



ANNUAL OPERATIONAL PLAN

2024-25



Contents

About CRDC and Australian cotton	3
The Annual Operational Plan	6
Clever Cotton: Snapshot of the 2023–28 CRDC Strategic RD&E Plan	8
Our RD&E investment priorities and measures of success	9
Our structure: CRDC governance	14
The year ahead: 2024–25 industry and financial outlook	16
Our 2024–25 portfolio overview	18
Our 2024–25 investments	20
Our 2024–25 budgets	24
▶ ATTACHMENTS	27
Our expenditure across the Government priorities	27
Research partner acronyms	30

Acknowledgement of country

CRDC acknowledges Australia's Indigenous people as the traditional custodians of our country, and recognises their continuing connection to lands, waters and culture. We pay our respect to Elders past, present and emerging, and extend that respect to all Indigenous people.





About CRDC & Australian cotton

CRDC exists to grow the sustainable future of cotton through innovation with impact. We deliver world-class research, development and extension (RD&E) outcomes for the cotton industry through thought leadership, innovation, adoption and collaboration.

Cotton growers are at the heart of what we do: they determine our RD&E priorities and co-fund our research through a grower levy, matched by Commonwealth contributions.

Our growers, and the cotton they produce, are a major contributor to the nation's environmental, social and economic fabric.

Australian cotton is considered to be one of the most sustainable in the world, thanks in part to the RD&E that underpins it. Compared to 1992, Australian cotton growers use 97 per cent less pesticides, 52 per cent less water, and 34 per cent less land to grow one bale of cotton.

Cotton employs more than 12,000 people across 150 rural and regional communities, many of which rely heavily on cotton for their economic prosperity and viability. Each year, Australia grows enough of this high-quality natural fibre to clothe 500 million people.

And, according to the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES), the value of cotton exports will be \$3.8 billion in 2024-25.

Innovative and adaptive growers, supported by RD&E and world-leading researchers, have driven Australian cotton's success. CRDC's role is to continue driving this success through RD&E.





Our purpose

Grow the sustainable future of cotton through innovation with impact.

Our mission

Deliver world-class RD&E outcomes for the cotton industry through thought leadership, innovation and adoption through collaboration and partnership.

Our responsible Minister

Senator the Hon. Murray Watt,
Minister for Agriculture, Fisheries and Forestry

Our enabling legislation

The *Primary Industries Research and Development (PIRD) Act 1989*.





Our people

CRDC Board

<i>Chair</i>	Richard Haire
<i>Deputy Chair</i>	Bernie George
<i>Non-executive Directors</i>	Ross Burnett
	Julie Bird
	The Hon. Niall Blair
	Sally Morgan
	Michelle Tierney
<i>Executive Director</i>	Allan Williams

Our values

Bold, collaborative, future-focused and trusted.

Team

<i>Executive Director</i>	Allan Williams
<i>General Manager, Innovation (part-time)</i>	Dr Meredith Conaty
<i>General Manager, Business & Finance</i>	Graeme Tolson
<i>General Manager, Communications & Extension</i>	Ruth Redfern
<i>Senior Innovation Broker</i>	Susan Maas
<i>Innovation Broker</i>	Elsie Hudson
<i>Innovation Broker (part-time)</i>	Dr Nicola Cottee
<i>Innovation Broker*</i>	Stacey Vogel
<i>Innovation Broker*</i>	Rachel Holloway
<i>Innovation Advisor*</i>	Warwick Waters
<i>Sustainability Advisor*</i>	Chris Cosgrove
<i>Commercialisation Advisor*</i>	Evan Wilcox
<i>Innovation Administration Manager</i>	Megan Baker
<i>Innovation Administrator</i>	Lynda George
<i>Innovation Administrator</i>	Callie Hudson
<i>CottonInfo Program Lead</i>	Dr Janelle Montgomery
<i>CottonInfo Communications Lead</i>	Megan Woodward
<i>Monitoring & Evaluation Manager</i>	Dr Burton Wu
<i>Accountant</i>	Paula Ryan
<i>Accounts Officer (part-time)</i>	Jeevi Arjunan
<i>Executive Assistant (part-time)</i>	Delece Hartnett

*Contractor

Introduction

Annual Operational Plan

The CRDC Annual Operational Plan outlines the RD&E investments we will make in the 2024–25 year.

Our investments are governed by a five-year strategic plan, and 2024–25 marks the second year under CRDC's Strategic RD&E Plan 2023–28: **Clever Cotton**.

Clever Cotton sets out CRDC's vision for a sophisticated, prosperous and sustainable Australian cotton industry that is strongly connected to its value chain.

Clever Cotton is bold and unashamedly ambitious. It commits CRDC to invest in RD&E to address and capitalise on challenges and opportunities for the benefit of levy payers, the cotton industry and the wider community.

The strategic RD&E investments that CRDC will make in 2024–25 under Clever Cotton will help the industry increase its productivity and profitability, sustainably address the impacts of climate change, and improve decision making using data and digital technologies. CRDC's goal is to add an additional \$1 billion in economic value to the Australian cotton industry over the next five to ten years.

In 2024–25, Australian cotton growers and the Commonwealth Government will co-invest \$32.13 million through CRDC into Clever Cotton, in collaboration with research partners.

The investments will be made via three pillars of investment – Paddock, People, Planet – aligned with the Australian Cotton Industry's Sustainability Framework. Each of these pillars contains three themes, creating nine key investment areas:

Paddock: our future fields

- + Data-driven decisions
- + Adaptive systems
- + Connected market intelligence

People: central to our success

- + Design and innovation
- + Leadership and capacity
- + Adoption and impact

Planet: our shared future

- + Natural capital
- + Carbon
- + Circular economy





Clever Cotton

Our plan to deliver \$1 billion
in additional value to the
Australian cotton industry

Clever Cotton commits CRDC to investing across nine themes to achieve our vision and to deliver the greatest impact and best outcomes for growers (our levy payers), our industry and the wider community.

The three pillars and nine themes are distinct and interconnected. Each supports the other while directly targeting bold strategic priorities and outcomes to meet the ambitions of the cotton industry and our communities.



Snapshot of the 2023–28 CRDC Strategic RD&E Plan

Paddock

Our future fields

People

Central to our success

Planet

Our shared future



Data-driven decisions

Objective

Improve productivity, profitability, and sustainability by accurately monitoring and measuring every field on every cotton farm.

Impact

In 2028, a transparent and trusted data platform will deliver increased profitability and productivity through better decision-making, facilitating innovative research, and building trusted engagement.



Design and innovation

Objective

Embed collaboration in RD&E prioritisation, design, development, and adoption.

Impact

In 2028, growers can see RD&E addressing their problems and creating practical solutions to be adapted and adopted into their production systems.



Natural capital

Objective

Implement resilient natural capital practices that support productivity, help maintain biodiverse ecosystems, strengthen capacity for adaptation to climate change, and progressively improve regional water, land and soil quality.

Impact

In 2028, cotton farms have maintained and enhanced natural capital and are more resilient to shocks.



