

CRDC: 2013-18

INVESTMENT. INNOVATION. IMPACT





CRDC: INVESTING IN COTTON INNOVATION TO DELIVER IMPACT

CRDC invests in world-leading research, development and extension (RD&E) to benefit Australia's dynamic cotton industry, and the wider community. A partnership between the Commonwealth Government and cotton growers, we invest in innovation and transformative technologies to deliver impact. RD&E, and its resulting innovations, are a key driving force behind the cotton industry's continued success.

During the five years from 2013-18, CRDC delivered outcomes in cotton RD&E for the Australian cotton industry. This summary outlines our investments and achievements during this time - as guided by the five year Strategic RD&E Plan 2013-18.

Under this Plan, we strategically invested in RD&E in five core priority areas – **farmers, industry, customers, people, and performance** – to drive forward the profitability, competitiveness and sustainability of the cotton industry for the benefit of growers and the wider community.

Over the course of these five years, we invested \$95.6 million into 862 RD&E projects in collaboration with 205 research partners across these five priority areas, in close collaboration with the cotton industry and government.

This portfolio of projects was far reaching - we invested in RD&E that sought to 'protect and defend' our production base from pest threats; increase growers' productivity while ensuring resource-use efficiency; enhance cotton's product value through the supply chain; build a capable industry; and create innovation discovery through 'blue sky' and futures research. Our investments addressed both Government and cotton industry research priorities, and the collective Cotton Sector RD&E Strategy.

In this report, we bring you the key highlights and impacts achieved by CRDC and our investments during the 2013-18 period.

CRDC'S INVESTMENT: 2013-18

\$95.6 million – CRDC's investment in cotton RD&E on behalf of cotton growers and the Australian Government

<h1 style="margin: 0;">862</h1> <p style="margin: 0;">RD&E projects</p>	<h1 style="margin: 0;">205</h1> <p style="margin: 0;">research partners</p>	<h1 style="margin: 0;">5</h1> <p style="margin: 0;">key program areas</p>
<p style="margin: 0;">farmers, industry, customers, people and performance</p>		

PERFORMANCE AGAINST THE STRATEGIC PLAN MEASURES

Strategic Plan Measure	Result	Comments
Farmers: Cotton is profitable and consistently farmers' crop of choice		
Farmers increase productivity by 3 per cent per hectare per year	●	Average annual increase in yield for the five years of the 2013-2018 strategic plan was maintained at 3 per cent per hectare per year despite reduced yields in 2016-17. The compounding annual growth remained at just above 2 per cent for the five-year period.
Industry: The Australian cotton industry is the global leader in sustainable agriculture		
Industry can report against recognised sustainability indicators	●	The Australian cotton industry was the first agricultural industry in Australia to develop and document its performance against specific environmental, economic and social sustainability indicators. The 2014 Australian Grown Cotton Sustainability Report developed and benchmarked 45 key sustainability indicators for the Australian cotton industry. The cotton industry is committed to ongoing sustainability reporting, and with significant CRDC support has developed a range of new sustainability targets. Benchmarks as at June 2018 for these targets are: <ul style="list-style-type: none"> ■ 1.1 bales/ML (GPWI) ■ 6 per cent of farm native vegetation managed for conservation ■ 10 kg lint/kg of nitrogen ■ 383 kg of CO₂e per bale of cotton produced
Customers: The Australian cotton industry captures the full value of its products		
Double the premium for Australian cotton	●	CRDC invested in a number of projects to investigate and improve the quality of Australian cotton, and while successful, environmental impacts such as rainfall at harvest can reduce the overall quality of Australian cotton resulting in Australia maintaining its premium rather than doubling the premium. While maintaining efforts to improve fibre quality and develop systems that alleviate risk to quality, CRDC has furthered its research efforts to develop novel high-value uses for Australian cotton. These approaches are longer term initiatives and will make Australian cotton more competitive with man-made fibres.
People: Capable and connected people driving the cotton industry		
A skilled, educated and progressive workforce	●	CRDC and Cotton Australia collaborated to deliver the industry's first Workforce Development Strategy in 2015-16, and in 2016-17, the strategy resulted in \$14.7 million in vocational training funding from the NSW Government being made available through Cotton Australia for NSW cotton and grains industries. In addition, CRDC has continued support for 10 industry leadership and development programs. A study published by CRDC in 2017 to better understand and build the role of women's participation in the Australian cotton industry determined that 88 per cent of women in an industry role and 86 per cent of women on cotton farms have a diploma, degree or higher qualification, with 71 per cent involved in making major business decisions.
Performance: Measured performance of the Australian cotton industry and its RD&E drives continuous improvement		
Measured performance of the Australian cotton industry and its RD&E drives continuous improvement	●	CRDC's RD&E underpins the industry's best management practices program, myBMP, with industry participation in the program now at 78 per cent. In addition, CRDC's monitoring and evaluation (M&E) framework enables ongoing performance reporting. In 2017-18, CRDC continued to measure its performance and that of the industry through M&E, including a survey of growers, a survey of consultants, an economic analysis of the industry's performance, a longitudinal study of investments, and impact assessments of specific project clusters.

