monetarily valued.

Recommendation: CRDC should consider developing and publishing succinct stand-alone, industry-focussed summaries of the strategic plan, annual operating plan and annual report as well as a short annual performance evaluation report describing achievement against key performance indicators and results from impact assessments, including qualitative, non-measured benefits.

Recommendation: CRDC should streamline its reporting of performance against targets across the strategic plan, annual operating plan, annual report and standalone performance reports, and make all relevant documents including detailed impact assessments available on the CRDC website in a separate, clearly identified 'Performance Evaluation' section, in order to improve performance reporting.

Even if CRDC did publish more clearly the results of the impact assessments, industry participants may not appreciate the value being delivered by CRDC because there is variation in the share of benefits between regions or industry sectors (for example, growers, ginners, merchants and shippers). The methodology used by AgTrans does not permit an assessment of the share of benefits between regions or sectors (as a partial equilibrium modelling approach would allow). AgTrans does, at times, comment within the individual project reports about the possible share of benefits from a project between sectors. As well, some projects are clearly specific to a region (such as the project on strengthening cotton production systems in the Central Highlands of Queensland) and so most if not all of the benefits would accrue to the industry within that region.

Recommendation: CRDC should increase the value of its impact assessments by improving the collection of documented evidence on the adoption and impact of projects, as recommended by AgTrans, and by including commentary on the distribution of benefits between regions and/or sectors if practicable.

8.5 LEVY-PAYER PERCEPTIONS OF VALUE

In addition to the interviews conducted for this review, evidence for levy-payer perceptions of the value delivered by CRDC is available in the cotton practices survey carried out for CRDC in 2016³⁰. The survey included a number of questions about growers' understanding of and attitudes towards CRDC.

The survey found that 99.6 per cent of the surveyed growers were aware of CRDC and 70.2 per cent understood fairly well or very well what it did. Attitudes towards CRDC's performance are summarised in Table 8.

Table 8: Net positive ratings of CRDC performance in 2015-16 survey

ATTRIBUTE	GOOD + EXCELLENT RATINGS*
Investing in cotton R&D	83%
Providing useful, credible information	77%
Listening to growers about R&D needs and priorities	59%
Communicating with growers about R&D investments	52%
Working collaboratively within the cotton industry	77%
Working collaboratively with other agricultural industries	43%
Driving continuous improvement in the industry	75%

* From a scale comprising 'excellent', 'good', 'OK', 'poor', 'very poor' and 'don't know'

The findings summarised in Table 8 provide a very positive reflection on CRDC. The weaker results are in the areas of 'listening to growers about R&D needs and priorities' and 'communicating with growers about R&D investments', although even in these areas the 'poor' plus 'very poor' ratings were only 9 per cent and 15 per cent respectively. Whilst comparison with other industries have many limitations, we suggest that the RDC of any other industry would be very satisfied with these results.

The other weak result from the survey is in respect to 'Working collaboratively with other agricultural industries', but this result is skewed by a large number of 'don't know' responses (22 per cent). Only 13 per cent regarded this area as 'poor' or 'very poor'.

³⁰ Roth Rural and CRDC 2016, 'Cotton growing practices 2015-16: Findings of CRDC's survey of cotton growers'

9. CONCLUSIONS AND RECOMMENDATIONS

This review has found that CRDC is a very well-managed, high-performing organisation that is highly respected by its stakeholders. Corporate governance is a key strength, compliance with the considerable obligations conferred upon statutory RDCs is exemplary, the Board and management are very well regarded and there is good evidence for the delivery of benefits to industry. CRDC has an excellent relationship with the Commonwealth government and is highly collaborative with other RDCs, research providers and other cotton industry organisations.

There is no evidence for CRDC having failed to fulfil, or being at risk of not fulfilling, all of the obligations imposed by its Funding Agreement with the Commonwealth or the PIRD Act.

The review has identified several areas in which improvements might be made to the performance of CRDC. These are, for the most part, concerned with RD&E processes and the reporting of performance. Eight recommendations are made. These are listed below, and each is rated either:

- # Critical: should be implemented as a matter of urgency in order for CRDC to meet its legal and regulatory obligations.
- # Important: actions that are expected to deliver significant benefits to the company and industry.
- # Better practice: expected to deliver incremental performance improvements.