Adaptive systems

Objective

Grow the profitability and resilience of Australian cotton-farming systems through innovative solutions, technologies and practices.

Impact

In 2028, Australian cotton-farming systems are resilient, biosecure, and able to thrive in an increasingly variable climate with enhanced resource efficiency.



Leadership and capacity

Objective

Develop people and skills to support industry RD&E.

Impact

In 2028, the development of world-class research capability supports industry goals.



Carbon

Objective

Establish a sustainable low-carbon cotton production system for a changing future.

Impact

In 2028, the cotton industry meets market, community and government expectations for carbon.



Connected market intelligence

Objective

Enhance the sustainability, market access and diversity, and value of Australian cotton.

Impact

In 2028, Australian cotton growers are preferred suppliers of sustainable cotton.



Adoption and impact

Objective

Adopt knowledge and technology through dedicated development and delivery pathways.

Impact

In 2028, adoption has increased its rate, reach and effectiveness.



Circular economy

Objective

Develop the circular economy for Australian cotton.

Impact

In 2028, the cotton industry can participate in the circular economy, providing lasting end-of-life solutions for cotton textiles.






Our RD&E investment priorities & measures of success



The Clever Cotton Strategic RD&E Plan targets are outlined in this table. Achievement against the objectives and targets will be monitored, evaluated and reported annually in the CRDC Annual Report and Performance Report.

	Objective	Measure/s	2024-25 target	2028 target
PILLAR 1: Paddock Our future fields	The Paddock pillar focuses on the on-farm cotton system, uniting data and insights to support thriving cotton farms producing a premium product being demanded by the market.	CRDC will measure its success in this pillar by the economic value the three themes add to the industry.	An economic assessment of key drivers of profitability for Australian cotton is undertaken to demonstrate a production increase of \$0.2 billion.	CRDC's 2028 target for added value is \$1 billion.
 Data-driven decisions	Improve productivity, profitability, and sustainability by accurately monitoring and measuring every field on every cotton farm.	<ul style="list-style-type: none"> + Yield per hectare + The value of data analysis and insights created from the management and production data captured in the industry data platform. 	<ul style="list-style-type: none"> + Yield improvement is maintained at 3 per cent year on year. + A digital strategy is developed and endorsed by 75 per cent of industry bodies, ag tech providers and data collectors in the cotton industry. + The data platform software and interface is delivered. 	In 2028, a transparent and trusted data platform will deliver increased profitability and productivity through better decision-making, facilitating innovative research, and building trusted engagement.



Adaptive systems

Grow the profitability and resilience of Australian cotton-farming systems through innovative solutions, technologies, and practices.

+ The value of the systems solutions created to address the challenges of disease, sustainable industry expansion, adaptation to climate change, biosecurity threats and reduced availability of inputs.

+ CRDC’s major disease research initiative is launched and commenced.
 + Research is commenced to identify innovative solutions to address crop protection and biosecurity challenges.
 + Research is commenced to improve resilience and profitability of dryland and limited water systems.

In 2028, Australian cotton-farming systems are resilient, biosecure, and able to thrive in an increasingly variable climate with enhanced resource efficiency.



Connected market intelligence




Enhance the sustainability, market access and diversity, and value of Australian cotton.

+ Percentage of Australian cotton sold as more sustainable (as defined by the market).




+ A process for regular review of value chain needs is established and implemented.
 + Participation in three partnerships and/or initiatives focused on sustainability through the value chain.
 + A Life cycle assessment (LCA) methodology review is conducted and enhanced reporting framework for sustainability cotton production is delivered.

In 2028, Australian cotton growers are globally preferred suppliers of sustainable cotton.



	Objective	Measure/s	2024-25 target	2028 target
PILLAR 2: People Central to our success	The ‘People’ pillar aims to ensure that in developing our world-class research capability, we are providing practical RD&E solutions and increasing the reach and impact of adoption.	CRDC will measure its success in this pillar by the level of satisfaction in CRDC by growers and research partners.	Surveys demonstrate growers and research partners are satisfied with CRDC’s performance.	In 2028, growers and research partners are satisfied with CRDC. CRDC is nationally recognised for developing world-leading RD&E talent.
 Design and innovation	Embed collaboration in RD&E prioritisation, design, development, and adoption.	<ul style="list-style-type: none"> + Growers acknowledge the utility of solutions and technologies developed through CRDC investment + Progression of innovations through Technology Readiness Levels (TRLs) tracked. 	<ul style="list-style-type: none"> + The process for CRDC Innovation Brokers to develop effective investment plans are in place. + Innovations are delivered through clear pathways to impact. 	In 2028, growers can see RD&E addressing their problems and creating practical solutions to be adapted and adopted into their production systems.
 Leadership and capacity	Develop people and skills to support industry RD&E.	<ul style="list-style-type: none"> + Research capacity is assessed and integrated into CRDC’s new research programs + Industry capacity to lead change and contribute to the future of cotton and Australia’s rural industries. 	<ul style="list-style-type: none"> + Capacity audit and leadership program reviews are complete with recommendations for industry action. 	In 2028, the development of world-class research capability supports industry goals.
 Adoption and impact	Adopt knowledge and technology through dedicated development and delivery pathways.	<ul style="list-style-type: none"> + Percentage of growers actively contributing to RD&E adaptation through regional trials and data collection + Percentage of growers actively engaged with RD&E programs + Percentage of growers recognise that CRDC and CottonInfo have contributed to improving their productivity and sustainability. 	<ul style="list-style-type: none"> + Five per cent of growers are involved in increasing utility and adaptation of research outcomes through trials and data collection. 	In 2028, adoption has increased its rate, reach and effectiveness.



	Objective	Measure/s	2024-25 target	2028 target
PILLAR 3: Planet Our shared future	The ‘Planet’ pillar aims to ensure that the cotton industry contributes positively to the environment, meeting community, government and market expectations.	CRDC will measure its success in this pillar by the level of trust the industry has from the community, the market and government about how it manages and reports on its environmental and social impacts.	Surveys demonstrate trust from community, the market and government about cotton’s management and reporting of environmental and social impacts.	The community, market and government demonstrate trust in cotton’s management and reporting of environmental and social impacts.
 Natural capital	Implement resilient natural capital practices that support productivity, help maintain biodiverse ecosystems, strengthen capacity for adaptation to climate change, and progressively improve regional water, land and soil quality.	<ul style="list-style-type: none"> + Condition and value of natural capital on cotton farms as measured by sustainability framework metrics. + Higher community and stakeholder trust in the cotton industry as a responsible steward of natural capital. 	<ul style="list-style-type: none"> + Biodiversity and soils are benchmarked and the cotton industry has consistent supporting metrics and methodologies for reporting. 	In 2028, cotton farms have maintained and enhanced natural capital and are more resilient to shocks.
 Carbon	Establish a sustainable low-carbon cotton production system for a changing future.	<ul style="list-style-type: none"> + Development of a clear pathway to carbon neutrality available to support industry targets. + Improvement in nitrogen (N)-use efficiency, with N inputs matching plant demand across the rotation cycle. + Development of regionally specific guidelines for on-farm carbon sequestration in soils or native vegetation. 	<ul style="list-style-type: none"> + Cotton industry initiatives are established for low carbon production. + Two demonstration sites of a low carbon production system are established and an extension plan developed to support the industry initiatives. 	In 2028, the cotton industry meets market, community and government expectations for carbon.
 Circular economy	Develop the circular economy for Australian cotton.	<ul style="list-style-type: none"> + The ‘added value’ developed through interventions to create a circular economy for cotton. 	<ul style="list-style-type: none"> + Two new technologies or products developed from the textile waste stream. 	In 2028, the cotton industry can participate in the circular economy, providing lasting end-of-life solutions for cotton textiles.



