



**CRDC**

**PERFORMANCE  
REPORT  
2020-21**

## About CRDC & the Australian cotton industry

The Cotton Research and Development Corporation (CRDC) leads investment in cotton research, development and extension (RD&E) for the Australian cotton industry. A partnership between the Australian Government and cotton growers, CRDC exists to invest in, and deliver outcomes from, world-leading RD&E to benefit Australia's dynamic cotton industry and the wider community.

We invest in innovation and transformative technologies to deliver impact, and as an organisation we are ambitious, agile, and adaptive.

Cotton is a major contributor to the economic, environmental and social fabric of rural Australia. The industry's national exports generate an average of \$1.9 billion in annual revenue, and the industry is a major employer in rural and regional communities.

Despite prolonged dry seasonal conditions across many of the cotton-growing valleys, and the challenges associated with COVID-19, the industry continues to go through a period of geographic growth. The industry continues to expand from its predominant growing base in New South Wales (NSW) and Queensland (QLD) into northern Victoria (VIC), the Northern Territory (NT) and Western Australia (WA).

RD&E and its resulting innovations are a key driving force behind our industry's continued success, and CRDC's purpose is to power the success of Australian cotton through this world-leading RD&E.

### Vision

Powering the success of Australian cotton through world-leading RD&E.

### Mission

Investing in world-leading RD&E to benefit Australia's dynamic cotton industry.

### Purpose

Outcome statement: Increased economic, social and environmental benefits for the Australian cotton industry and the wider community, by investing in knowledge, innovation and its adoption.

## Our performance report: overview

We have five strategic outcomes that we seek to achieve under our 2018–23 Strategic RD&E Plan – these in turn are the key focus areas in which we invested during 2020-21:

**GOAL 1: Increasing productivity and profitability on Australian cotton farms**

**GOAL 2: Improving cotton farming sustainability and value chain competitiveness**

**GOAL 3: Building the adaptive capacity of the Australian cotton industry**

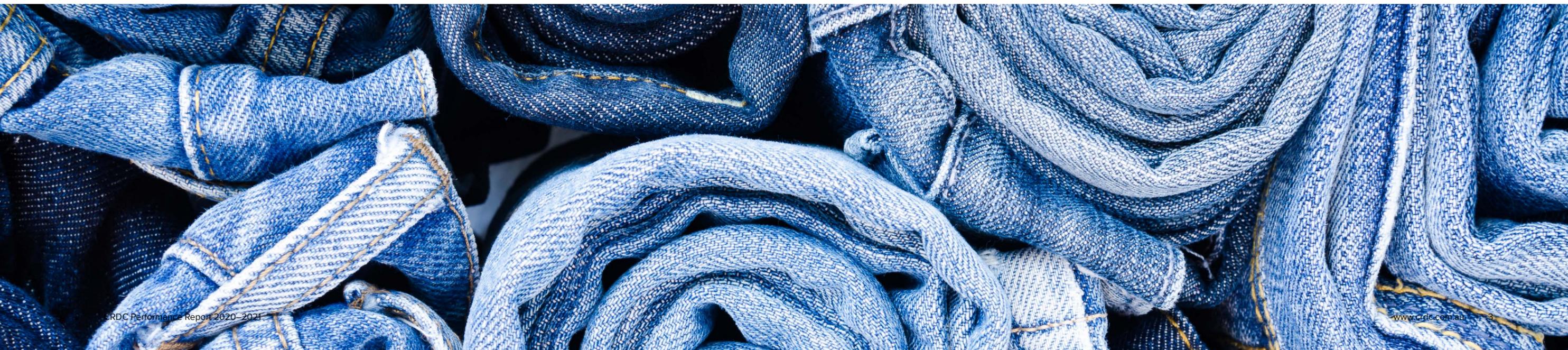
**ENABLING STRATEGY 1: Strengthening partnerships and adoption**

**ENABLING STRATEGY 2: Driving RD&E impact**

Our achievements against these outcomes are monitored and evaluated in line with the CRDC Monitoring and Evaluation Framework, and reported annually in the Annual Report, Performance Report and Portfolio Budget Statement.