RECOMMENDATION	PRIORITY
1 CRDC should engage with CA to re-design the RD&E consultative process so that it delivers better advice to CRDC and provides greater satisfaction to industry participants. This may include additional or extended RD&E forums, an independent technical panel, provision of panels with succinct project assessments to assist decision-making and/or more training of panel members.	Important
2 CRDC should consider whether some rationalisation (fewer, larger projects) and a focus on programs within the RD&E portfolio, to allow certain industry priorities to be more aggressively addressed, would deliver greater net benefit to the industry than is currently being achieved.	Important
3 The CRDC Board should institute a more regular schedule of Board performance reviews, including periodic external reviews.	Better practice
4 CRDC should develop a register of all of its policies, procedures, plans, registers and other significant documents, showing when each was last reviewed, the approval process for the review and when the next review is due.	Better practice
5 CRDC should improve its engagement with and delivery of RD&E outcomes to large and corporate growers, which should include consideration of an extension program directly targeted at professional private consultants.	Better practice

RECOMMENDATION	PRIORITY
6 CRDC should consider developing and publishing succinct stand-alone, industry-focussed summaries of the strategic plan, annual operating plan and annual report as well as a short annual performance evaluation report describing achievement against key performance indicators and results from impact assessments, including qualitative, non-measured benefits.	Better practice
7 CRDC should streamline its reporting of performance against targets across the strategic plan, annual operating plan, annual report and standalone performance reports, and make all relevant documents including detailed impact assessments available on the CRDC website in a separate, clearly identified 'Performance Evaluation' section, in order to improve performance reporting.	Better practice
8 CRDC should increase the value of its impact assessments by improving the collection of documented evidence on the adoption and impact of projects, as recommended by AgTrans, and by including commentary on the distribution of benefits between regions and/or sectors if practicable.	Better practice

APPENDIX 1: DOCUMENTS REVIEWED

STATUTORY

(2015) Funding Agreement 2015-19 between the Commonwealth of Australia represented by the Department of Agriculture and the Cotton Research and Development Corporation

(2017) *Primary Industries Research and Development Act 1989*

(2017) *Public Governance, Performance and Accountability Act 2013*

(2018) *Public Governance, Performance and Accountability Rule 2014*

CORPORATE AND GOVERNANCE

(2013) CRDC Crisis Management Plan

(2014) ICT Security Risk Management Plan

(2014) ICT Security Risk Register

(2014) CRDC Board Meeting Item 5.1 Risk Appetite Survey report

(2014) Results of the Risk Appetite Survey: Tolerance for risk at CRDC – ACIL Allen

(2015) CRDC Cost Allocation Policy

(2015) CRDC IP Management Plan

(2015) CRDC Risk Appetite Statement Recommendations

(2015) CRDC Risk Register

(2015) CRDC Fraud Control Report – Nexia Australia

(2015) PGPA Compliance Checklist and Report

(2016) CRDC Closing Letter Financial Statements ANAO Audit 2015-16

(2016) Independent auditors report – ANAO

(2016) CRDC Charter of Corporate Governance

(2016) CRDC Fraud Control Plan

(2016) CRDC Fraud Control report Nexia Australia

(2016) Independent Audit Report PIRD Act – Nexia Australia

(2016) CRDC Fraud Risk Register

(2016) CRDC Board Meeting Item 2.1 Stakeholder Engagement Survey

(2016) CRDC Board Meeting Item 3.1 Review of organisational performance

(2016) CRDC Fit for Future Organisation: Organisation design and Workforce planning. Mercer

- (2016) PGPA compliance Checklist and report
- (2017) CRDC Board Meeting Item 2.5 CRDC Organisational performance update
- (2017) CRDC Board Induction Presentation
- (2017) Internal Audit of the Cotton Research and Development Corporation (CRDC) Fraud Control Callida Consulting
- (2017) Independent Audit Report PIRD Act. Callida Consulting
- (2017) CRDC Finance and Administration Policy Handbook
- (2017) CRDC Human Resource Management Policy Handbook
- (2017) CRDC Intellectual Property Policy Handbook
- (2017) CRDC Risk Management Policy Handbook
- (2017) CRDC Work Health and Safety Policy Handbook
- (2017) Board Skills and Demographics – Skills Matrix Final
- (2017) PGPA compliance Checklist and report
- (2017) PSPF compliance reporting template
- (2018) Project Catapult: Innovation and Entrepreneurship within CRDC. X-lab
- (2018) CRDC Team Collaboration Workshop Profile Peel HR
- (XX) AICD Board Evaluation and director appraisal Board Performance
- (2016) CRDC Board Chair Evaluation
- (2016) CRDC Board Performance Review

STRATEGIC AND OPERATIONAL PLANS, ANNUAL REPORTS, PROCESSES

- (2008) Cotton Research and Development Corporation Annual Report 2007-2008
- (2009) Cotton Research and Development Corporation Annual Report 2008-2009 “An environment of Change”
- (2010) Cotton Research and Development Corporation Annual Report 2009-2010 “Fashioning the Future”
- (2010) Cotton Industry Vision 2029 Emergent Futures
- (2011) Cotton Research and Development Corporation Annual Report 2010-2011 “the quest for sustainable competitive advantage”
- (2011) Cotton Sector Research Development and Extension Final Strategy. Cotton RD&E Strategy Working Group
- (2012) Cotton Research and Development Corporation Annual Report 2011-2012
- (2013) CRDC Annual Report 2012-13
- (2013) CRDC Annual Operational Plan 2013-14