Setting the priorities

CRDC works with the Australian cotton industry to determine the sector's key RD&E priorities; and with Government to determine its overarching agricultural RD&E priorities.

In turn, these priorities help to shape CRDC's strategic RD&E priorities, which are formalised under the 2023–28 Strategic RD&E Plan, Clever Cotton.

Industry accountability

CRDC is accountable to the cotton industry through its representative organisation, Cotton Australia. As the industry peak body, Cotton Australia is responsible for providing advice on industry research priorities.

CRDC engages with Cotton Australia in a formal process of consultation around strategic priorities and RD&E investments. Through this consultation, industry research priorities are regularly reviewed, emerging issues are actively considered, and research outcomes are adopted in the form of best practices.

Government accountability

CRDC is accountable to the Australian Government through the Minister for Agriculture, Fisheries and Forestry. Government communicates its expectations of CRDC through Ministerial direction, enunciation of policy, administration of the *Primary Industries Research and Development (PIRD) Act 1989*, and priorities (Science and Research Priorities, National Agricultural Innovation Priorities, and the Minister for Agriculture, Fisheries and Forestry's priorities). CRDC responds to government expectations through regular communication, compliance with the Funding Agreement, policy and legislated requirements, and the development of Strategic RD&E Plans, Annual Operational Plans, Annual Reports and Performance Reports.

The Australian Government describes Science and Research Priorities and National Agricultural Innovation Priorities.

The Science and Research Priorities are:

- + Food
- + Soil and water
- + Transport
- + Cybersecurity
- + Energy
- + Resources
- + Advanced manufacturing
- + Environmental change
- + Health

The National Agricultural Innovation Priorities are:

- + Australia is a trusted exporter of premium food and agricultural products.
- + Australia will champion climate resilience to increase the productivity, profitability and sustainability of the agricultural sector.
- + Australia is a world leader in preventing and rapidly responding to significant pests and diseases through futureproofing our disease system.
- + Australia is a mature adopter, developer and exporter of digital agriculture.

The Minister for Agriculture, Fisheries and Forestry's priorities for RD&E are biosecurity, climate change and sustainability, trade, First Nations engagement and workforce.



Our structure: CRDC governance

CRDC Board

CRDC is managed by a Board consisting of up to nine Directors. The Chair and our current six Non-Executive Directors are appointed by the Minister for Agriculture, Fisheries and Forestry. The Executive Director is appointed by the Board. The CRDC Board sets the Corporation's strategic direction and delegates responsibility of day-to-day management to the Executive Director.

The Board is committed to high standards of corporate governance that ensure CRDC meets its obligations to government and industry stakeholders, and appropriately manages resources to achieve its outcome and strategic plan goals.

The Board has established a governance framework and systems that enhance performance and ensures that CRDC is operating according to accountability provisions of the PIRD Act and the *Public Governance, Performance and Accountability (PGPA) Act 2013*.

The Board's functions include:

- + Establishing goals and setting strategic direction.
- + Developing and approving a five-year Strategic RD&E Plan, Annual Operational Plan, and Annual Report.
- + Establishing policies and instructions for the operation of CRDC.
- + Ensuring that risk assessment and management frameworks are in place to minimise business and financial risk.

The Board operates three committees: Audit and Risk, Investment, and People. The committees are formed by Directors, with the addition of a skills-based appointee on the Audit and Risk Committee. The Audit and Risk Committee provides independent assurance to the Board by reviewing the appropriateness and effectiveness of CRDC's financial reporting, performance reporting, systems of risk oversight and management, and system of internal control and compliance framework, including internal and external audits. The Investment Committee assists the Board to fulfill its responsibilities and strategic objectives for investment in RD&E, intellectual property management and commercialisation of project outputs. The People Committee assists the Board to fulfill its corporate governance responsibilities for human resource management.

Remuneration of Directors

The Chairperson and Non-executive Directors are remunerated under the PIRD Act in accordance with such remuneration as is determined by the Remuneration Tribunal established under the *Remuneration Tribunal Act 1973*. Under the PIRD Act, the Executive Director's remuneration is determined by the Board through the recommendation of the People Committee.

The total budgeted remuneration for the Chair, Executive Director and six Non-executive Directors in 2024–25, including superannuation, is \$662,105.

Payment to representative bodies

The Corporation's industry representative body in 2024–25 is Cotton Australia. The role of the industry representative body involves:

- + Participation in the development and review of the five-year Strategic RD&E Plan. This ensures CRDC's strategic planning continues to address evolving industry RD&E needs.
- + A meeting to receive and discuss the CRDC Annual Report for the preceding year. This enables the industry representative body to assess whether CRDC's activities for that year have met its strategic objectives, and to question senior staff on any matters of interest and concern.
- + Other RD&E related activities which vary from year to year.

While CRDC does not pay a fee-for-service to the industry representative body it may fund discrete RD&E projects and contribute to the expenses incurred as authorised under the PIRD Act.

In 2024–25, CRDC has budgeted to pay Cotton Australia \$50,000 for the direct meeting costs incurred in consultation activities involving its research and development advisory panels which consist of voluntary members (cotton growers and ginners). The advice received from Cotton Australia's R&D advisory panels is used by CRDC in considering research priorities and in making research investment decisions.



CRDC Corporate standards

In carrying out the functions of the Corporation, Directors and staff members are required to:

- + Commit to excellence and productivity.
- + Be accountable to stakeholders.
- + Act legally, ethically, professionally and responsibly in the performance of duties.
- + Strive to maximise return on investment of industry and public funds invested through CRDC.
- + Strive to make a difference in improving the knowledge base for sustainable cotton production in Australia.
- + Value strategic, collaborative partnerships with research providers, other research and development bodies, industry organisations, stakeholders and clients, for mutual industry and public benefits; including cooperation with kindred organisations to address matters of national priority.
- + Value the contribution, knowledge and expertise of the people within our organisation and that of our contractual consultants, external program coordinators and research providers.
- + Promote active, honest and effective communication.
- + Commit to the future of rural and regional Australia.
- + Comply with and promote best practice in corporate governance.
- + Commit to meeting all statutory obligations and accountability requirements in a comprehensive and timely manner.