This Performance Report is a companion document to the CRDC 2020–21 Annual Report. This report is by no means exhaustive, but rather provides a snapshot of the performance of CRDC against these five strategic outcomes during the course of 2020–21. Further details regarding our performance, our significant initiatives, our collaborations and our corporate governance are found in the full Annual Report, available at our website.

In addition, our website and publications, including our CRDC Spotlight magazine and electronic newsletters, and the Australian cotton industry's extension program, CottonInfo, provide further information on CRDC's research portfolio and its associated impact.



PROGRESS AGAINST CRDC STRATEGIC R&D PLAN 2018–23

# Our Annual Performance Statement

The 2020–21 year marked the third year under the CRDC Strategic RD&E Plan 2018–23. This plan provides an ambitious roadmap for our 2018–23 investments. Through this plan, we aim to contribute to creating \$2 billion in additional gross value of cotton production for the benefit of Australian cotton growers and the wider community.

Progress towards this goal has been tempered by dry conditions during the first half of the strategic plan period, and the challenges associated with COVID-19 in the second, but we remain optimistic about the future of the cotton industry, and focused on maximising the benefits to growers and the community.

The strategic RD&E investments that CRDC made in 2020–21 under this plan are helping to continue to drive the Australian cotton industry towards a future of innovation, increased commercialisation and digital transformation.

In 2020–21, Australian cotton growers and the Australian Government co-invested \$16.9 million through CRDC into cotton RD&E, across 188 projects, and in collaboration with 85 research partners.

The investments were made in the five key areas identified in the Strategic RD&E Plan:

- increasing productivity and profitability on Australian cotton farms
- improving cotton farming sustainability and value chain competitiveness

- building the adaptive capacity of the Australian cotton industry
- strengthening partnerships and adoption
- driving RD&E impact.

The Annual Report outlines progress against these areas in the 2020–21 year.

Our progress is measured, and performance analysed, through evaluation techniques outlined in the CRDC Monitoring and Evaluation Framework and targets set in the Strategic Plan. The green, amber and red traffic light system is used to track overall performance against the CRDC Strategic Plan.

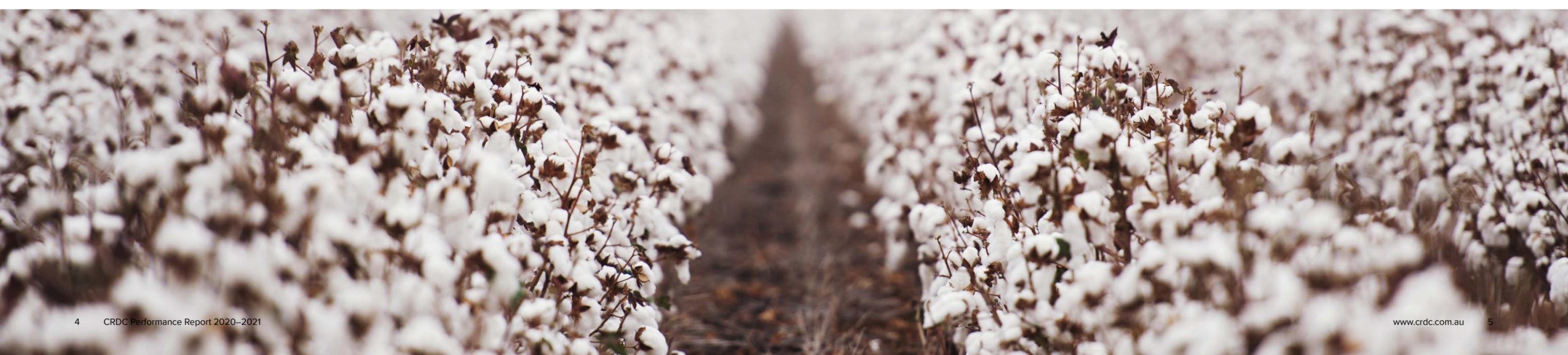
-  The specific measure has been achieved.
-  On target to deliver against the measure.
-  Not on target to deliver against the measure.

The following table provides a snapshot of CRDC's performance against the Strategic Plan measures. The targets listed here are five of 40 targets identified in the CRDC Strategic RD&E Plan.