- (2013) CRDC Strategic R&D plan 2013-2018 Investing in RD&E for the world leading Australian cotton industry
- (2013) Cotton Australia Strategic Plan 2013-2018
- (2014) CRDC Annual Report 2013-2014
- (2014) Cotton Strategy Forum Environmental Scan Cotton Innovation Network
- (2014) CRDC Annual Operational Plan 2014-15
- (2015) CRDC Annual Report 2014-2015
- (2015) CRDC Annual Operational Plan 2015-16
- (2015) CRDC investments 2015-16
- (2016) Meat Industry Strategic plan RMAC
- (2016) CRDC Annual Report 2015-2016
- (2016) CRDC Annual Operational Plan 2016-17
- (2016) CRDC investments 2016-17
- (2017) CRDC Annual Report 2016-2017
- (2017) CRDC Annual Operational Plan 2017-18
- (2017) CRDC investments 2017-18
- (2017) SRA Performance Report 2016/17
- (2018) Cotton Research and Development Corporation Annual Report 2017-18
- (2018) Managing CRDC's R&D portfolio
- (2018) CSD Report to members for 12 months ending March 2018
- (2018) CRDC Strategic RD&E plan 2018-2023
- (2018) Cotton Australia Strategic Plan 2018-2023 Viable Valued Advance
- (2018) CRDC Annual Operational Plan 2018-19
- (2018) CRDC Investments 2018-19
- (2018) CRDC Investment recommendation report 2018/19

RESEARCH INVESTMENT AND REPORTS

- (2014) CRDC World Leader in Cotton: Achievements in Australian cotton research development and extension 2008-2013
- (2014) Potential for Growth in the Australian Cotton Industry; Volume 1 Research and Findings
- (2014) Designing a Future for Australian Cotton. Barnett Consulting
- (2014) Australian Grown Cotton Sustainability Report 2014 Cotton Australia and CRDC

- (2016) CRDC: 25 years of Cotton Research, Development and Extension
- (2017) Australian Cotton Comparative Analysis 2017 Crop Boyce Chartered Accountants
- (2017) PIHSP A safe, healthy environment for primary industries
- (2017) Investing in cotton's greatest resource: people
- (2017) Collaboration key to cotton industry RD&E
- (2017) Double the water efficiency, boost cotton yield
- (2017) Overcoming the pest threat: the value of cotton industry RD&E
- (2017) Alternative energy: the economic and environmental rewards
- (2018) CRDC Researcher Handbook 2018-19

ADOPTION AND EXTENSION

- (2017) Spotlight on Cotton R&D Spring Edition
- (2017) Spotlight on Cotton R&D Summer Edition
- (2018) Connecting growers with Research CottonInfo
- (2018) Australian Cotton Production Manual CRDC and CottonInfo
- (2018) Spotlight on Cotton R&D Autumn Edition
- (2018) Spotlight on Cotton R&D Winter Edition

MONITORING AND EVALUATION

- (2007) CRDC Cost Benefit Analysis of Research funded by the Cotton Research and Development Corporation BDA Group
- (2012) Australian Cotton Industry Third Environmental Assessment Inovat Consulting
- (2015) Measuring Sustainability in Cotton Farming Systems FAO, UN and ICAC
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APPENDIX 2: OBLIGATIONS OF CRDC UNDER THE FUNDING AGREEMENT

The following table provides a listing of CRDC's obligations under the its Funding Agreement. In each case, this review found that:

- ⊕ There was positive evidence of fulfilment of the obligation;
- ⊕ There was indirect evidence that the obligation had been fulfilled, for example the advice of DAWR representatives; or
- ⊕ The obligation was not relevant during the review period.

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Compliance with legislation	
Comply with the PIRD Act 1989, the Regulations and the PGPA Act	3.1
Corporate governance and Board performance	
Comply with corporate governance requirements in the PGPA Act and implement a framework of good corporate governance practice, drawing on better practice guidance as appropriate	4.1
Report on steps consistent with 4.1 at 6-monthly meetings	4.2, 14.1
Ensure that up to date information is available on web site on R&D plan; priorities used to determine funding; desired outcomes, key activities and key achievements; and key RDE and marketing activities that are being funded	4.3