CRDC revenue sources

CRDC's revenue is drawn from two main sources:

1. Cotton farmers pay a levy based on production. The levy for cotton is either \$2.25 per 227-kilogram bale of cotton or \$4.06 per tonne of exported seed cotton (i.e. not ginned in Australia). CRDC receives from the Australian Government \$2.21 per bale or \$3.99 per tonne. Plant Health Australia Ltd receives \$0.04 per bale or \$0.07 per tonne. Australian ginning and the export of seed cotton occurs from March to September of each calendar year. Therefore, cotton levy revenue in any financial year is drawn from two consecutive cotton crops.
2. The Australian Government matches expenditure of levies on eligible R&D, capped at 0.5 per cent of the three-year average gross value of production or the cumulative levy receipts, whichever is the lesser. The setting and collection of the industry levy is enabled by the *Primary Industries Levies and Charges Collection Act 1991* and the *Primary Industries (Excise) Levies Act 1999*.

The Australian Government general matching of industry contributions is expected to be limited by either the value of levies collected or 0.5 per cent of the cotton industry's three-year average Gross Value of Production (GVP). The trigger that will apply depends on the price of cotton, timing of the harvest and ginning, and the variability of the crop size.

Royalties from intellectual property licences, interest on investments, external grant revenue and research project refunds make up the balance of CRDC's income.

Ensuring efficiency

Ensuring continuous improvement in organisational efficiency and productivity is a key focus for CRDC. CRDC is charged with investing in RD&E on behalf of cotton growers and the Government, so ensuring these funds are used to best effect is critically important. CRDC has invested in improved systems and infrastructure to ensure continuous improvement in the organisation's productivity.

Additionally, in order to achieve both industry and national RD&E efficiency, CRDC works in collaboration with other cotton industry organisations, the Cotton Innovation Network and other rural RDCs to achieve greater strategic outcomes for the cotton and other rural industries. CRDC's collaborative approach underpins our investment strategy: we partner in approximately 80 per cent of RD&E projects conducted in the cotton sector. In 2024–25, 53 per cent of all CRDC investments will be made in cross-sectoral RD&E.



The year ahead: 2024–25 industry and financial outlook

Industry

As at June 2024, the 2023–24 cotton season is drawing to a close. Approximately 509,000 hectares were planted to irrigated and dryland cotton this season, a decrease on the 580,000 hectares the season before due to less favourable seasonal conditions. Cotton harvest is still underway, so the full results of the season are not yet known. However, it is estimated that total production will reach 4.8 million bales. The irrigated average yield is expected to reach 11.7 bales per hectare, and the dryland yield 3.63 bales per hectare.

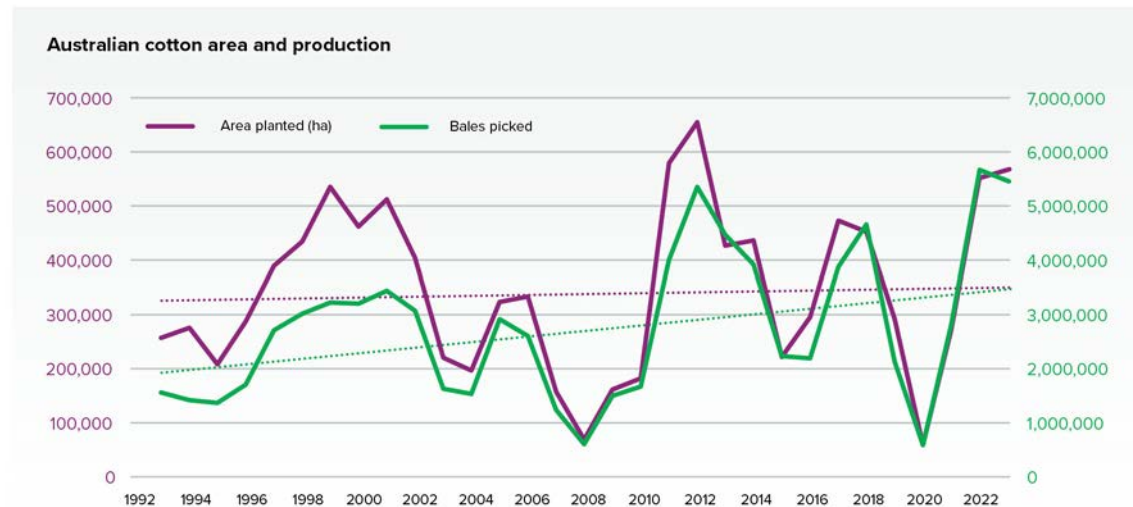
Looking forward to the 2024–25 cotton season, the current industry estimated crop size is 3.5 million bales. This reflects variable seasonal forecasts and a reduction in stored irrigation water levels, balanced with the predicted growth of cotton production and infrastructure in newer production areas – particularly northern Australia, where the crop increased in size from 1,000 hectares in 2016–17 to 22,000 hectares in 2021–22.

Financial

In 2024–25, CRDC has budgeted for a deficit of \$6.63 million, based on revenues of \$25.50 million and expenditure of \$32.13 million, which includes RD&E expenditure of \$26.93 million. CRDC will draw on the \$38.34 million estimated reserves at 30 June 2024 to manage the proposed deficit. Sufficient surplus funds were accumulated previously and strategically held for the purpose of ensuring RD&E investment can continue irrespective of production.

Wherever possible, CRDC aims to use its reserves to maintain research investment at a consistent level despite years where crop levels are below average due to climatic conditions.

The use of CRDC’s reserves complies with the organisation’s Financial Reserves Policy which ensures the organisation maintains sufficient financial reserves to ensure the efficient and effective performance of its business, the achievement of its strategic RD&E outcomes, and capacity to meet its fiduciary responsibilities.





