Spotlight
ON COTTON R&D

SUMMER 2025-26

Backing innovative ideas to key issues

Diving deeper into cotton with CRDC Cotton Course

Future of industry rests in good hands

CRDC

Allan Williams

In the Spotlight

Welcome to the last edition of *Spotlight* for 2025. All of us at CRDC would like to wish our readers and cotton community all the best for the festive season, and a safe and prosperous new year.

The industry's greatest asset is its people. Every individual right along the value chain is integral to the production of world-class fibre. The cotton industry has always had a culture of looking back and acknowledging the passion and dedication of people in cotton. We see investing in people for the future as equally important.

In this issue we hear from CRDC-supported PhD students, growers and future leaders about how CRDC and Cotton Australia-supported programs have impacted their lives and careers. From PhD student Akila Ravindran, creating fertiliser coating from textile waste, to grower Matt McVeigh, who has become an industry leader and taken on the world of manufacturing, the impact of our investments is felt widely across the industry.

The CRDC Cotton Course is a new investment in our people – a suite of three microcredentials kicking off in March 2026. The structure and content of the courses has been driven by feedback from the industry and a review of the previous CRDC-supported Cotton Production Course. The CRDC Cotton Course will be complemented by the Australian Cotton Shippers Association's Cotton Fundamentals course, also available in 2026, which offers a more targeted look at cotton past the farm gate.

In this edition, we take a look at some of the research underway as part of CRDC's Circular Economy theme. Researchers are creating an important foundation of knowledge around how Australian cotton can become part of a circular economy through recycling, upcycling and composting. While composting textile waste to be returned to the soil may seem simple in theory, there are many considerations, potential barriers and unknowns that must be explored before it becomes practice. Our research is looking at the issue from every angle, from technical feasibility through to economic and logistical aspects, and innovation is a core principle of these projects.

Innovation is also at the heart of the open call that CRDC has just run to advance ideas that will help solve some of cotton's ongoing challenges. The CRDC Innovation Call offers up to $50,000 funding for innovators to deliver a proof of concept, and 29 ideas made the shortlist. CRDC will announce which projects have been chosen for investment in early 2026.

We chose to feature some exciting innovations in this edition of *Spotlight,* showing how AI and machine learning are improving agronomic outcomes for growers and consultants, and how new technologies can help advance existing cotton research priorities, such as finessing irrigation and disease control.

Disease continues to be a hot topic for our growers, and was recently the focus of the new PathCOM event. The meeting brought together the brightest minds in disease research and extension, including the team from CottonInfo and the Australian Cotton Disease Collaboration (ACDC). ACDC is one of our key investments – you can read more about our work to reduce the economic impact of disease in a lift-out enclosed with this edition.

Allan Williams
Executive Director

CRDC acknowledges the Traditional Custodians of the lands of Australia's cotton communities, and recognises their enduring connection to the land and waterways that sustain us. We value the Aboriginal and Torres Strait Islander people who have cared for this country for thousands of years. We pay our respects to their Elders past, present and emerging, and extend that respect to all First Nations peoples today.

Summer 2025-26

FEATURES

Spotlight is brought to you by Australia's cotton growers and the Australian Government through the Cotton Research & Development Corporation (CRDC). CRDC is a research, development and extension partnership between the Australian cotton industry and the Australian Government.

CRDC
COTTON RESEARCH AND DEVELOPMENT CORPORATION

Cotton Research and Development Corporation
ABN: 71 054 238 316

Vision: A sophisticated, prosperous and sustainable Australian cotton industry, strongly connected to its value chain.

Mission: Delivering world-class outcomes for the cotton industry through thought leadership, innovation, adoption and collaboration.

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ON THE COVER:
The AACS conference was a time to celebrate cotton science and the people who bring it to us.

Want to see more of Spotlight?

This edition can be viewed online at: www.crdc.com.au

COTTON NEWS

2026: Extension in Action

NO two days are the same for a CottonInfo Regional Extension Officer (REO). From disease sampling, trial coordination, meeting with growers and responding to consultant queries, organising local field days or writing newsletters – it's a wide and varied gig!

In 2026, the very important role of the CottonInfo REO is being highlighted in the annual calendar (included in this edition of *Spotlight*) under the theme 'Extension in Action'.

"CottonInfo is really proud of its 'Helping you grow' tagline and the REOs live it every day," Program Manager, Janelle Montgomery said.

"It's great to see their professional extension skills highlighted in the calendar for 2026 and we hope that it offers the broader industry an insight into the breadth and depth of the support our REOs offer."

Are you signed on?

A great way to stay informed about what's happening in the world of research, development and extension is through the CottonInfo and CRDC e-newsletters. These include topical news and events, research and extension updates, local roundups from the Regional Extension Officers, and the Moisture Manager climate outlook. Sign up to have the Australian Cotton Production Manual, Cotton Pest Management Guide and *Spotlight* magazine delivered to your inbox and be the first to hear about new CottonInfo Crop to Top podcasts.

Signing up is easy! Visit www.cottoninfo.com.au/subscribe or www.crdc.com.au/subscribe.

Share your thoughts to keep caring for cotton communities

SINCE 2013, the Regional Wellbeing Survey has been asking people across Australia about the liveability of their communities, their wellbeing and the factors affecting it, and how they navigate challenging times.

The 2025 Survey is now open, with $12,000 in cash prizes on offer to encourage rural people to contribute to ensure those beyond the bush understand their needs. A core team of researchers from the University of Canberra (UC) undertakes the survey, which asks people living outside big cities to share what's working, and what's not, in their communities.

CRDC is calling on people in cotton growing communities to take part, as the Regional Wellbeing Survey has been designed to create cotton-specific information. It provides valuable insights into the wellbeing of cotton growers and their communities, which is also used to inform CRDC on the R&D investment needed to keep growers and employees in the industry, to attract new skills when needed, and to keep everyone safe and appropriately skilled.

This year regional decision-making, drought and disaster resilience and farmer mental health will be explored. Responses inform researchers, government, community and not for profit organisations in supporting regional communities. The detailed wellbeing data is published across 100-plus indicators, helping to track how life in regional, rural and remote Australia is changing. Many nations and organisations now assess social progress using measures that go beyond economic growth, as they come to realise that growth alone doesn't guarantee a good quality of life.

"We need to understand how liveable, safe and friendly communities are, if they have good access to key services and infrastructure, and whether they are welcoming and inclusive," CRDC Innovation Broker, Rachel Holloway said.

"In other words, do they provide a good life for the people who live in them?

"CRDC previously engaged the UC Regional Wellbeing Team to develop a framework for monitoring wellbeing in the Australian cotton industry. The integration of social and wellbeing considerations is identified in CRDC's current Strategic Plan and the survey informs our sustainability reporting and indicators."

For more
Regional Wellbeing Survey
www.regionalwellbeing.org.au

CRDC puts cash on the table for your best ideas

SUPPORT of up to $50,000 is being offered through CRDC's 2025 Innovation Call to unlock transformative solutions to some of cotton's most pressing challenges.