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Information in 4.3 not to include personal information (Privacy Act 1988), confidential information etc, or information that might damage CRDC, the industry or the national interest	4.4
Persons appointed to CRDC committees, panels etc to disclose any related pecuniary interests	4.5
Payment of funds	
Pay within 30 days any amount invoiced to CRDC by the C'th for expenses relevant to levy collection, administration etc	5.2
Provide invoice and evidence to C'th of R&D expenditure for matching funding; final claim for financial year to be supported by independent audit report	5.4-5.8
Application of the funds	
Spend the funds in accordance with R&D plan, annual operation plan and guidelines	6.1
Spend funds on R&D only if consistent with functions and powers under the PIRD Act and if they relate to and are of benefit to the industry; and/or are for the benefit of industry and for the Australian community generally	6.2
Spend funds on marketing only if activities relate to and are of benefit to the industry	6.3
Not use the funds to engage in agri-political activity or advocacy, e.g. act as industry representative body (IRB)	6.4
Payments to declared representative organisation(s) for consultation to be made in accordance with section 15 of the PIRD Act and PGPA Act	6.5

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Funds not to be spent on IRBs except for membership fees where this contributes to achievement of CRDC objects, or to acquire goods or services or to fund R&D or marketing activities only if funding occurs in accordance with PGPA Act, C'th Grant Rules and Guidelines or C'th Procurement Rules, <u>and</u> funding arrangement includes measures to allow performance assessment (latter to be provided to the C'th on request)	6.6
Seek consultation with C'th on any matter connected with the Act or Agreement if needed	6.7
Determine appropriate balanced portfolio through R&D plan and annual operational plan (AOP) and explain approach to this in R&D plan	6.8, 10.7
Contribute to the implementation of relevant industry and cross-sectoral strategies under the RD&E Framework	6.9, 9.1
Provide feedback on the outcomes of funding applications to all applicants	6.10
Management of the funds	
Establish appropriate accounting systems, procedures and controls in accordance with PGPA Act including cost allocation policy	7.1
Extension of research	
Carry out functions under section 11 of the PIRD Act, contribute to implementation of RD&E Framework strategies	9.1
Demonstrate that pathways to extension and adoption are incorporated into the planning and approval process	9.2, 10.7

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Planning	
Develop and maintain a program framework to support planning, performance and accountability requirements under the PGPA Act (Chap 2, Part 2- 3) and this agreement within 6 months of agreement date	10.1
Program framework to inform development of key planning and reporting documents and include specifications of planned outcomes (results, consequences and impacts). Outcome statements to: be specific, focused and easily interpreted; identify intended outputs and level of achievement against intended outcomes being measurable; specify target groups (where identifiable) for outcomes; specify programs, subprograms, key deliverables and activities; and be agreed by key stakeholders and C'th as part of R&D plan development. Each program to have KPIs that provide an accurate and succinct story of performance, KPIs to be: in the R&D plan, strategic and linked to planned outputs and outcomes; in the AOP, linked to deliverables; in the annual report, KPIs from R&D plan and AOP brought together to demonstrate how deliverables advanced the outcomes; and clear, unambiguous, measurable and timebound. Program framework also to include expected total costs (direct and indirect) of each program, and an evaluation framework	10.2
Evaluation framework to be developed within 6 months of agreement date, which must: support the program framework; ensure key performance-related information is generated by the program framework and routinely collected and monitored; include structured plan for the systematic evaluation of the efficiency, effectiveness and impact of key investments; and include a means of publishing and disseminating relevant R&D outcomes and outcomes of evaluations undertaken	10.3
Consult with C'th in preparing the evaluation plan, participate in any cross-RDC evaluation project relevant to CRDC, demonstrate commitment to provide adequate expenditure for evaluation	10.4
Publish evaluation framework on web site within 30 days of adoption	10.5
Prepare R&D plan per sections 19-24 of the PIRD Act, ensure consistency with program framework, publish on web site within 30 days of approval by the Minister	10.6

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
R&D plan to cover at least: assessment of operating environment including SWOT, current and future trends and implications; collaboration with other RDCs on priority R&D issues; broad overview of priorities and outcomes from stakeholder consultation; consultation with industry and explanation on extent to which its priorities are reflected in the plan; key strategies, objectives, investment priorities and outcomes; planned R&D and marketing activities; key deliverables; performance indicators; how the R&D and marketing activities align with and give effect to the guidelines; extension, technology transfer and commercialisation; estimates of income and expenditure over the life of the plan (R&D and marketing separately); and an explanatory statement on approach to balanced portfolio	10.7
In developing or varying the R&D plan, develop a consultation plan including C'th, the representative organisation and other stakeholders including other RDCs	10.8
For minor variations to the R&D plan, consult in accordance with section 24 of the PIRD Act but may seek C'th approval not to develop a consultation plan	10.9
Consultation plan to be agreed with C'th prior to commencement	10.10
Consultation plan to be published on web site prior to commencement	10.11
Prepare an AOP in accordance with section 25 of the PIRD Act, provide to C'th by 1 July each year	10.13, 10.14
AOP to set out how and to what extent R&D and marketing activities to be funded give effect to the R&D plan and its objectives and the guidelines; the key R&D and marketing activities to be funded during the financial year under each program; key deliverables arising from the R&D and marketing activities planned; performance indicators, timetables and milestones relating to the R&D and marketing activities and expenditure which enable the progress being made towards achieving planned outcomes to be monitored and reported upon; and statement on how CRDC intends to implement and operationalise balanced portfolio appropriate to the sector for the year	10.14
Submit all AOPs and material variations or updates to C'th within 30 days of adoption by CRDC	10.15