Our 2024–25 investment portfolio

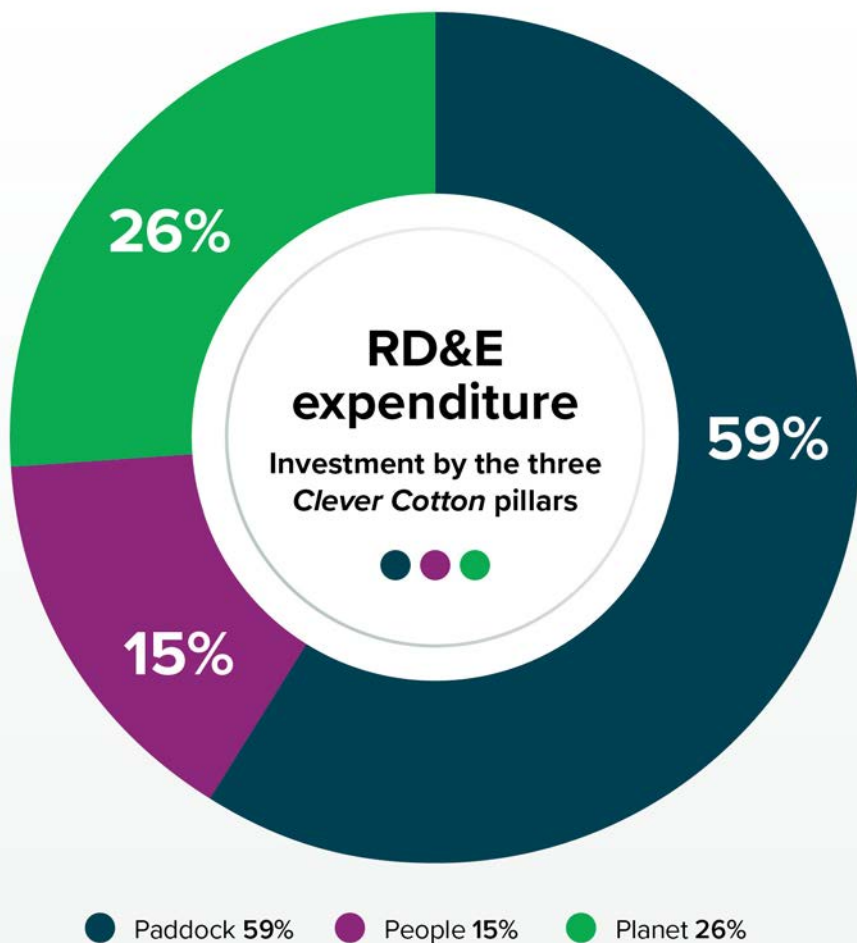
For 2024–25, CRDC’s RD&E investment is \$26.93 million, which includes active and planned investments of \$20.91 million, and corporate research and development, anticipated future grants and contingency budgets. Of this expenditure, \$10.7 million is to be invested in new research commencing in 2024–25 as part of the total RD&E portfolio.

Over the life of Clever Cotton, CRDC plans to invest a total of \$125 million. CRDC’s objective is to achieve a balanced RD&E portfolio that considers distribution of investment across:

- + The RD&E strategies.
- + The type of research including knowledge creation, knowledge transfer/application, innovation, benchmarking, and capacity and education.
- + In-project risks.
- + Researcher experience, capability and capacity.
- + Research providers.
- + Timeframe to outcomes.
- + The likely return on investment for projects and programs.
- + Expenditure on RD&E management.

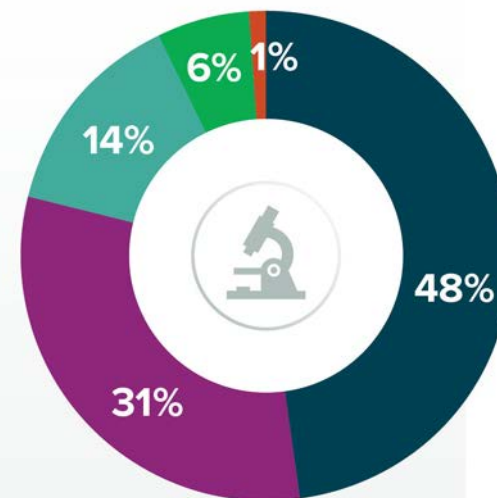
CRDC 2024–25 portfolio overview

Each year CRDC reviews the portfolio balance together with the measures of success for each program to inform decisions on any adjustments to research priorities and the allocation of resources.



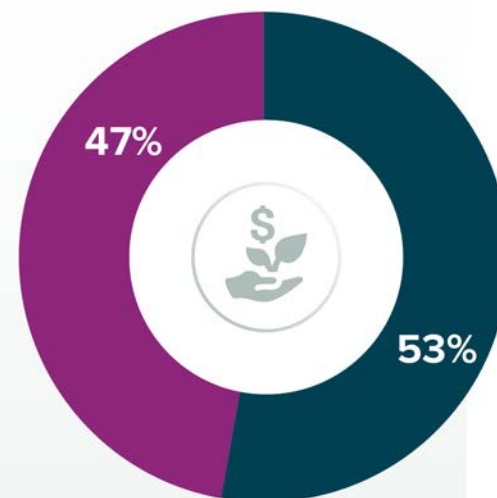
Investment by research type

- Innovation 48%
- Knowledge creation 31%
- Knowledge transfer/application 14%
- Capacity & education 6%
- Benchmarking 1%



Investment by sector – cotton specific and cross sectoral RD&E:

- Cotton specific 47%
- Cross sectoral 53%





Our investment process

The process of deciding where to invest CRDC's annual RD&E funding is a collaborative one, involving all major stakeholders.

CRDC works closely with the industry's peak representative body, Cotton Australia, and the Australian Government on an annual basis to identify and evaluate the cotton industry's requirements for RD&E. Cotton Australia and theme-level advisory committees provide advice to CRDC on research projects and where research dollars should be invested, guided by the priorities established in the 2023–28 Strategic RD&E Plan, Clever Cotton.

In line with Clever Cotton, CRDC continues to hold an annual research priority forum, bringing together the Cotton Australia research and development advisory panels to identify the gaps in the existing research portfolio and opportunities for new research. Advisory committees and discipline forums with research partners also identify emerging research issues.

From here, CRDC determines the investment priorities. As part of determining which proposals are successful, CRDC again undertakes a process of consultation with growers prior to making the final investment decision. The final decision-making authority rests with the CRDC Board.

Successful proposals become contracted projects with CRDC and are delivered by our research partners. Critically, CRDC's success in delivering RD&E outcomes to growers and the industry is contingent upon strong relationships with our research partners, who deliver projects on our behalf.

Clever Cotton utilises a new program and investment plan framework for RD&E investments. This enables CRDC to focus on delivering large-scale desired outcomes that provide better solutions for complex problems and have a greater impact for the industry. Greater emphasis and support will also be given to ensure that researchers can collaborate and share their results with each other and the broader industry.

2024–25 R&D priorities

The 2024–25 priorities forum, held in June 2023, identified a range of broad areas of focus for future RD&E investment. These were incorporated into the development of the investment plans for Clever Cotton and its new strategic RD&E priorities.

These key areas included:



- + The management of disease and the impact of disease on productivity and profitability (in particular Verticillium wilt, Fusarium wilt and Black root rot).
- + Constraints to production from soil condition, especially soil compaction and declining soil health.
- + The better use and integration of data collected on farm to support decision making and on farm management.
- + The management of pests (especially Silverleaf Whitefly, mirids and mealy bugs), integrated pest management, and understanding of how to minimise insect pest damage to yields and fibre quality.
- + The management of water, including automation, optimisation, improved scheduling technology, and strategies to reduce evaporation from storages.
- + The management of input costs, especially fertilisers (with a focus on how to increase the effectiveness of applied nutrients through better decision making).
- + The calculation of carbon emissions from cotton production, especially GHG emission driven by on farm management, and how to transition to a low carbon farming system.
- + The measurement and management of biodiversity, including habitat provision in riparian areas and weed management in remnant vegetation.
- + Capacity both on farm and off, and the difficulty in attracting and retaining staff.

Through Clever Cotton and the 2024–25 investment plans, CRDC is investing in projects to address these key needs.