Backed by CRDC's ambitious Strategic Plan, Clever Cotton, round one of the 2025 Innovation Call opened in September, with innovative startups, entrepreneurs, agribusinesses and research organisations invited to contribute bold, forward-thinking proposals aimed at advancing next-generation solutions for the cotton industry. The call focused on three priority challenges:

- Limited-pesticides future: Innovations that support a pest-suppressive farming system, including biological or non-chemical pest control technologies
- Riparian weed management: Cost-effective tools and methods to manage invasive weeds in riparian zones, particularly those that harbour crop diseases and pests
- Optimising nitrogen profitability: Solutions that improve nitrogen use efficiency and profitability while reducing environmental impact.

Under the call's criteria, the proposed tools and technologies had to demonstrate the potential to be adapted to cotton systems, be cost effective, be adaptable to remote and extreme climates, have a sustainable funding model, and have commercial viability beyond the life of the project.

Twenty-nine applications were shortlisted and taken to the CRDC research panels in November, where growers provided feedback on the ideas. Successful proposals will be taken through to feasibility studies to assess technical and economic viability for the Australian cotton industry.

Once feasibility has been established, successful applicants may be invited to participate in a subsequent funding round, with up to $500,000 available to deliver a proof-of-concept within the Australian cotton farming system.

A new approach to innovation

The 2025 Innovation Call builds on unique approaches to RD&E investment by CRDC over time, including a 2017 equity investment in emerging startup, Regrow Ag (formerly FluroSat).

Bringing ideas into reality: CRDC is has put out an open call to innovators, creating a new avenue to address some of the industry's pressing research questions and issues. CRDC has previously supported entrepreneur and innovator Dr Anastasia Volkova to help bring her start-up to reality.

CRDC supported Regrow Ag co-founder, Dr Anastasia Volkova, through a series of startup workshops to accelerate new technology and ideas, allowing her to grow her business.

Anastasia, who headed the list of The Australian newspaper's Top 100 Innovators in 2022, has gone on to secure millions of dollars in seed investment to further develop state-of-the-art remote sensing technology that allows farmers to measure crop health from the air, and to manage resources like water and fertiliser more efficiently. Today, Regrow Ag's technology is used across 45 countries, in partnership with major agrifood companies including Mars, Kellogg, Unilever, and Cargill.

The success of that first-of-its-kind investment approach enabled CRDC to sell its equity stake in Regrow Ag and reinvest the funds.

"It was a completely new approach for us at the time, taking an equity stake in a startup, and it was very successful, offering a ten-fold return on our investment," CRDC Executive Director Allan Williams said.

"We also saw the success of using innovation calls first-hand through being involved in programs such as the Australian Government's Business Research and Innovation Initiative (BRII).

"The cotton industry's challenge to mitigate spray drift saw BRII award SwarmFarm Robotics and INCYT just over $1 million in funding to further their technology.

"Both companies have highlighted how this type of funding helped them accelerate the development and delivery of crucial technology that paid dividends for both the developers and, most importantly, our growers," said Allan.

"Through our Innovation Call, we'll be investing in new ideas and innovations that have the potential to be commercially viable and scalable across diverse cotton-growing regions," said CRDC Acting General Manager of Innovation, Susan Maas.

"There is ever-increasing blue-sky thinking that needs to be harnessed to advance our industry, and we are excited to support bold ideas that have the potential to transform all stages of production.

"The CRDC 2025 Innovation Call is about finding the next generation of solutions that could advance the way we grow cotton in Australia."

For more
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Sustainability finds a new home as annual report released

THE release of the Australian cotton industry's annual sustainability report coincides with the launch of a new cotton industry sustainability website, designed around the PLANET. PEOPLE. PADDOCK. Sustainability Framework to showcase sustainability data and reporting.

The industry's annual sustainability reports, published by CRDC and Cotton Australia, show progress for one year and trends over five years, or longer where possible. Annual reporting is an important tool for transparently communicating to growers, customers and stakeholders the industry's progress across planet (environment), people (social) and paddock (economic) topics in the framework.

While the annual sustainability reports are designed to be as concise as possible, they are supported by a comprehensive summary and a detailed data pack, including data sources, assumptions and in-depth information. All of these documents are now available online at the new Australian Cotton Sustainability website.

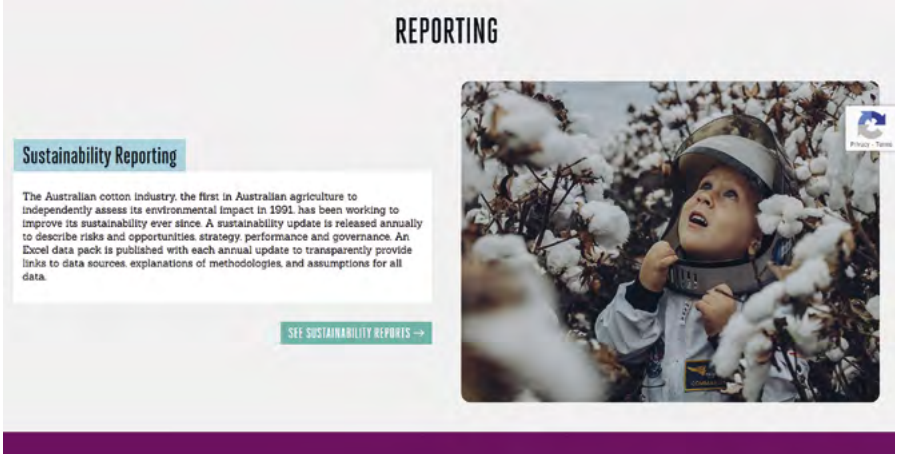
Sustainability consultant Chris Cosgrove said the annual report had also been structured differently, to deliver a clearer picture of the industry's performance.

"To meet the evolving requirements of our supply chain, brands and retailers, we've structured our 2024 report as an integrated sustainability report," Chris said.

"This aims to show how sustainability can be integrated. For example, positive or negative impacts on one part of the system, like water, will have positive or negative impacts on other environmental, social and economic parts of the system.

"We're able to do this because we have developed a new indicator framework to better measure changes in condition and function of the natural and human resources we depend on to grow cotton (see story page 16).

"This creates more granular data that supports better decision-making, helping the industry manage risks and opportunities by seeing more clearly the positive and negative trade-offs involved in cotton production, and what impacts those changes."



A new website dedicated to cotton sustainability and the PLANET. PEOPLE. PADDOCK Sustainability Framework is now live at www.australiancottonsustainability.org.au.

Data shows changes over time

In farming systems, seasonal variations can make a single year look much better or worse than average. As a result, the sustainability data is reported to show change over one year and over longer periods, to give a true indication of what is happening. Key 2024 findings include that water use efficiency (WUE) improved slightly on an annual basis, while the rate of water use efficiency gains has been largely flat for the last 15 years, the industry now using around 50 per cent less water to grow a bale of cotton in most seasons, compared to 1997. In very wet or dry seasons, water efficiency is lower.

Reducing losses in water storage and transmission, along with improved application efficiency, are outlined as key pathways to continued WUE improvement in the sustainability framework.

CRDC is supporting several projects aimed at reducing evaporation loss from storages, including the Novel Energy and Evaporative Storage Technologies for Irrigators (NEESTI) project, which is exploring the installation of floating solar panels on irrigation storages to mitigate evaporation and generate on-farm power.

"Together with our work to maintain or improve soil health and biodiversity on Australian cotton farms, this data brings the industry in line with the Global Biodiversity Framework's call for an increase in sustainable intensification," said CRDC Executive Director, Allan Williams.