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Develop, maintain and implement risk management and internal control systems consistent with the PGPA Act, including fraud control plan, risk management plan and intellectual property (IP) management plan	10.17
Review the IP management plan at intervals of no more than four years	10.18
Provide fraud control, risk management and IP management plans or amendments to the C'th within 30 days of Board approval	10.19
Reports	
Provide to the C'th a compliance assurance report regarding compliance with obligations under the PIRD Act and the agreement during the relevant financial year	11.1
Compliance audit report to include statement from independent auditor providing opinion on whether CRDC has complied with clauses 6 and 7 of the agreement during the financial year, which must be prepared in accordance with Australian Auditing and Assurance Standards; include statement that CRDC has complied with clause 6.6 and that accounting systems processes and controls comply with 7.1; include a review of amounts spent on R&D and marketing and verify claims made for matching R&D funding are consistent; indicating any limitations to the report; and indicating any incidences of non-compliance and assessing and reporting on the impact of those incidences	11.2
Compliance assurance report to also include certification from the Board, signed by Chair and Executive Director certifying that in the Board's opinion CRDC has materially complied with its obligations under the PIRD Act and the agreement during the relevant financial year, or has not, with explanation of non-compliances	11.3
Compliance assurance report to also include statement that it has been prepared for the C'th for purposes of the agreement and acknowledgement that it will be relied upon by the C'th	11.4
Compliance assurance report need not include an opinion on whether the funds have been applied for the benefit of industry, or have been spent in a proper manner or on advocacy or agri-political activities	11.5

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
If the C'th requests an audit report or opinion on compliance, comply with C'th request at CRDC expense	11.6-11.7
Prepare annual report in accordance with the PIRD Act, section 46 of the PGPA Act and the agreement – additional information required only by the agreement may be provided to the C'th separately	11.8-11.9
Include in the annual report: a report on contribution to implementation of relevant industry and cross-sectoral strategies under the RD&E Framework; rationale for the mix of projects in balanced portfolio; research extension activities; collaboration with industry and other research providers; sources of income allowing for separate identification of R&D and C'th matching payments and any other forms of income and, if applicable marketing payments and voluntary contributions; the full cost of R&D and marketing programs with costs allocated in accordance with the cost allocation policy; progress made in implementing R&D Plans, including progress against KPIs and achievement of key deliverables and associated outcomes specified in the plans; an assessment of the efficiency and effectiveness of investments; progress in implementing the guidelines; consultation with the representative organisation on R&D plan and AOPs, R&D and extension and marketing activities; and other relevant matters notified by the C'th	11.10
Provide to the C'th any other report requested within specified timeframe and in consultation with the C'th on any action required	11.11-11.12
Review of performance / performance management	
Complete a performance review 6 months before expiry of agreement; engage independent organisation to undertake and report on review; agree terms of reference of the review 6 months prior to commencement with the C'th; provide the C'th with the draft review report and any Board comments within 7 days of the Board considering the draft; provide the C'th with the final review report within 14 days of acceptance by the Board; develop a response to final review report and proposed implementation plan for recommendations within 3 months of Board acceptance; provide response to the C'th within 30 days of Board's acceptance of response; report to the C'th progress in implementing the review recommendations at 6-monthly meetings; and publish performance review report and response on website	12.1
Independent organisation engaged to do review no to have carried out corporate governance or related activities for CRDC within term of the agreement	12.2