Further details about our performance aligned with the Strategic Plan and our key focus areas are outlined in Section 4 of the CRDC 2020–21 Annual Report.

Strategic Plan Measures	Result	2023 Targets	2020–21 progress comments
 <b>Increase productivity and profitability on cotton farms.</b> Improved yield and quality.		Increase in average bales per hectare (bales/ha) from 9.86 to 11.6 bales/ha for irrigated cotton, and from 4.0 to 4.7 bales/ha for dryland cotton.	The 2019–20 crop was the smallest harvest in over 30 years due to very limited water availability and a lack of in-season rainfall. Based on 2019–20 yield information, dryland yields remain below target at under 3 bales/ha, while the 5-year average irrigated yield has remained steady from last year at 10 bales/ha. The 2020–21 season had higher rainfall across most of the cotton-growing regions; however, final production figures and, therefore, yields are not yet available. At this stage, it is anticipated that the 2023 goal will not be reached due to the adverse impact of drought and water availability.
 <b>Improve cotton farming sustainability and value chain competitiveness.</b> CRDC collaborates in global leadership for sustainability initiatives.		Participates in six global initiatives (per annum).	CRDC participates directly in six global initiatives: ICAC's Expert Panel on the Social, Economic and Environmental Performance of Cotton; the Sustainable Agriculture Initiative; the Sustainable Apparel Coalition; the Better Cotton Initiative 'Project Delta'; Cotton2040; and the Textile Exchange. CRDC also participates indirectly in the EU's Product Environmental Footprint processes via collaboration with Australian Wool Innovation (AWI), Meat and Livestock Australia (MLA) and Grains Research & Development Corporation (GRDC).
 <b>Build adaptive capacity of the cotton industry.</b> Science and innovation capacity is strengthened and strategically fit for a digital future.		50+ new/early career researchers supported through strategic career pathways (10 per annum).	CRDC supported CSIRO summer scholarships, which included six students focused on cotton-related research. In May 2021, 16 researchers attended the CRDC-supported Postgraduate Cotton Careers Tour. 94 per cent of attendees said the tour was helpful in informing them of career opportunities in cotton.
 <b>Strengthen partnerships and adoption.</b> Partnerships are strengthened to engage multi-disciplinary and multi-institutional resources.		40 per cent of CRDC's annual RD&E investments are through cross-sectoral partnerships.	In 2020–21, 55 per cent of CRDC's RD&E investments were through cross-sectoral partnerships. This included strategic collaborations on water-use efficiency, nitrogen management, novel crop protection, biosecurity, the development of the cotton industry in Northern Australia, and engagement with the European Union.
 <b>Drive RD&amp;E impact.</b> CRDC monitors and evaluates RD&E impact.		CRDC delivers five RD&E impact reports (one per annum).	Six RD&E impact reports were completed in 2021–22: two for the Smarter Irrigation for Profit Phase 2 program, and four for the More Profit from Nitrogen program (one for each of the participating industries).

 The specific measure has been achieved.
  On target to deliver against the measure.
  Not on target to deliver against the measure.



## Our investments in RD&E

We use the CRDC Strategic RD&E Plan 2018–23 to guide our investments. Through this Strategic Plan, in 2020–21, we invested to help increase productivity and profitability on Australian cotton farms; improve cotton farming sustainability and value chain competitiveness; build the adaptive capacity of the Australian cotton industry; strengthen partnerships and adoption; and drive RD&E impact.