"Innovative research will deliver better solutions and further improve productivity in the industry, which means building resilience to an increasingly variable climate with limited water and reduced inputs.

"Growers and others in the value chain also have the Sustainability Framework available to help them identify risks and opportunities and apply strategies to manage them.

"PLANET. PEOPLE. PADDOCK. is designed to deliver a coordinated, whole-of-industry approach to managing sustainability risks and opportunities, to benefit the entire industry through improved productivity, resilience, risk management and market access."

For more

Australian Cotton Sustainability Report 2024

www.australiancottonsustainability.org.au/reports

Dive deeper into Australian cotton with new CRDC Cotton Course

New learning opportunities are being offered to people across the cotton industry in 2026, ensuring a vibrant, knowledgeable and well-connected industry.

CRDC supported the University of New England to deliver the Cotton Production Course from 2012 until the final year in 2023. The course was well respected and regarded by the industry, with some 630 students enrolled over the decade.

The concept of delivering a university-level qualification in cotton production was reviewed by CRDC during 2024-25. Clear feedback from the industry has resulted in the development of a new micro-credentialled approach – the CRDC Cotton Course.

The course will be delivered as a series of microcredentials by the University of Sydney (USYD), in partnership with CottonInfo and Cotton Seed Distributors (CSD). Unlike traditional university courses, there are no previous educational requirements, exams, assignments or long days in the classroom.

There are three courses on offer in 2026, with Microcredential 1 kicking off in March. It will be run by USYD course coordinator Ian Simpson, who is based at the USYD Narrabri campus, the IA Watson Grains Research Centre (Kamilaroi country).

Concise and targeted

The CRDC Cotton Course microcredentials are designed as concise, targeted learning experiences, each requiring around 50 hours to complete. The delivery format for the microcredentials is hybrid, featuring a blend of self-directed learning using online resources, live and recorded online sessions and in-person 'intensives' at the IA Watson Grains Research Centre.

Aimed at growers, consultants, researchers and professionals supporting the cotton industry from the field to the supply chain, the courses contain material on specific areas of cotton farming, such as best practice agronomy, stewardship and sustainability, as well as broader topics like data, technology, business and farm management.

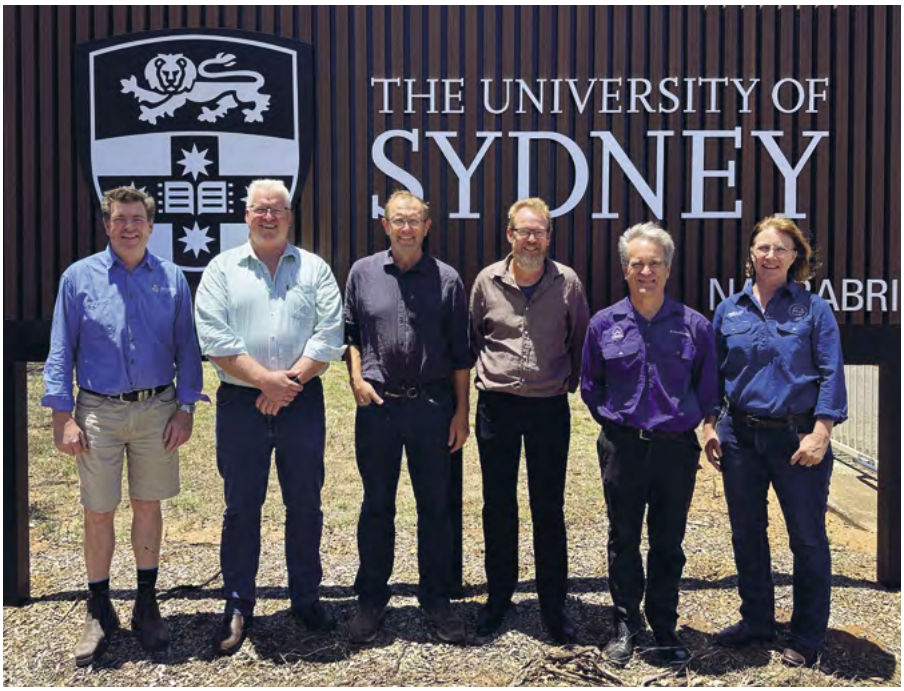
The new suite of stand-alone microcredential courses through the CRDC Cotton Course and the ACSA Cotton Fundamentals program have been developed for people across any stage of their cotton journey.

A hybrid learning approach enables participants to access course material remotely while also benefiting from hands-on, practical learning in a key cotton-producing region.

"There is a huge amount of information available to the cotton industry already through CRDC, CottonInfo and CSD, but we recognise that a course provides a framework for people to build their knowledge and have it recognised as part of their career pathway," said CRDC Acting General Manager of Innovation, Susan Maas.

"We had feedback from the industry that formal university courses can be difficult to access for those who are working full time or have different educational backgrounds, so we chose to prioritise flexible learning and target different areas of knowledge in the three microcredential courses."

CSD General Manager Growth and Development James Quinn says sharing industry knowledge will ensure the Australian cotton industry continues on its path of success.



USYD Senior Lecturer in Farming Systems Agronomy Dr Tim Weaver, CSD General Manager Growth and Development James Quinn, USYD Director Northern Region Agriculture Associate Professor Guy Roth, USYD CRDC Cotton Course Coordinator Ian Simpson, CRDC Executive Director Allan Williams and CottonInfo Program Manager Janelle Montgomery at the USYD AI Watson campus at Narrabri.

"CSD is proud to support the CRDC Cotton Course, to keep building our already thriving cotton industry in Australia," he said.

"At CSD we want to make sure growers and their advisors can produce the most desirable, profitable and sustainable cotton – what better way than through learning from the best in the business."

Three microcredentials on offer

Microcredential 1: Australian Cotton Systems is the first of the three microcredentials to be developed. It is a gateway course for new entrants to the industry and contains fundamental information about cotton growing, using the comprehensive and continually updated CottonInfo-CRDC Australian Cotton Production Manual as a guide.

Enrolments will be open to anyone in cotton interested in gaining a strong foundational understanding of the industry. The course will provide a unique opportunity for participants through an immersive three-day intensive with a combination of presentations, field walks and facilitated group activities and discussions at locations around Narrabri.

Activities will be group-based with informal networking opportunities, giving participants the opportunity to learn more from industry experts, academics and their peers. The intention is for the course to run annually, and potentially in other cotton growing regions, depending on demand.

Microcredential 1: Australian Cotton Systems

- Focus: A foundational understanding of cotton and the Australian cotton industry.
- Open to: new/early career growers, farm staff, agronomists, consultants, researchers, agribusiness professionals and others across the cotton industry value chain.
- Enrolments open: Now via http://short-courses.sydney.edu.au/course/CCACS
- Course dates/location: March 2026, Narrabri NSW
- Cost: $950, with a 10 per cent early bird discount for registrations prior to February 1, 2026.