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Terms of reference for review to take into account the performance of CRDC in meeting its obligations under the PIRD Act and agreement; development and implementation of R&D plan, AOP, risk management, fraud control and IP management plans and effectiveness in meeting priorities, targets and budgets set out in the plans; efficiency with which plans were carried out; efficiency and effectiveness of CRDC investments; delivery of benefits to industry foreshadowed in the plans and assessment of the degree to which investments have met the needs of the industry; and any other matters required by the Minister	12.3
Cooperate with and respond to any other review of CRDC undertaken by the C'th	13.1-13.4
Consultations	
Chair or other Board nominee to meet with the C'th at no more than 6-monthly intervals from agreement date or at any other requested time on reasonable notice to brief the C'th on performance of functions including progress on implementing the AOP and R&D plan; progress on implementation of relevant RD&E Framework strategies; consultation with other RDCs and representative organisation; measures taken to enhance corporate governance; progress in developing and implementing the evaluation framework; progress on implementing the recommendations from the most recent performance review; and development and implementation of additional systems, processes and controls to meet the agreement (7.1)	14.1
Ensure that section 29 of the PIRD Act is complied with and meet with representative organisation at not more than 6-monthly intervals to review industry priorities for R&D and marketing investments, including regional equity considerations; and report on performance against the R&D plan and AOP	14.2
Directors to notify the C'th if any proposed change to the guidelines by the Minister would require the directors to act, or omit to act, in a manner that may breach any duty owed by the directors to any person, cause the contravention of any law, be likely to prejudice commercial activities carried on by or on behalf of CRDC, or be contrary to the public interest	14.4-14.6
Access to records and use of information	
Grant access to premises or data, accounts etc if required by the Minister or the Finance Minister under the PGPA Act	15.1-15.4

FUNDING AGREEMENT OBLIGATION	CLAUSE(S)
Use any confidential information provided for proper purpose and not disclose	15.5-15.6
Grant the C'th a permanent, irrevocable, royalty-free worldwide non-exclusive licence to use, reproduce, modify, adapt, distribute, communicate and publish all or part of any report or plan provided to the C'th excluding any confidential information and any material, including any image or text, identified by CRDC as being material in which a third party owns the copyright	15.8
Notification of significant issues	
In addition to the duties under the PGPA Act, give the C'th reasonable notice of any significant issues that may affect or have affected CRDC or any of its subsidiaries	16.1
Acknowledgement of funding	
Ensure all significant publications and publicity acknowledge the provision of Australian Government funding where applicable	17.1

APPENDIX 3: OBLIGATIONS OF CRDC UNDER THE PIRD ACT

The following table provides a listing of CRDC's obligations under the its PIRD Act. In each case, this review found that:

- ⊕ There was positive evidence of fulfilment of the obligation;
- ⊕ There was indirect evidence that the obligation had been fulfilled, for example the advice of DAWR representatives; or
- ⊕ The obligation was not relevant during the review period.

PIRD ACT OBLIGATION	SECTION
Part 2 – Research and Development Corporations	
Division 1 - Establishment, functions and powers of Research and Development Corporations	
R&D Corporation is a body corporate etc.	10
Functions: investigate etc R&D requirements; prepare, review etc R&D plan; prepare AOP; coordinate and fund R&D; monitor, evaluate and report activities; assess and report impacts; disseminate and commercialise R&D results; carry out marketing if applicable; do anything else conferred by PIRD or other Acts	11
Powers: enter into agreements, manage IP, acquire property etc	12
Agreements for carrying out R&D activities and marketing activities <u>by</u> other persons: provisions that may be included in agreements	13
Agreements for carrying out R&D activities and marketing activities <u>with</u> other persons: provisions that may be included in agreements	14

PIRD ACT OBLIGATION	SECTION
Consultations with persons and organisations: provisions to consult with industry persons and bodies, meet travel expenses incurred by consultees and other expenses subject to Ministerial guidelines	15
Division 2 – Constitution of Research and Development Corporations	
Constitution: RDC comprises Chair, Executive Director, 5-7 other directors as determined by the Minister; vacancies do not affect exercise of powers of RDC	16
Appointment of directors: appointed by Minister from nominations of Selection Committee; appointment not invalid because of defect or irregularity in nomination or appointment	17
Members of executive of representative organisation not eligible for appointment etc	18
Division 3—R&D plans and annual operational plans	
R&D Plans: must prepare, to include statement of objectives and priorities for the period; first plan for 4 years 9 months to 5 years 3 months to align with FY; subsequent plans for 5 years	19
Approval of R&D plans: to be submitted to the Minister no later than 2 months before intended commencement unless otherwise allowed; Minister may seek revisions, RDC must consider and respond; plans to be submitted to President of representative organisations at same time as Minister; RDC to notify rep orgs of approval within 1 month; plan commences day of approval or commencement date, whichever later	20
Variation of R&D plans: RDC to review plan as soon as practicable after each 30 June following commencement and consider whether variation needed; consider any Ministerial request for variation; RDC may vary the plan, must provide Minister with explanation, Minister may approve/reject with reasons; where variation approved, RDC must notify Presidents of rep orgs within 1 month	21