KEY: ● The measure has been achieved ● We did not fully achieve this target ● The target was not achieved



MAJOR IMPACTS OF OUR INVESTMENT

3% average growth in yield per hectare over the five years from 2013: achieving our Strategic Plan target.

4 NEW PRODUCTS

- successfully commercialised from CRDC-supported R&D: Sero X by Innovate Ag in 2016-17; and Cottonspec, cotton contamination detection sensors for gins, and algorithms for stress-time thresholds (for on-farm canopy temperature sensors) by CSIRO in 2017-18.

78%

the number of growers participating in myBMP: up from 40% in 2013. BMP handbooks also developed for classing & ginning. 87% of gins now use BMP.



35% the percentage of cotton growers who hosted a research trial on their farms.

These growers contribute an average of 19 hours and \$5500 towards these trials.

\$16.7 million

The total funds managed by CRDC across seven major grant projects from 2013-18: leveraging our investment to deliver greater impact for cotton growers.

3 MAJOR COLLABORATIVE CROSS-RDC PROJECTS

- driven by CRDC under the Rural R&D for Profit program: Smarter Irrigation for Profit, More Profit from Nitrogen, and Accelerating Precision Agriculture to Decision Agriculture - the first project to involve all 15 Research and Development Corporations.

Proof of concept of automation irrigation trialed on cotton farms

\$20.3 BILLION - the amount by which the gross value of all agricultural production could increase through the implementation of digital agriculture across all Aust production sectors - a 25 per cent increase on 2014. This is a key finding of the 2016-18 Accelerating Precision to Decision Agriculture final report, launched by the Minister for Agriculture & Water Resources, the Hon. David Littleproud MP.

BG3 RMP

The approval of the Bollgard 3 Resistance Management Plan (RMP) by the APVMA to support its commercial release in 2016-17. The result of years of collaboration between CRDC, Cotton Australia & Monsanto.



17.1 : 1

the benefit-cost ratio of CRDC's early-planting research in the QLD Central Highlands: \$17.10 in benefit to growers for every \$1 invested by growers and the Government through CRDC into this RD&E.

8.3 : 1

the benefit-cost ratio of CRDC's investment in water-use efficiency RD&E: \$8.3 in benefit to growers for every \$1 invested by growers and the Government through CRDC into this RD&E.

5.4 : 1

the benefit-cost ratio of CRDC's investment in nutrition RD&E: \$5.40 in benefit to growers for every \$1 invested by growers and the Government through CRDC into this RD&E.

Cotton's first resilience assessment



outlined the cotton industry's resilience and preparedness to major expected and unexpected future changes, events and shocks, such as drought and market fluctuations.



\$395,000

Invested in by CRDC into 45 local projects run by Cotton Grower Associations (CGAs) from 2013-18 through the CRDC Grassroots Grants program, supporting local RD&E initiatives.

New partnerships with start-up companies

Partnerships with Pollenizer, X.Lab, Startup Catalyst, The Gate. MIT bootcamps and Flurosat were established in 2013-18 to provide pathways for cotton industry disruptors and entrepreneurs.



9.1 : 1

the benefit-cost ratio of CRDC's investment in the collaborative industry myBMP program: \$9.10 in benefit to growers for every \$1 invested by growers and the government through CRDC into this RD&E.



2.5 : 1

the benefit-cost ratio of CRDC's investment in the industry sustainability RD&E: \$2.50 in benefit to growers for every \$1 invested by growers and the government through CRDC into this RD&E.



40%

The percentage of CRDC research that was in cross-sectoral RD&E from 2013-18.

\$8.5 MILLION

- invested by CRDC in innovative projects under the 'blue sky' Cotton Futures theme from 2014-18. These included innovations in gin trash, polymers, new technologies to measure water stress and technologies enabled by robotics to improve weed control.

100% awareness of CRDC among cotton consultants and 97% among cotton growers as at 2018. 91% of cotton growers believe that R&D drives continuous improvement of the Australian cotton industry.

589

- the number of cotton growers, researchers, students (undergraduate and postgraduate) and industry personnel CRDC has supported from 2013-18 through the 10 leadership and development programs we invest in.

100%

of those who provided feedback at the CRDC, CottonInfo and ICAN regional weed management workshops said the information learned would help with decisions in the field.

HRMS: Herbicide Resistance Management Strategy (HRMS) launched in 2014. 65% of cotton hectares now managed using HRMS's 2+2&0 weed control approach.

14,000

- the number of cotton growers and consultants that CottonInfo has connected with over 990 extension activities in the five years to 2018.

95% of consultants and 88% of growers believe CottonInfo has assisted with practice change in key areas

863,000

The number of collective views that the 152 CRDC-supported best practice videos have amassed on the CottonInfo YouTube channel as at June 2018.

One video, on starting a siphon pipe, has been viewed **781,000 times**



COTTON RESEARCH AND
DEVELOPMENT CORPORATION