Microcredential 2: Managing Data in Cotton Systems

- Focus: Data in cotton systems: how to collect and use it, manage technology hardware and software.
- Open to: growers, agronomists, consultants, others in the cotton industry.
- Enrolments open: April 2026
- Course dates/location: early July 2026, Narrabri NSW
- Cost: $950

Microcredential 3: Optimising Cotton Production

- Focus: How do more experienced growers and consultants take their systems to the next level? Evaluating all aspects of the production system, including potential new approaches, adapting practices and management models.
- Open to: experienced growers, agronomists, others in the industry
- Enrolments open: September 2026
- Course dates/location: November/December 2026, Narrabri NSW
- Cost: $950

Professor Stephen Cattle from USYD is developing the courses with CRDC, CottonInfo and CSD. He is involved in CRDC's dryland cotton partnership at USYD's farms.

"The microcredentials will each be standalone courses, so that people at different stages of their careers can choose to do the course most applicable to them," Stephen said.

"We're really excited about the opportunities these new courses offer including bringing really useful knowledge back to other universities, research labs and farms.

"Deepening knowledge of cotton growing, current technology, data and farm management can only lead to better outcomes for Australian cotton."

Enrolments for Microcredential 1 are now open via the USYD website. The fee includes tuition, catering and in-course transport during the three-day intensive. The price has been kept to a minimum via CRDC support, and for those travelling long distances to attend, CRDC travel support may be available.

For more

For more information or to apply for the CRDC Cotton Course:
http://short-courses.sydney.edu.au/course/CCACS
Course Coordinator Ian Simpson
cotton.course@sydney.edu.au

Follow the thread past the farm gate

THE CRDC Cotton Course will be complemented by a new course developed by the Australian Cotton Shippers Association (ACSA) offering a view of the industry from the farm gate through to fabric. The ACSA Cotton Fundamentals course is a hands-on post farm gate program combining classroom learning with site and field visits – to connect theory with real-world practice.

"It's been designed to deepen understanding of the cotton journey beyond the farm gate, exploring every stage from ginning and quality through to logistics, markets and trading, supported by insights into the broader industry landscape," ACSA CEO Jules Willis said.

"The program is designed for anyone working in or with the cotton industry who wants a solid, end-to-end understanding of the cotton supply chain.

"Whether you are new to the industry, looking to expand on your existing knowledge or keen to understand the complete process, this course is for you."

CRDC is offering two scholarships to attend the ACSA course, valued at $1500 each. Applicants will be asked to demonstrate their commitment to applying the knowledge gained from the course for the broader benefit of the sector.

"The ACSA Cotton Fundamentals course, together with the CRDC Cotton Course, mean that all aspects of the Australian cotton system are covered by targeted learning opportunities," CRDC's Susan Maas said.

"The ACSA course has been developed by post farm gate professionals, giving real-world insights and an opportunity to learn from them."

Applications are now open.

For more

For more information or to apply for the ASCA Cotton Fundamentals course:
Tracey Byrne-Morrison
secretariat@austcottonshippers.com.au

ACSA Cotton Fundamentals

- Date & Location: March 17–19, 2026, Narrabri NSW
- Cost (ex GST): $2700 for ACSA members; $3000 for non-members
- To apply for the ASCA course: secretariat@austcottonshippers.com.au
- To apply for a CRDC scholarship: research@crdc.com.au

New outlook for collaborations for disease management

CottonInfo Program Manager Janelle Montgomery, CRDC Acting General Manager of Innovation Susan Maas, CottonInfo Namoi Valley Regional Extension Officer (REO) Bob Ford, ACDC Director Professor Sam Periyannan, CottonInfo Darling Downs REO Annabel Twine, CottonInfo Disease and Biosecurity Technical Lead Sharna Holman and Border Rivers/St George REO Andrew McKay at PathCOM.

THE Australian Cotton Disease Collaboration's (ACDC) recent PathCOM meeting united those from across the cotton disease research, development and extension (RD&E) sector.

The inaugural PathCOM event took place in Toowoomba (Barunggam country) and provided a platform for a diverse range of participants — including CRDC Acting General Manager of Innovation, Susan Maas, who manages investment in disease research — to interact with researchers and commercial research providers.

The event was an initiative of CRDC, the ACDC and CottonInfo, coordinated by a committee that included CottonInfo Disease and Biosecurity Technical Lead, Sharna Holman.

Sharna says PathCOM provided a forum for industry stakeholders involved in disease RD&E to come together in the same room, to share current research, identify opportunities for collaboration, and recognise where research efforts may be overlapping.

"It was encouraging to see new faces and next-generation researchers, including the PhD students supported by ACDC, all making a joint effort to minimise the impacts of cotton diseases, and PathCOM provided a valuable opportunity for people to meet, connect, and build important networks," Sharna said.

"PathCOM identified several opportunities to strengthen extension messaging and ensure best management practices are communicated more clearly and consistently across the industry."

The event also underscored the role of CottonInfo in facilitating knowledge transfer and collaboration between researchers and growers. CottonInfo Program Manager Janelle Montgomery said PathCOM enabled the team to connect directly with researchers.

"We talked about the collaboration opportunities around sampling, future trials, data sharing and how CottonInfo communicates R&D findings to growers and advisors," Janelle said.

"PathCOM gave the CottonInfo REOs a chance to network with researchers, as we were keen to invite them to our regional events.

"ACDC researchers, including PhD students, said they were eager to attend area wide management (AWM) meetings and cotton catch ups and participate in other CottonInfo activities to connect with growers and consultants."

CottonInfo wasted no time putting this into action. AWM and cotton catch ups featuring researchers in disease were held throughout November and early December.

"This engagement is vital to ensure that the research produces validated, practical, and applicable outcomes for cotton growers," Janelle said.

"We'd like to thank growers and advisors who took the opportunity to meet the researchers and join in these informal discussions about their issues and disease RD&E."

PathCOM also highlighted concurrent disease research being done by the CSD Richard Williams Commercial Research Initiative, CSIRO, NSW DPIRD, Crown Analytical Services and Innovate Ag, and facilitated pathways to information sharing.

Crown's Rob Long says PathCOM was an excellent meeting.

"The sentiment, camaraderie and collaboration between the research bodies was a real feature of the event," he said.

"The Crown Analytical team have generated some significant findings and were pleased to have the opportunity to share our Richard Williams Research Initiative data with other industry researchers.

"Cotton growers and consultants can be assured that good science and methodology is being used to assist them in their battle against disease."

ACDC Director Professor Sam Periyannan said bringing the ACDC team together with industry and private enterprise was important to improve outcomes for growers.

"Collaboration is a cornerstone of ACDC and so seeing people identify where they can collaborate and coordinate was a highlight for me," Sam said.

"Further, it is important to work out an integrated and effective disease management strategy taking into account the current farming system practice.

"More broadly, PathCOM fostered robust discussions about the current state of knowledge, ongoing research, best management practices, and key knowledge gaps in disease management for the Australian cotton industry."

The ACDC is a large collaboration between CRDC, the University of Southern Queensland and the Qld DPI to reduce the impact of diseases in cotton to less than five per cent of the cost of production, through research in key areas.

Included with this edition of *Spotlight* is an overview of the ACDC projects and the people involved.