PIRD ACT OBLIGATION	SECTION
Approval for varied R&D plans to run for 4 years from next 1 July: if variation requested/approved, RDC may request Minister for plan to be in effect for 4 years from following 1 July	22
When variations of R&D plans take effect: July 1 under s22 unless otherwise specified, otherwise day of approval	23
Consultation: before requesting a variation, RDC must consult with Minister, rep orgs and others as considered appropriate	24
Annual operational plans: must prepare for each FY; plan must specify broad groupings of R&D and marketing activities; describe how and to what extent these activities will give effect to R&D plan; provide an estimate of total amounts to be spent on each activity grouping and other costs	25
Commencement of annual operational plan etc.: first day of period to which plan relates; must be provided to Minister and rep orgs before commencement	26
Compliance with R&D plans and annual operational plans: must ensure performance of functions and exercise of powers consistent with current R&D and annual operational plan	27
Application of the Public Governance, Performance and Accountability Act 2013: s35 (operational plans) does not apply to RDCs	27A
Division 4 – Accountability	
Annual report: to be prepared by directors and given to Minister under s46 of PGPA Act to include: (a) particulars of R&D and marketing activities funded; the amount spent on each activity; the impact of the activities on the industry(ies); revisions to the R&D plan during the period; agreements entered into under s13 or s14 and activities in relation to these; activities relating to patents etc; activities of any company in which RDC has an interest or relating to the formation of a company; and significant acquisitions / disposals of property; (b) assessment of extent of achievement of objectives of R&D plan and implementation of annual operational plan; (c) assessment of the extent to which RDC has met objects of PIRD Act; for RDCs prescribed in the regulations, particulars of sources and expenditure of funds including by commodity or region and from transfer of assets etc.	28

PIRD ACT OBLIGATION	SECTION
Accountability to representative organisations: (not applicable to RDCs to which Division 7 applies, as specified in regulations) Chair must, as soon as practicable after submission to Minister, provide annual report to rep orgs and arrange to attend each rep org's annual conference or meeting of executive to enable annual report to be considered; Chair to deliver address on activities during report period and intended for next period, and for prescribed industries e.g. grain, particulars of expenditure by commodity, region etc, transfer of assets etc; Chair to take questions	29
Division 5 – Finance	
Payments to R&D Corporation – general: (only applicable to R&D activities) levy funds collected to be paid to RDC, also amounts equal to one-half of amounts required to be spent by RDC under s33 (not 33(1)(d)) – from Consolidated Revenue Fund; also to RDCs with no levy attached, amounts as appropriated by Parliament; this section not applicable to FRDC	30
Government matching payments not to exceed levy and certain other payments	31
Retention limit for Commonwealth's matching payments: payments exceeding GVP to be refunded or withheld	32
Expenditure of money of R&D Corporations: only on broad groupings of R&D activities in annual operational plan, on expenses and liabilities incurred as part of its business, for payments to directors and committee members, to the C'th as required elsewhere in the Act, for expenses relating to a selection committee, or for other authorised payments; RDC liable for costs of selection committee; after 230/6/15, only with a funding agreement in place; funding agreement to be published on website	33
R&D money must not be spent on marketing	33A
Commonwealth to be paid levy expenses from R&D Corporations: RDC pays for levies collection and administration	34
Commonwealth to be reimbursed for refunds of levy: reimbursement by RDC	35

PIRD ACT OBLIGATION	SECTION
Transfers of money where levies redirected: where levy is moved from one RDC to another, provisions for transfers	36
Payment of amounts of levy where levies redirected: as for s36, with respect to levy amounts owed by the C'th to the RDC(s)	37
Payment of matching contributions where levies redirected: as for s36, with respect to matching amounts owed by the C'th to the RDC(s)	38
Treatment of amounts received, after levies redirected, as a result of earlier expenditure	39
Separate accounting records: regulations may require RDC to keep separate accounting records of funding of specified classes of activities, and specify amounts to be credited/debited and manner of calculation	40
Borrowing from Commonwealth: Finance Minister may lend to RDC	41
Borrowing from persons other than the Commonwealth: RDC may borrow from other person with Finance Minister's approval, including foreign currency	42
Guarantee of borrowing: C'th may guarantee RDC borrowing under s42	43
Borrowing not otherwise permitted	44
R&D Corporations may give security: over its assets for the performance of obligations under s41 or s42 or payment to C'th of amounts relating to s43	45
Liability to taxation: RDC subject to C'th taxation except income tax; not subject to State/Territory tax unless specified by State/Territory or regulations; subject to stamp duty of State/Territory	46
Delegation by Finance Minister: powers may be delegated	46A