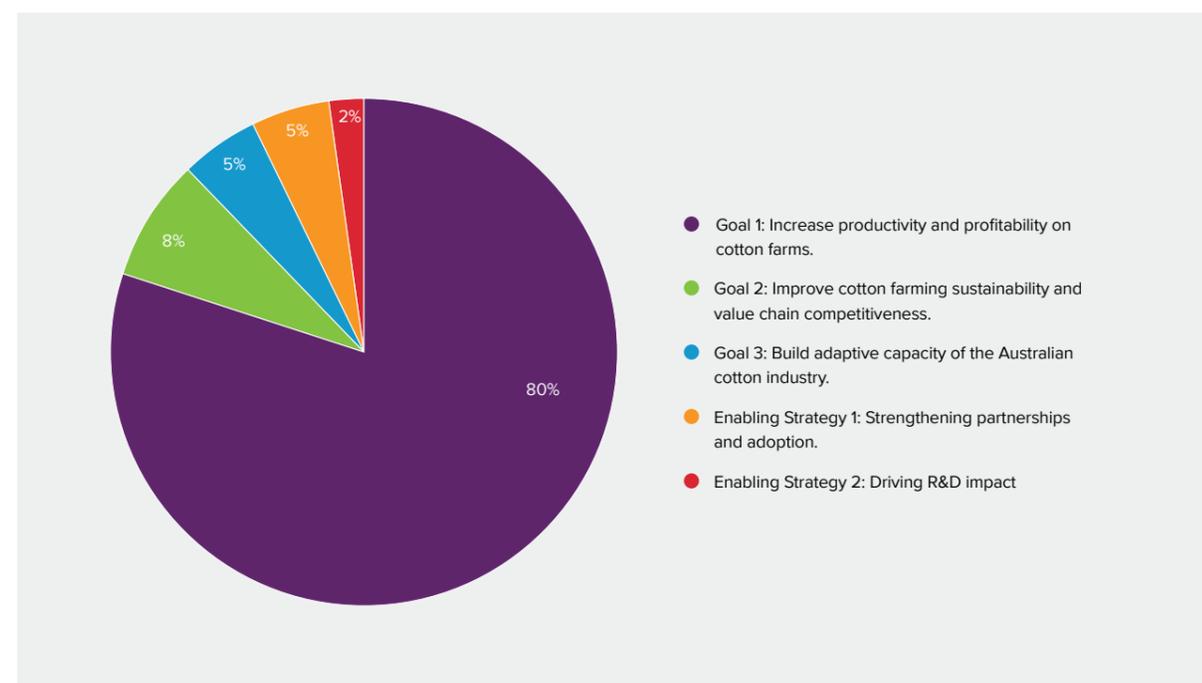
In 2020–21, we invested \$13.61 million in RD&E. Of this, \$2.09 million was invested in new research commencing in 2020–21.

### Projects by CRDC program area

CRDC program	Goal 1	Goal 2	Goal 3	Enabling strategy 1	Enabling strategy 2	TOTAL
Number of projects	94	29	28	30	7	188
Program expenditure (\$m)*	\$10.94	\$1.05	\$0.65	\$0.75	\$0.22	\$13.61
Program percentage (of expenditure)	80%	8%	5%	5%	2%	100%

\* Excludes budgeted employee and supplier expenditure and corporate research activities that support R&D planning and adoption. Some percentages have been rounded up or down.

### Investment by program



### Case study

## Groundbreaking trial to return cotton textile waste to cotton fields

A cotton farm just outside Goondiwindi is the site of a groundbreaking trial to test whether shredded cotton products could offer benefits to cotton soil health, and a scalable solution to textile waste.

The project is a partnership between circular economy specialists Coreo, the Queensland Government, Goondiwindi Cotton, Sheridan, Cotton Australia, Worn Up, and CRDC-supported soil scientist Dr Oliver Knox of the University of New England (UNE) and is linked to the industry’s PLANET. PEOPLE. Paddock Sustainability Framework.

Around two tonnes of cotton textiles and garments have been processed at Worn Up in Sydney, transported to “Alcheringa,” and spread onto a cotton field by local farmer Sam Coulton (pictured front cover).

It is hoped the fabrics will break down in the soil, increase microbial activity, lock in carbon and provide cover to improve soil moisture. Projections show 2,250 kg of carbon dioxide equivalents (CO2e) will be mitigated through the breakdown of these garments in soil, rather than going to landfill. The trial will be completed in early 2022, with initial results shortly after.

“We need to get smarter about how we reduce and manage waste. The potential to divert clothing from landfill, reduce greenhouse gas emissions, and potentially feed our soils could help deliver more sustainable practices in multiple sectors,” said Dr Oliver Knox.