For more

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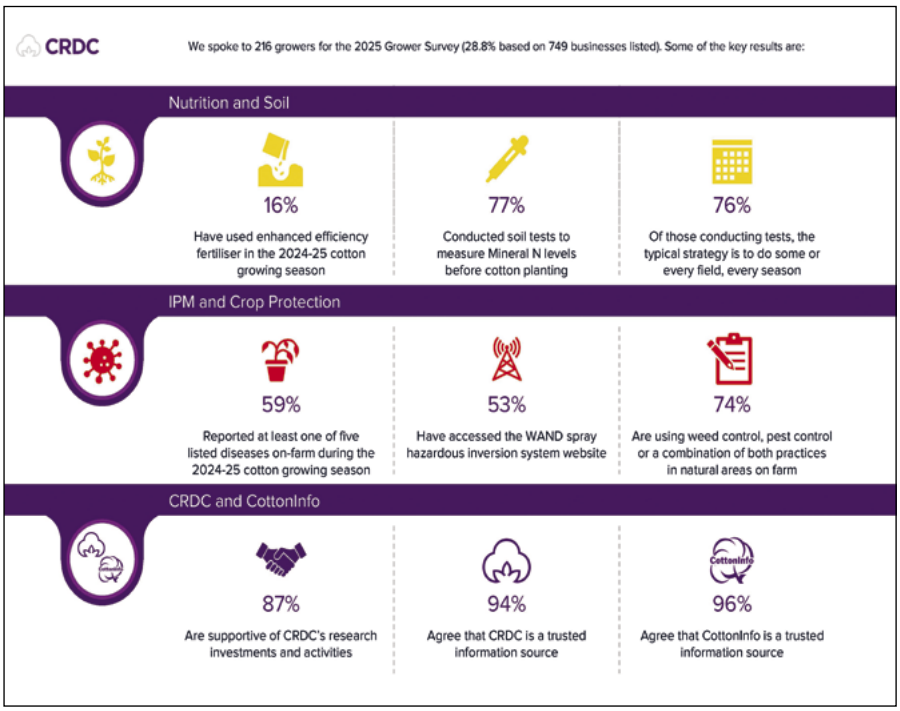
Have a look over the fence via CRDC grower surveys

THE findings of the latest CRDC annual Grower Survey were released in October, with a new section focused on alternative energy sources.

The survey collected interesting feedback from growers about their awareness of and opinions on a range of topics, including alternative energy, specifically, solar and biodiesel. It shows that growers are very open to alternative energy sources. The survey asked growers if they would look at substituting biodiesel for traditional diesel fuel if it were possible to make locally from relevant cropping feedstocks, such as canola. Almost four in five respondents agreed – a finding that was consistent across all regions (ranging from 72 per cent to 100 per cent) and all farm sizes (ranging from 63 per cent to 91 per cent).



Use of EEFs expanding

Nutrition and soil were another focus in this year's survey. Growers were asked which products they used, rates of application, and if they used enhanced efficiency fertilisers (EEFs), which include controlled or slow-release fertiliser, nitrification and urease inhibitors.

One in six growers surveyed used EEFs in the 2024-25 cotton season. This is an increase from four per cent in the last survey. The extent of use of EEFs was higher among growers in Central Qld (38 per cent), and slightly higher on larger farms (24 per cent). Nearly 80 per cent said they did soil tests to measure mineral nitrogen prior to cotton planting.

CRDC Innovation Broker, Dr Nicola Cottee, manages investments related to soil health and nutrition, and said the annual CRDC Grower Survey was useful in reflecting the level of integration of research on farms, and identifying where knowledge gaps existed and further research was required.

"We anticipate increasing use of EEFs in line with market and finance signals around low emissions cotton, so we're investing in R&D to ensure that the emissions factors for EEF use in cotton are accurate," Nicola explained.

"This is so that growers can capture value from investing in low emissions fertilisers by accessing green finance or through markets, for example.

"We're also working with the Zero Net Emissions Agriculture CRC to benchmark the performance of these products, so that there's a way for growers to get independent information about the greenhouse gas emissions for EEFs.

"CRDC is a major supporter and collaborator with the Queensland University of Technology (QUT) in a project to predict and directly measure the impact of EEF nitrogen fertiliser on emissions and production in cotton fields."

CRDC is also investing in LEIFS (Low Emissions Intensity Farming Systems) for cotton so that growers can try integrating EEFs into their farming systems in a low-risk manner and share their experience with others in their region.

The Cotton LEIFS project is part of a broader initiative developed by the Grains Research and Development Corporation (GRDC). It is delivered in NSW and Queensland by NSW DPIRD and Qld DPI. In addition, Cotton Australia is partnering with CRDC and the Australian National University to conduct whole farm GHG audits, with support from Better Cotton.

Insight into practice

Through the survey, growers also shared information on their workforce, integrated pest management approaches, disease incidence, concerns about the impact of riparian weeds and their thoughts on CRDC and CottonInfo.

"The CRDC Grower Survey is an annual initiative that is important because it offers us an insight into what our growers are doing, thinking and managing," Nicola said.

For more
CRDC 2025 Grower Survey
www.crdc.com.au/publications/cotton-grower-survey

Ground-breaking research addressing a global issue

MELANIE JENSON

CRDC is taking steps to solve the issue of cotton textile waste by providing much needed foundational knowledge around reusing, recycling, upcycling, and reclaiming fibres, with the aim of working towards a circular economy for Australian cotton.

ABOVE: Initial projects to lay the foundation for cotton to move towards a circular economy included the feasibility of physically returning cotton clothing waste to cotton farms. Goondiwindi grower Sam Coulton was integral to the project, finding a method using a fertiliser spreader to distribute the shredded material.

The Circular Economy theme was introduced to CRDC's investments for the first time under the 2023-28 Strategic Plan Clever Cotton. CRDC invested in circular economy research for environmental, economic and social reasons, primarily to establish lasting end-of-life solutions for cotton textiles, reduce the industry's environmental impact, and meet market and community expectations for sustainability. With increasing regulations on environmental impact, investing in circularity helps the Australian cotton industry remain a preferred supplier to brands and retailers, potentially lower its carbon footprint and create new economic opportunities for rural communities.

Cotton sits naturally in a circular economy as it is a biodegradable, renewable and recyclable fibre. It also breaks down quickly in water and soil. Developing a textile waste solution has the added benefit of creating economic value from previous waste streams, and where feasible can provide jobs in cotton-growing areas.

Across five projects, including three PhD studies, the opportunities to add value to the cotton

circular economy are being identified, quantified, and implemented where possible.

The first step has been undertaking crucial foundational research to understand the feasibility and process involved in creating a circular economy for Australian cotton. To understand the benefits of providing end-of-life solutions to cotton textile waste, these investments seek to identify and quantify the greenhouse gas emissions from textile degradation in landfill and the many forms of waste processing options. Researchers are also investigating how carbon and cellulose extracted from textile waste can be used in new and exciting ways.

Felicity Muller is one of CRDC's new Innovation Brokers and is responsible for projects under the Circular Economy theme. One of Felicity's first aims was to meet the researchers at the University of Newcastle (UoN), University of Technology Sydney (UTS) and University of Queensland (UQ) to learn more about their research.

"It was wonderful to meet the teams behind these projects that are answering some big questions of interest to the industry," Felicity said.

"These projects are at various stages of information discovery looking in to composting processes and the range of uses for cotton at its end of life including as a biocoating for fertiliser.

"While there are still more questions to answer it's great to see all of these discovery phases being worked through, and the novel approaches that these researchers are taking to solve these challenges."

One of these challenges is how to create 'pure cotton' products and compost.