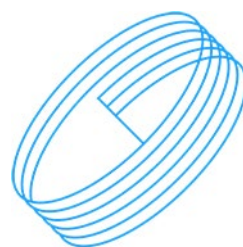
PIRD ACT OBLIGATION	SECTION
Division 6 – Meetings of Research and Development Corporations	
Times and places of meetings: must hold such meetings as necessary; Chair may call meeting any time; Chair must call meeting if majority of directors request	47
Presiding at meetings: Chair to preside at all meetings at which present; if Chair not present, Deputy Chair must preside if present; otherwise directors to appoint one of their number to preside	48
Quorum: majority	49
Voting at meetings: question decided by majority; presiding person has deliberative vote and casting vote if necessary	50
Conduct of meetings: RDC to regulate as appropriate, telephone or other participation allowed	51
Resolution without meetings: can occur where majority of directors indicate consent	52
Minutes must be kept	53
Persons may be invited to attend meetings	55
Division 7 – Annual general meetings	
Application of this Division: to RDCs with levies attached and declared applicable by regulations	56
List of levy payers: each FY RDC must list persons known to have become liable to pay a levy, within the immediately preceding FY or 3 months after it; must complete this list between zero and 30 days after day applications must be received by RDC for AGM; RDC not to use list for any other purpose	57

PIRD ACT OBLIGATION	SECTION
R&D Corporation to convene annual general meetings: where required by rep org, each FY; no longer than 15 months between AGMs	58
Notice of the convening of an annual general meeting: publish notice in Gazette not later than 70 days before AGM, specifying day, time and place of meetings and date (no earlier than 14 days after publication date) by which applications to be entered on levy list for the FY must be received; copies of notice to be provided to rep orgs	59
Purpose of annual general meeting: for levy payers to consider most recent annual report; receive address by Chair concerning RDC performance during FY and outlook for industry in next FY; question directors; debate and vote upon motions including no confidence	60
Regulations may provide for notifying RDC of terms of motions to be moved at AGM; notifying RDC's eligible levy payers of matters relating to AGM; appointment of proxies; methods of passing motions; method of determining votes; ensuring confidentiality of levy liability in voting	61
AGM may be attended by directors, eligible levy payers, members of rep orgs, invitees of the RDC, employees and consultants as determined by Chair; Chair must preside; eligible levy payers entitled to vote; record of proceedings to be kept	62
Where motion of no confidence moved at AGM, chair to be replaced by RDC employee during vote; where no confidence in RDC passed, directors' positions vacated and Minister to terminate within one month and appoint alternatives; terminated directors may be reappointed	63
RDC to notify rep orgs of all motions passed at AGM within one month	64
Division 8 – Provisions relating to directors other than Executive Directors	
Director defined as other than Executive Director	65
Director appointed according to instrument of appointment, term not exceeding 3 years; another person may be appointed to the end of term where a director ceases to hold office	66

PIRD ACT OBLIGATION	SECTION
Directors old office on part-time basis	67
Director remuneration determined by Remuneration Tribunal; allowances as prescribed	68
Director holds office on terms and conditions set out by Minister	69
Director must not engage in paid employment that creates conflict of interest	70
Minister may grant leave of absence to Chair; Chair may grant to director	71
Director may resign by written notice to Minister	72
Minister may terminate appointment of Chair or director for misbehaviour, incapacity, bankruptcy etc (also under the PGPA Act); may terminate appointment of Chair or director if absent for 3 consecutive meetings without leave	73
Minister must appoint a director as Deputy Chair in consultation with Chair; appointment may be terminated etc; acts for Chair when required and has same powers	74
Division 9 – Executive Director	
Each RDC to have an ED	75
ED to conduct the affairs of the RDC as directed by the RDC	76
ED to be appointed by the RDC; cannot be Chair or nominated director or executive of rep org; appointment of ED is not invalid because of irregularity in connection with appointment	77

PIRD ACT OBLIGATION	SECTION
ED appointed from day in instrument of appointment and holds office at RDC's pleasure	78
ED full-time or part-time	79
ED not to engage in other paid employment of full-time, other paid employment that presents a conflict if part-time	80
ED appointed on terms and conditions as set by RDC	81
Chair may grant leave to ED on terms and conditions as set by the RDC	82
ED may resign by written notice to Chair	83
RDC may appoint person other than director to act as ED during absence	85
ED or acting ED not to be present during deliberations regarding ED appointment, terms and conditions etc	86
Division 10 – Employees and consultants	
RDC may engage employees as required; remuneration not to exceed that of ED	87
RDC may engage consultants as required	88
Division 11 – Miscellaneous	
RDC may establish committees members to be remunerated as determined by Remuneration Tribunal or as prescribed; allowances to be paid as prescribed	89

PIRD ACT OBLIGATION	SECTION
RDC may by writing under common seal delegate powers under the Act (except s.81) to a committee, director or employee, subject to the directions of the RDC	90
ED may by writing delegate powers under the Act (except s.81) to an employee, subject to the directions of the ED	91



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