Textile waste is a major problem for communities and supply chains globally, with the latest Australian estimate showing approximately 85 per cent of apparel is sent to landfill at end of life.

Farmer Sam Coulton said being part of the solution is very positive. “We grow it here and we should be able to bury it here with positive environmental and economic impact on the local community.”

For more: read the full article in the Spring 2021 edition of CRDC’s Spotlight magazine: [www.crdc.com.au/spotlight](http://www.crdc.com.au/spotlight).



## 2020–21 investment and impact

### The Australian cotton industry in 2020–21



### CRDC's investment in 2020–21

**\$16.9 million**  
CRDC's investment in cotton RD&E on behalf of cotton growers and the Australian Government

**188**  
RD&E projects

**85**  
research partners

### 5 – KEY PROGRAM AREAS

- Increasing productivity and profitability on Australian cotton farms;
- Improving cotton farming sustainability and value chain competitiveness;
- Building the adaptive capacity of the Australian cotton industry;
- Strengthening partnerships and adoption;
- Driving RD&E impact.

### CRDC impact

**100%** the number of CRDC's investments in 2020–21 that have been in partnership with the cotton industry.

**365** the number of stakeholders that provided feedback to the Australian cotton industry's draft sustainability targets during consultation in 2021–22.

**55%**  
**55 per cent**  
the number of CRDC's investments in cross-sectoral collaborative projects.

**96%**  
**96 per cent**  
the percentage of 2020 Cotton Grower Survey respondents who agreed CRDC is a trusted information source. 91 per cent said they were supportive of CRDC's investments.

**12.5%**  
**12.5 per cent**  
the targeted increase in irrigated cotton water-use efficiency that CRDC is helping the industry to achieve every five years under the sustainability targets.

**7** major collaborative projects that CRDC has led or actively participated in during 2021–22 under two government initiatives: Rural R&D for Profit, and the National Landcare Program Smart Farming Partnership.

**9** the number of priority areas for the cotton industry under the industry's sustainability targets: water, carbon, biodiversity, pesticides, soil health, quality of work life, wellbeing and social capital, efficiency, and profitability.

### CRDC impact

**50%** (Almost) **50 per cent** the reduction in water needed to grow a bale of cotton over the past 25 years. An analysis of available water use data shows the industry has almost halved the amount of water needed to grow a bale of cotton since 1996.

**15** the number of participants in the 2021 Australian Future Cotton Leaders program.

**77%** **77 per cent**

the reduction in the amount of herbicide used by the new John Deere See & Spray Select™ technology, underpinned by CRDC research, compared to traditional spraying.

**70%** **70 per cent**

the percentage of Smarter Irrigation for Profit Phase 2 participants who intend to make management practice changes to their irrigation systems in the next 12 months.

**630 students** **9** the number of local grower-led projects CRDC invested in through its Grassroots Grants program in 2020–21, taking the total number of projects supported since it began to 82.

the number of enrolments in the UNE Cotton Production Course over the past 10 years, supported by CRDC and the former Cotton Cooperative Research Centres (CRCs).

**6** the number of global initiatives CRDC participates in on behalf of the cotton industry.

**52** the number of applications received by CRDC's challenge to revolutionise spray application through the Business Research and Innovation Initiative (BRII) program, resulting in six feasibility studies.

**\$600,000**  
the minimum contribution of Country Road to a partnership with CRDC, Cotton Australia, and Landcare Australia to improve biodiversity on Australian cotton farms.

**2.3 million**  
the number of collective views that the 213 CRDC-supported best practice videos have amassed on the CottonInfo YouTube channel as at May 2021.

**75 ha**  
the area of field trials established under the Cotton Landcare Tech Innovations project to trial revegetation methods: tubestock, direct and drone seeding.

**14,000 ha**  
the area of cotton grown in Northern Australia in 2020–21, an increase from less than 1,000 hectares in 2016–17.

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If you are interested in learning more about CRDC and our investments, visit our website [www.crdc.com.au](http://www.crdc.com.au) or subscribe to our quarterly magazine, *Spotlight*.

All photos and images in this report were sourced principally from CRDC, project researchers or research institutions. Image front cover: Cotton Australia..



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