"I guess the biggest surprise for me in visiting these researchers was that basically no cotton product, even if identified as 100 per cent cotton, is plastic free so there are challenges to be managed in end-of-life solutions for cotton," Felicity said.

"Our research teams are working towards solutions that ensure that this is not a barrier but thoughtfully considers an appropriate pathway for any recycled cotton products.

"Australian cotton has significant potential to contribute positively and constructively to the circular economy.

"This theme will help the industry take a leading role in understanding and seizing those opportunities."

For more
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Working at the UoN APRIL facility, Arun is working on efficient, robust methods to remove dyes and synthetic fibres to create pure cotton products for composting.

Ironing out the creases in textile composting

CRDC-supported PhD student Arun Chandra Manivannan is leading a project aimed at closing the loop in cotton textile production through composting.

Working with researchers at UoN's Australian Plastics Research and Innovation Lab (APRIL), Arun is exploring how cotton textiles can be safely recycled and returned to the soil, creating a truly circular pathway for cotton.

A major factor for researchers is that textile waste is complex and cannot be directly composted. Most discarded cotton fabrics are blended with synthetic fibres such as polyester and/or contain nylon, which complicates composting and raises concerns about residual contaminants and microplastic pollution.

To address these challenges, Arun's research first focused on developing efficient methods to separate and remove synthetic components from blended textiles, while also assessing the environmental safety and performance of these processes.

"We've developed a more efficient and robust process to remove dyes and synthetic fibres, leaving behind pure cotton," Arun explains.

With this cleaner cotton fraction recovered, the next stage of the project — Closing the loop in textile production by composting textile waste for improved footprint — is now underway.

"This phase focuses on fixing the carbon stored in cotton during its growth back into the soil through composting, with the aim of improving soil health, supporting the carbon economy, and enhancing agricultural productivity," Arun said.

This will involve trials where cotton textile waste will be converted into compost using soil from the Australian Cotton Research Institute at Narrabri (Kamilaroi country), working with long-term cotton industry soil scientist, Dr Guna Nachimuthu from NSW DPIRD.

"In the extended scope of this research, the team also aims to identify the feasibility of the treatment process and new recycling loops that extend cotton's usable life by enabling the recovered material to be incorporated back into clothing and other products, before ultimately returning to the soil as compost," Arun said.

"This circular pathway ensures that cotton's value is maximised throughout its life cycle, reinforcing CRDC's vision for a sustainable and resilient cotton industry."

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Creating new products while addressing contamination and circularity

CRDC-supported PhD candidate Akila Ravindran is undertaking groundbreaking research that aims to recycle cotton textile waste into biodegradable fertiliser coating.

Akila's PhD study at UoN focuses on using eco-friendly processing techniques to recycle textile waste into functional biopolymers. These biopolymers are being evaluated as potential coating materials for the development of biodegradable, controlled-release fertilisers, which would reduce the carbon footprint of cotton growers and the industry and also act as a soil conditioner.

The project offers insights into the environmental implications of current fertiliser technologies and proposes a green alternative that aligns with the cotton industry's sustainability goals. The findings could help create a closed-loop system where waste is transformed into value-added agricultural inputs.

Akila is working with Associate Professor Thava Palanisami at the UoN's Environmental Plastic and Innovation Cluster (EPIC). Thava is also supervising another CRDC-supported PhD student, Arun Chandra Manivannan, in his studies in EPIC's circularity investment area, where the goal is to not just rethink the future of plastics, but to actively work to replace them.

A number of controlled-release fertiliser products currently use a polymer coating which can break down into microplastics in the soil. Cotton textile waste is also a major issue. Finding solutions to both would go a long way towards creating a circular economy for Australian cotton.

> ***" I am exploring sustainable materials and circular economy solutions to address both plastic pollution and textile waste."***

PhD scholar Akila Ravindran is working with Associate Professor Thava Palanisami (at right) at UoN's Environmental Plastic and Innovation Cluster (EPIC). They are pictured with CRDC Innovation Broker Felicity Muller who visited the facility recently to see the progress of Akila's ground breaking work exploring turning textile waste into fertiliser coating.

"Polymer-coated fertilisers are widely used because they enhance nutrient delivery efficiency, but over time, the coatings can break down into microplastic particles and affect soil health and crop productivity," Akila said.

"Through my research I am exploring sustainable materials and circular economy solutions to address both plastic pollution and textile waste.

"By integrating value-adding to cotton waste products at end of life with sustainable agricultural practices, we aim to create a dual-benefit approach: mitigating microplastic contamination while reducing the amount of textile waste entering landfill."

Controlled release fertilisers allow a gradual and targeted nutrient delivery system to promote optimal plant growth. The downside is they cost more to produce, there can be insufficient synchronisation with plant nutrient uptake (being available at the right time) and the synthetic polymer-based coating may pollute the environment. Various delivery systems including coatings, matrices and hydrogels have been developed for sustainable release.

"Biopolymers offer several advantages, including biodegradability, tunable release profile, and compatibility with current farming practices," Akila said.

"This review aims to better understand emerging applications of biopolymers in controlled-release fertilisers, to develop products that avoid using non-biodegradable polymers while retaining the benefits that will ensure agriculture's sustainability."

For more
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Can composted cotton textile waste realistically return to the soil?

Currently, most cotton textile waste with its embedded carbon is going to landfill. But what if it could be diverted from general waste and used to nourish productive agricultural soils?

That's the concept behind CRDC's support for research under the Circular Economy theme that seeks to develop a pathway for the composting and agricultural use of pure cotton textile waste. This work is being done by Johannes Biala and Joshua Bennett-Jones at the University of Queensland's Centre for Recycling of Organic Waste and Nutrients (CROWN).

Due to the way that cotton lint is processed, cotton textiles naturally resemble cotton plants in structure. Pure cotton textiles are comprised of around 90 per cent cellulose and have a carbon content around 40 per cent.

Multiple considerations

In general terms, composting represents a viable and scalable strategy for transforming cellulosic textile waste into valuable organic soil amendments. Where the waste is generated is likely to inform where processing operations are based.

"Since most textile waste is generated in urban centres, it would be easiest if pure cotton textile waste such as towels, sheets and clothing was separated at the source or at collection points, and then combined with existing dedicated organic waste streams such as garden or food organics for composting," Johannes said.

"In regional areas, co-composting of pure cotton textile waste with animal manures or food and fibre processing residues, e.g. from a cotton gin, might be considered an option, but low quantities and the need for pre-processing (shredding) of textiles could present significant hurdles.

"In fact, we are not even sure if there is enough pure cotton textile waste in Australia's major urban centres that would justify the separate collection and pre-processing of these textiles, prior to delivering them to commercial composting facilities."

A number of small and large-scale trials by various research organisations have clearly demonstrated that cotton textiles can be composted, although there are a range of factors that affect degradation dynamics and the quality of the final product.

Breaking down the risks

Apart from cotton quality and weave density, functional treatments commonly applied in

Understanding the pros and cons of returning cotton textile waste to the soil, including the logistics and availability of pure cotton textile waste, are just some of the threads being explored in CRDC-supported research.

textile production, such as chemical finishes and dyes, significantly affect fibre properties and the efficiency of biodegradation. They often delay the breakdown of cotton textiles and introduce potential contamination risks, including non-biodegradable components (e.g. zippers, threads) and blended textiles made of both cotton and synthetic fibres.