Our 2024–25 investments

PILLAR 1 Paddock: Our future fields

Objective	R&D Investments 2024-25	Collaborative Partners*
 <p>Data-driven decisions</p> <p>Improve productivity, profitability, and sustainability by accurately monitoring and measuring every field on every cotton farm.</p>	<ul style="list-style-type: none"> • Building an industry data platform • Collecting industry data • Mapping fibre quality via data analytics • Developing a digital strategy for the Australian cotton industry 	<ul style="list-style-type: none"> • DataGene • CCA • USYD • Cotton supply chain stakeholders
 <p>Adaptive systems</p> <p>Grow the profitability and resilience of Australian cotton-farming systems through innovative solutions, technologies, and practices.</p>	<p>Solving farming system constraints (water, agronomy, climate change):</p> <ul style="list-style-type: none"> • Optimising irrigation performance in bankless channel cotton layouts • Support for making decisions with limited water • Supporting southern cotton production systems • Understanding the key drivers of profitability • Advancing field sensing for improved cotton management • Enhancing modern systems agronomy for resilient cotton production • Developing region-specific cover cropping guidelines • Integrating irrigation technology • Climate-proofing Australia’s cotton industry through improving crop water use and photosynthetic carbon assimilation • Developing innovative solutions for dryland/limited water cotton to enhance resilience & reliability of cotton growing <hr/> <p>Disease:</p> <ul style="list-style-type: none"> • Researching disease management in cotton farming systems • Investigating tactical management and surveillance of Alternaria and Black root rot • The Australian Cotton Disease Collaboration 	<ul style="list-style-type: none"> • Deakin • NSW DPI • CSD • UniSQ • CSIRO • USYD • WSU <hr/> <ul style="list-style-type: none"> • NSW DPI • QLD DAF • UniSQ • CSD



PILLAR 1 Paddock: Our future fields

Objective	R&D Investments 2024-25	Collaborative Partners*
	<p data-bbox="203 328 427 363">Adaptive systems</p> <p data-bbox="629 384 770 413">Biosecurity:</p> <ul data-bbox="629 424 1778 719" style="list-style-type: none"> • Demonstrating integrated weed tactics across farming systems (regionally) • Supporting the ARC Research Hub for Sustainable Crop Protection • Developing proactive approaches to integrated pest management (IPM) in cotton production systems • Improving insecticide resistance monitoring for key pests, including silverleaf whitefly, to support sustainable insect management • Supporting the Plant Biosecurity Research Initiative • Supporting the Weather and Networked Data (WAND) spray drift hazard alert and warning system <hr/> <p data-bbox="629 746 853 775">Northern Australia:</p> <ul data-bbox="629 786 1733 967" style="list-style-type: none"> • Supporting a sustainable cotton, grain and cattle system for Northern Australia • Investigating innovation in crop destruction • Researching sustainable management of soils and pesticides • Improving surveillance systems and understanding for endemic and exotic threats to northern production systems 	<ul data-bbox="1816 424 2018 975" style="list-style-type: none"> • NSW DPI • HIA • UQ • CSIRO • QLD DAF • GRDC • Goanna Ag (Discovery Ag) <hr/> <ul data-bbox="1816 746 1973 975" style="list-style-type: none"> • CRCNA • GRDC • CSD • NT DITT • WA DPIRD • QLD DAF
	<p data-bbox="203 983 580 1023">Connected market intelligence</p> <p data-bbox="203 1038 568 1134">Enhance the sustainability, market access and diversity, and value of Australian cotton.</p> <ul data-bbox="629 1038 1800 1367" style="list-style-type: none"> • Assessing the methodology and implementation of a product environmental footprint (PEF) from an agricultural perspective • Assessing the performance of Australian cotton in light of current trends • Supporting the development of the Australian Cotton Strategic Roadmap • Supporting the cross-sectoral community trust in rural industries project • Supporting various memberships and partnerships including Sustainable Apparel Coalition, Better Cotton Initiative and the Sustainable Agriculture Initiative • Reviewing industry best management practice and its effectiveness in delivering sustainability outcomes 	<ul data-bbox="1816 1038 2040 1350" style="list-style-type: none"> • Leeds University • CSIRO • Cotton Australia • ACSA • AgriFutures • SAC • SAI • BCI






PILLAR 2 People: Central to our success

Objective	R&D Investments 2024-25	Collaborative Partners*
 <p>Design and innovation</p> <p>Drive prioritisation, design, development, and adoption through collaboration.</p>	<ul style="list-style-type: none"> • Linking on-field experimentation to research and development prioritisation • Supporting process innovation and advisory committees 	<ul style="list-style-type: none"> • In development
 <p>Leadership and capacity</p> <p>Develop people and skills to support industry RD&E.</p>	<ul style="list-style-type: none"> • Supporting PhDs, scholarship programs and science forums • Supporting participation in leadership and development programs such as the Australian Rural Leadership Program, Nuffield Farming Scholarships, and AgriFutures Australia Horizons Scholarships • Research into attracting and retaining diverse staff on cotton farms 	<ul style="list-style-type: none"> • CSIRO • Universities • AgriFutures • ARLF • Nuffield • CQU • GRDC
 <p>Adoption and impact</p> <p>Adopt knowledge and technology through dedicated development and delivery pathways.</p>	<ul style="list-style-type: none"> • Supporting CottonInfo Technical Leads for natural resource management, climate and energy, fibre quality, soil health, IPM, biosecurity, and nutrition • Supporting on-farm demonstration trials • Conducting impact assessments of RD&E projects • Supporting commercialisation activities across our research portfolio 	<ul style="list-style-type: none"> • CSD • CottonInfo



PILLAR 3 Planet: Our shared future

**Additional partners will be confirmed during 2024–25*

Objective	R&D Investments 2024-25	Collaborative Partners*
	National capital	
<p>Implement resilient natural capital practices that support productivity, help maintain biodiverse ecosystems, strengthen capacity for adaptation to climate change, and progressively improve land and soil quality.</p>	<p>Biodiversity and soils:</p> <ul style="list-style-type: none"> • Researching riparian zone revegetation • Establishing biodiversity targets and metrics • Investigating industry-level natural and social capital accounts • Developing methodologies to monitor and manage biodiversity across cotton regions <hr/> <p>Water:</p> <ul style="list-style-type: none"> • Understanding the environmental co-benefits of irrigation water in the northern Murray-Darling Basin • Evaluating the economic and environmental return on investment of modern fish screens • Evaporation mitigation solutions for minimising water loss across the catchment <hr/> <p>Pesticides and nitrogen:</p> <ul style="list-style-type: none"> • Scoping of requirements for monitoring water quality • Establishing methodologies for monitoring and measuring the movement of chemicals through the environment 	<ul style="list-style-type: none"> • Landcare • NRM groups • UNE <hr/> <ul style="list-style-type: none"> • Griffith University • NSW DPI • UniSQ <hr/> <ul style="list-style-type: none"> • In development
	Carbon	
<p>Establish a sustainable low-carbon cotton production system for a changing future.</p>	<ul style="list-style-type: none"> • Assessing the critical nitrogen and phosphorus values of cotton cultivars for improved yield and fertiliser efficiency • Benchmarking soil carbon, soil properties and management between long term experimental sites and on-farm cotton industry sites • Benchmarking carbon and biodiversity in non-production areas on cotton farms • Developing greenhouse gas baselines and mitigation strategies for cotton production • Understanding nitrogen cycling in cotton soils • De-risking nitrogen decision making: insuring against yield loss through nitrogen fertiliser reduction • Developing options for low carbon farming systems • Developing a common methodology for measuring and monitoring greenhouse gas emissions on farm 	<ul style="list-style-type: none"> • UQ • NSW DPI • UNE • CSIRO • NCSU • UNE • GRDC • AIA • ZNE-Ag CRC
	Circular Economy	
<p>Develop the circular economy for Australian cotton.</p>	<ul style="list-style-type: none"> • Investigating textile waste composting for improving cotton’s carbon footprint and sustainability • Understanding the greenhouse gas emissions from textile waste in landfill, used as on-farm compost or in pelletisation • Identifying opportunities for adding value to cotton through the circular economy 	<ul style="list-style-type: none"> • Cotton Australia • UNE • UoN • UTS • RMIT