"Actual contamination levels of pure cotton textiles prior to their use, through dyes, flame-retardants and anti-crease treatments, and during their use, from fabric softener or bleach, and the associated risks that are then transferred by compost to soil have yet to be established," Johannes said.

"We plan to carry out a regulatory review that seeks to clarify the position of state Environmental Protection Agencies on the acceptability of composting and direct land application of pure cotton textiles, as well as testing requirements and acceptable contaminant levels in textiles and generated compost.

"Progress in recycling pure cotton textile waste is slow, although we are now seeing circular apparel lines that promote full-cycle recycling by offering incentivised in-store return schemes, with the waste processed via re-manufacture or composting."

Domestic opportunities

Most of these initiatives to enhance the circular economy for natural fibres are found in North America and Scandinavian or other European countries.

"Here, we are only just starting to look at what might be possible in this field," Johannes said.

"Major barriers to the successful recovery and composting of pure cotton textiles in Australia and most other western countries are the lack of separation schemes at source, and securing a critical mass and viable supply chains for pure natural textiles."

Johannes and the team at UQ's CROWN have started small-scale composting trials to determine how fast pure cotton textiles degrade when they are co-composted with various feedstock materials. To do this, the researchers place cotton textiles of a specific size in mesh bags and place them in the composted material.

"We remove the textiles at weekly intervals to determine the amount of textile carbon that remains and/or has been converted, which allows us to determine the speed of degradation when they are co-composted with different feedstock materials and at different temperatures," Johannes said.

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Lighting the path

Australian cotton growers have some new tools to guide their businesses to be as efficient and sustainable as possible.

Being sustainable is not only good for business, it also provides growers and the industry with a valuable story to tell.

The story that everyone past the farm gate — raw lint customers, brands, consumers and other countries – wants to hear today is the impact that growing a cotton crop has on things like greenhouse gas emissions, water resources, soil health, and human rights.

CRDC and Cotton Australia are working together to help growers and the industry share their story by creating guidelines such as the PLANET. PEOPLE. PADDOCK. Sustainability Framework and the Strategic Roadmap for Australian Cotton, while updating programs such as *my*BMP to encourage growers to build a more efficient and sustainable operation.

What does it really mean?

But what does the term 'sustainability' essentially mean in terms of cotton growing?

Spotlight asked Chris Cosgrove, the industry's sustainability consultant.

"Sustainability is about managing the economic, social and environmental risks and opportunities in any business or industry," Chris said.

"Like everything else, if you measure it, you're more likely to manage it well, which means you're more likely to be efficient with the economic, human and natural resources you depend on to grow cotton."

Efficiency and productivity – being as effective as possible with the inputs needed to grow cotton – are key benefits of managing sustainably.

A recent example of the Australian cotton industry's improved sustainability and economic profile is due to more efficient use of water.

Advances in science and technology and their uptake by growers were key aspects of improved water use efficiency (WUE). Initially, technology was developed to enable precise measurement of water use and the familiar phrase 'Measure to Manage' was coined. When this was combined with improvements delivered by plant breeding, growers started producing more with less. It's a proud achievement and a story that is worth sharing.

to sustainability using cotton-specific tools

Measure to manage

Water is the biggest input expense and constraint for many growers, but the sustainability and efficiency correlation is the same for all other inputs. For example, improving nitrogen use efficiency improves farm margins, and delivers a lower greenhouse gas intensity crop to customers; reducing pesticide use lowers farm costs and shows responsible stewardship to the community to support ongoing use of pesticides; keeping people safe reduces temporary or permanent loss of staff to the farm business and increases the appeal of the farm as a workplace for potential employees, and so on.

"The idea of measuring inputs is not a new one, and because there is such a strong relationship between sustainability and productivity, most of the sustainability data needed by banks, cotton brands and others for sustainability reporting is data that farmers already have," Chris said.

"Growers who measure key sustainability indicators and monitor farm performance to improve productivity or efficiency can use the same data to support market access, by giving customers the social and environmental information they are increasingly asking for.

"This will improve the industry's social licence by providing real data on responsible social, environmental and economic impacts."

Updated indicators of farm sustainability

The industry's sustainability indicators have recently been updated and compiled into a spreadsheet of 44 indicators that growers or their advisers can download and populate with annual data. There are eight priority areas: water, greenhouse gases, native vegetation, pesticides, soil health, workplace, productivity, and economic contribution. Under each area are a handful of indicators designed to act as guides for what to measure.

Chris said the updated guidelines have taken the guesswork out of what to measure at a farm level to align with the industry's sustainability reporting.

"The new list of farm-scale indicators aims to give growers a tool to measure the relevant things once and make that data work harder, because it is designed to be used at multiple levels, including for farm business decision-making, emissions accounting, natural capital accounting, and to comply with customer requests around topics like regenerative agriculture, human rights and water use," he said.

'Measure to manage' was a familiar term used in the cotton industry as it turned its attention to improving water use efficiency. Measuring is the first step in better management of all resources and inputs to improve efficiency, the bottom line and sustainability.

"Growers tell us they are frustrated by having to deliver the same data multiple times to different entities such as banks, insurers and regulatory bodies.

"The new list is designed to provide the data that farmers are most likely to be asked for, so it's a great place to start if you want to pull into one place the information for multiple requests.

"It's critical that we have every farmer or their adviser using the same language and measuring the same things. You can choose to measure all the indicators in this list, or just a few of them – that's your decision, but if everyone starts with this list, then we can start to eliminate the confusion and inconsistency surrounding sustainability."

For those wanting to take an additional step and create a farm sustainability report, there is a simple template available for download.

The revamped Australian cotton sustainability indicators, with industry-scale and farm-scale indicators and a farm-scale reporting template, are available for download at the new sustainability website.

For more
www.australiancottonsustainability.org.au

Machine learning improves precision and reduces labour in the field

Developments in advanced field sensing through the use of artificial intelligence (AI) and machine learning are set to improve cotton management options for growers.

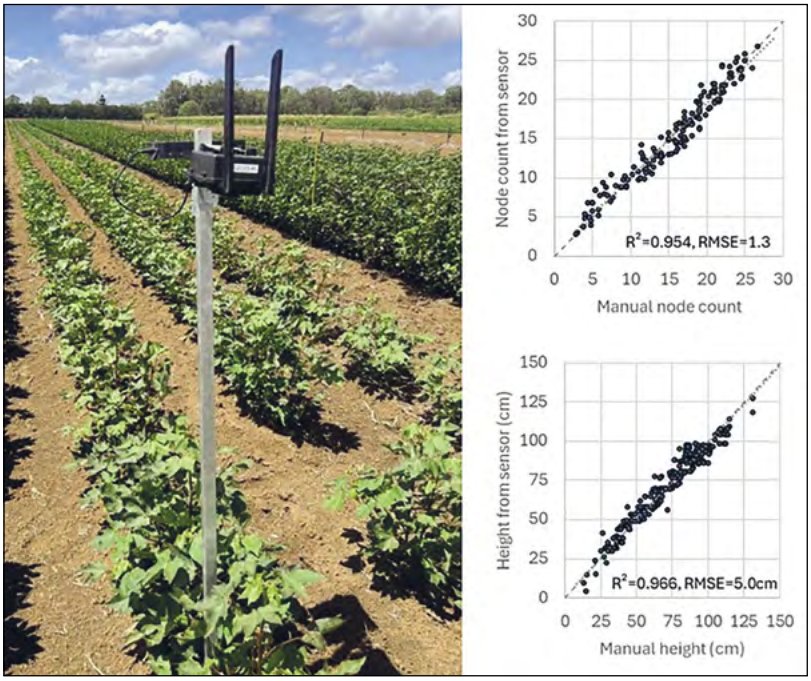
A CRDC research project led by the University of Southern Queensland (UniSQ) in collaboration with Qld DPI is investigating the potential for new technologies to reduce labour inputs and improve precision across a range of routine crop assessments for pest, disease and agronomic management.