Our 2024–25 budgets

Table 3.1: Comprehensive income statement (showing net cost of services)
(for the period ended 30 June)

	2023–24 Estimated actual \$'000	2024–25 Budget \$'000	2025–26 Forward estimate \$'000	2026–27 Forward estimate \$'000	2027–28 Forward estimate \$'000
Expenses					
Employee benefits	3,084	3,958	4,165	4,353	4,557
Suppliers	1,477	1,090	1,161	1,321	1,177
Grants	17,843	26,926	22,443	20,422	18,160
Depreciation and amortisation	163	159	159	162	162
Total expenses	22,567	32,133	27,928	26,258	24,056
Less: Own-source income					
Own-source revenue					
Interest	2,000	1,000	500	500	500
Grants	657	90	-	-	-
Royalties	43	25	25	25	25
Other	250	250	250	250	250
Total own-source revenue	2,950	1,365	775	775	775
Gains					
Sale of assets	8	-	-	-	-
Total gains	8	-	-	-	-
Total own-source income	2,958	1,365	775	775	775
Net cost of (contribution by) services	19,609	30,768	27,153	25,483	23,281
Revenue from Government ^(a)					
Commonwealth contribution	11,300	9,613	7,570	7,127	10,111
Industry contributions	11,301	9,614	7,569	7,127	10,111
Other grants	644	4,910	5,000	5,000	5,000
Total revenue from Government	23,245	24,137	20,139	19,254	25,222
Surplus/(deficit) attributable to the Australian Government	3,636	(6,631)	(7,014)	(6,229)	1,941
Total comprehensive income/(loss) attributable to the Australian Government	3,636	(6,631)	(7,014)	(6,229)	1,941

(a) Revenue from Government includes a Commonwealth contribution under the PIRD Act and levies collected from industry by DAFF for R&D activities.

Prepared on Australian Accounting Standards basis.



Our 2024–25 budgets

Table 3.2: Budgeted departmental balance sheet (as at 30 June)

	2023–24 Estimated actual \$'000	2024–25 Budget \$'000	2025–26 Forward estimate \$'000	2026–27 Forward estimate \$'000	2027–28 Forward estimate \$'000
Assets					
Financial assets					
Cash and cash equivalents	6,923	6,206	6,206	6,052	6,130
Trade and other receivables	3,900	3,900	3,900	3,900	3,900
Investments	30,000	24,000	17,000	11,000	13,000
Total financial assets	40,823	34,106	27,106	20,952	23,030
Non-financial assets					
Land and buildings	1,040	1,240	1,240	1,240	1,240
Property, plant and equipment	536	494	552	549	484
Intangibles	20	28	36	44	52
Total non-financial assets	1,596	1,762	1,828	1,833	1,776
Total assets	42,419	35,868	28,934	22,785	24,806
Liabilities					
Payables					
Suppliers	114	114	114	114	114
Grants	3,000	3,000	3,000	3,000	3,000
Total payables	3,114	3,114	3,114	3,114	3,114
Provisions					
Employee provisions	616	696	776	856	936
Total provisions	616	696	776	856	936
Total liabilities	3,730	3,810	3,890	3,970	4,050
Net assets	38,689	32,058	25,044	18,815	20,756
Equity					
Parent entity interest					
Reserves	347	347	347	347	347
Retained surplus/(accumulated deficit)	38,342	31,711	24,697	18,468	20,409
Total parent entity interest	38,689	32,058	25,044	18,815	20,756
Total Equity	38,689	32,058	25,044	18,815	20,756

'Equity' is the residual interest in assets after deduction of liabilities.

Prepared on an Australian Accounting Standards basis.



Our 2024–25 budgets

Table 3.4: Budgeted departmental statement of cash flows (for the period ended 30 June)

	2023–24 Estimated actual \$'000	2024–25 Budget \$'000	2025–26 Forward estimate \$'000	2026–27 Forward estimate \$'000	2027–28 Forward estimate \$'000
Operating Activities					
Cash received					
Revenue from Government	11,424	9,613	7,570	7,127	10,111
Industry contributions	11,428	9,614	7,569	7,127	10,111
Other Government Grants	643	4,910	5,000	5,000	5,000
Other Industry Grants	657	90	-	-	-
Interest	1,853	1,000	500	500	500
Net GST received	(124)	-	-	-	-
Other	630	275	275	275	275
Total cash received	26,511	25,502	20,914	20,029	25,997
Cash used					
Employees	3,130	3,878	4,085	4,273	4,477
Suppliers	1,531	1,090	1,161	1,321	1,177
Grants	18,148	26,926	22,443	20,422	18,160
Total cash used	22,809	31,894	27,689	26,016	23,814
Net cash from (used by) operating activities	3,702	(6,392)	(6,775)	(5,987)	2,183
Investing Activities					
Cash received					
Proceeds from sale of property, plant and equipment	94	-	105	118	-
Investments	40,251	27,000	28,000	26,000	17,000
Total cash received	40,345	27,000	28,105	26,118	17,000
Cash used					
Purchase of property, plant and equipment and intangibles	673	325	330	285	105
Investments	42 000	21,000	21,000	20,000	19,000
Total cash used	42,673	21,325	21,330	20,285	19,105
Net cash from (used by) investing activities	(2,328)	5,675	6,775	5,833	(2,105)
Net increase (decrease) in cash held	1,374	(717)	-	(154)	78
Cash and cash equivalents at the beginning of the reporting period	5,549	6,923	6,206	6,206	6,052
Cash and cash equivalents at the end of the reporting period	6,923	6,206	6,206	6,052	6,130

Prepared on Australian Accounting Standards basis.



Attachment A: CRDC expenditure across the Government priorities

Note: These tables exclude budgeted employee and supplier expenditure, and corporate research activities which support RD&E planning and adoption.

Table A: Research and development expenditure estimates 2024–25 across the Science and Research Priorities

Food (\$'000)						Soil and Water (\$'000)			Transport (\$'000)			Cybersecurity (\$'000)			
1.1	1.2	1.3.1	1.3.2	1.3.3	1.3.4	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	4.4
\$853	\$3,186	\$2,007	\$829	\$5,278	\$0	\$85	\$455	\$986	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Energy (\$'000)			Resources (\$'000)				Advanced Manufacturing (\$'000)			Environmental Change (\$'000)			Health (\$'000)				Total (\$'000)
5.1	5.2	5.3	6.1	6.2	6.3	6.4	7.1	7.2	7.3	8.1	8.2	8.3	9.1	9.2	9.3	9.4	
\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$100	\$0	\$350	\$1,050	\$965	\$4,767	\$0	\$0	\$0	\$0	\$20,911

Science and Research Priorities

1. Priority 1: Food (and Fibre)

- 1.1 Knowledge of global and domestic demand, supply chains and the identification of country specific preferences for food (and fibre).
- 1.2 Knowledge of the social, economic and other barriers to achieving access to healthy Australian food (and fibre).
- 1.3 Enhanced food production through:
 - 1.3.1 novel technologies, such as sensors, robotics, real-time data systems and traceability, all integrated into the production chain.
 - 1.3.2 enhanced food production through better management and use of waste and water; increased food (and fibre) quality, safety, stability and shelf life.
 - 1.3.3 enhanced food production through protection of food (and fibre) sources through enhanced biosecurity.
 - 1.3.4 enhanced food production through genetic composition of food (and fibre) sources appropriate for present and emerging Australian conditions.

2. Priority 2: Soil and Water

- 2.1 New and integrated national observing systems, technologies and modelling frameworks across the soil-atmosphere-water-marine systems.
- 2.2 Better understanding of sustainable limits for productive use of soil, freshwater, river flows and water rights, terrestrial and marine ecosystems.
- 2.3 Minimising damage to, and developing solutions for restoration and remediation of, soil, fresh and potable water, urban catchments and marine systems.



3. Priority 3: Transport

- 3.1 Low emission fuels and technologies for domestic and global markets.
- 3.2 Improved logistics, modelling and regulation: urban design, autonomous vehicles, electrified transport, sensor technologies, real time data and spatial analysis.
- 3.3 Effective pricing, operation, and resource allocation.

4. Priority 4: Cybersecurity

- 4.1 Highly-secure and resilient communications and data acquisition, storage, retention and analysis for government, defence, business, transport systems, emergency and health services.
- 4.2 Secure, trustworthy and fault-tolerant technologies for software applications, mobile devices, cloud computing and critical infrastructure.
- 4.3 New technologies and approaches to support the nation's cybersecurity: discovery and understanding of vulnerabilities, threats and their impacts, enabling improved risk-based decision making, resilience and effective responses to cyber intrusions and attacks.
- 4.4 Understanding the scale of the cyber security challenge for Australia, including the social factors informing individual, organisational, and national attitudes towards cyber security.

5. Priority 5: Energy

- 5.1 Low emission energy production from fossil fuels and other sources.
- 5.2 New clean energy sources and storage technologies that are efficient, cost-effective and reliable.
- 5.3 Australian electricity grids that can readily integrate and more efficiently transmit energy from all sources including low- and zero-carbon sources.

6. Priority 6: Resources

- 6.1 A fundamental understanding of the physical state of the Australian crust, its resource endowment and recovery.
- 6.2 Knowledge of environmental issues associated with resource extraction.

- 6.3 Lowering the risk to sedimentary basins and marine environments due to resource extraction.
- 6.4 Technologies to optimise yield through effective and efficient resource extraction, processing and waste management.

7. Priority 7: Advanced Manufacturing

- 7.1 Knowledge of Australia's comparative advantages, constraints and capacity to meet current and emerging global and domestic demand.
- 7.2 Cross-cutting technologies that will de-risk, scale up, and add value to Australian manufactured products.
- 7.3 Specialised, high value-add areas such as high-performance materials, composites, alloys and polymers.

8. Priority 8: Environmental Change

- 8.1 Improved accuracy and precision in predicting and measuring the impact of environmental changes caused by climate and local factors.
- 8.2 Resilient urban, rural and regional infrastructure.
- 8.3 Options for responding and adapting to the impacts of environmental change on biological systems, urban and rural communities and industry.

9. Priority 9: Health

- 9.1 Better models of health care and services that improve outcomes, reduce disparities for disadvantaged and vulnerable groups, increase efficiency and provide greater value for a given expenditure.
- 9.2 Improved prediction, identification, tracking, prevention and management of emerging local and regional health threats.
- 9.3 Better health outcomes for Indigenous people, with strategies for both urban and regional communities.
- 9.4 Effective technologies for individuals to manage their own health care, for example, using mobile apps, remote monitoring and online access to therapies.



Table B: Research and development expenditure estimates 2024–25 across the National Agricultural Innovation Priorities.

	Trusted exporter of premium food and agricultural products (\$'000)	Australia will champion climate resilience to increase the productivity, profitability and sustainability of the agricultural sector (\$'000)	Australia is a world leader in preventing and rapidly responding to significant pests and diseases through future-proofing our biosecurity system (\$'000)	Australia is a mature adopter, developer and exporter of digital agriculture (\$'000)	Total (\$'000)
Expenditure	\$1,693	\$13,145	\$2,731	\$3,342	\$20,911
Percentage of total	8%	63%	13%	16%	100%





Attachment B: Research partner acronyms

ACSA	Australian Cotton Shippers Association	NT DITT	Northern Territory Department of Industry, Tourism and Trade
AgriFutures	AgriFutures Australia	QLD DAF	Queensland Department of Agriculture and Fisheries
AIA	Agricultural Innovation Australia	RMIT	Royal Melbourne Institute of Technology
ARLF	Australian Rural Leadership Foundation	SAC	Sustainable Apparel Coalition
BCI	Better Cotton Initiative	SAI	Sustainable Agriculture Initiative
CCA	Crop Consultants Australia	UNE	University of New England
CQU	Central Queensland University	UoN	University of Newcastle
CRCNA	Cooperative Research Centre for Northern Australia	UQ	University of Queensland
CRDC	Cotton Research and Development Corporation	UniSQ	University of Southern Queensland
CSD	Cotton Seed Distributors	USYD	University of Sydney
CSIRO	Commonwealth Scientific and Industrial Research Organisation	UTS	University of Technology Sydney
GRDC	Grains Research and Development Corporation	WA DPIRD	Western Australian Department of Primary Industries and Regional Development
HIA	Hort Innovation	WSU	Western Sydney University
NCSU	North Carolina State University	ZNE-Ag CRC	Zero Net Emissions from Agriculture Cooperative Research Centre
NSW DPI	New South Wales Department of Primary Industries		



Cotton Research and Development Corporation
2 Lloyd Street (PO Box 282)
Narrabri NSW 2390
Phone: 02 6792 4088
Email: crdc@crdc.com.au

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