Led by UniSQ's Associate Professor Alison McCarthy, the research is a collaborative effort between UniSQ mechatronic engineering researchers, including Alison and Dr Derek Long; Qld DPI senior entomologist, Dr Jamie Hopkinson, and principal plant pathologist, Dr Linda Smith; and CottonInfo's Technical Lead for Integrated Pest Management (IPM), Dr Paul Grundy.

The project team worked with the CRDC and agronomists to identify priority areas and the feasibility of technology solutions for the Australian cotton industry.

Three priority areas were identified:

- Improved efficiency in the collection of agronomic farm data on crop vigour and fruit numbers, which underpins crop management decision making and can feed directly into crop management and yield estimation tools;
- Better scheduling of crop rotation to prevent disease inoculum from reaching devastating levels (e.g. Fusarium or Verticillium wilt), using aerial imagery to detect disease distribution and severity build-up in cotton fields over time; and
- Improved repeatability of insect assessment (e.g. beat sheet sampling, infield insect monitoring, silverleaf whitefly viability assessment) if machine vision can be implemented in tools for accurate classification.



Using machine learning and AI, researchers have developed technology to track canopy development remotely and in real time.

An app to rapidly count squares and bolls will be available for beta testing this season.

"We initially explored technologies that addressed these priorities and consulted with agronomists to ensure the tools would meet industry needs and had the potential to reduce reliance on workforce labour," Alison said.

"Following this consultation, we focused our research and machine vision algorithm developments on four technologies – infield sensing for canopy management, boll counting using machine vision, spatial wilt disease monitoring, and silverleaf whitefly viability monitoring."

Infield sensing for canopy management

This technology tracks canopy development in real-time, reducing labour needed for in-crop assessments for managing crop growth/development and the deployment of growth regulators. A system is being developed that collects daily height and node measurements and identifies cutout.

Data collection trials which involved more than 1300 ground truthing measurements have been

conducted in Emerald (Gayiri country), Mareeba (Djabuganjdji country), Goondiwindi (Bigambul country), Brookstead and Yargullen (Barunggam country), and Kununurra (Miriwoong country). The sensing system detects node count with 91 per cent accuracy and height with 92 per cent accuracy. Beta testing will be conducted for this machine vision system in the 2025-26 season as part of the CRDC and Qld DPI Future Cotton project.

Boll counting using machine vision

The potential for machine vision to rapidly count squares and bolls using an app on a smartphone was tested using datasets collected on the Darling Downs and in Emerald. Deep learning algorithms were trained from collected images and categorised fruiting sites as fruit (bolls) or potential bolls (squares/flowers) with an accuracy of more than 90 per cent, compared with manual counts. Using the app requires each plant to be cut and an image captured with a smartphone. Beta testing will be conducted in the 2025-26 season.

Spatial wilt disease monitoring

A drone-based system was investigated for its potential to map the early incidence of Verticillium wilt to quantify disease pressure levels over fields. This initially involved glasshouse trials to identify machine vision responses that indicated disease presence and severity, followed by evaluation over a field site. This work is being refined in a new Australian Cotton Disease Collaboration (ACDC) project in collaboration with Qld DPI.

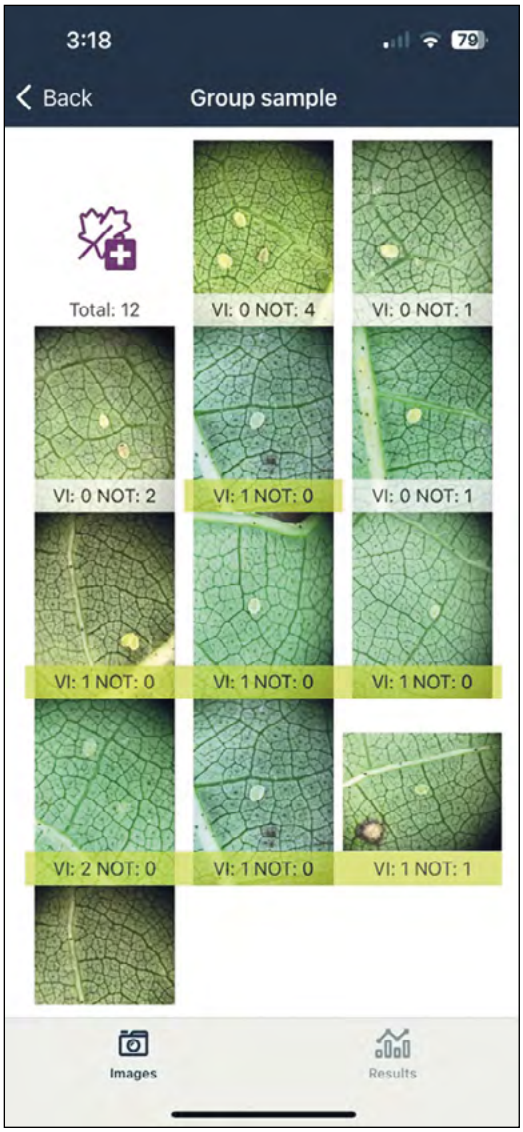
Silverleaf whitefly (SLW) viability monitoring

Monitoring of silverleaf whitefly parasitism using machine vision could potentially be linked with the revised SLW management guidelines to better inform management decisions. Deep learning algorithms were trained on images of nymphs captured with a microscopic lens and implemented in a smartphone app, and detected silverleaf whitefly viability with around 90 per cent accuracy. Beta testing of this app has been conducted by five agronomists and feedback has been positive.

With the project now in its final year, the tools will continue to be refined in the coming season and potential pathways for adoption explored, including commercialisation opportunities.

CRDC Acting General Manager of Innovation, Susan Maas, said the project was another step in exploring how more data could improve agronomic management, based on the gains that increased sensing had already delivered for water use efficiency.

"It is exciting to see this technology being tested in the field. We started this project with the goal of augmenting agronomy by increasing available data and looking for ways to build in efficiencies," Susan said.



Researchers are refining technology to determine silverleaf whitefly parasitism.

"Industry identified the potential opportunities and the research investigated the range of technologies available to see if monitoring benefits could be identified.

"Not all pathways have been successful. The fit for industry isn't there yet for some of the insect monitoring tools we initially explored, but technology is developing quickly and the research shows potential for when technology such as wearables becomes more cost-effective.

"Based on this beta testing, CRDC will be working with our research partners, Qld DPI and UniSQ, to determine the best way to ensure the technology is made available to industry."

For more

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Managing contamination is important to maintain Australia's reputation on the world stage.

Remaining a global benchmark

While Australian cotton continues to be relatively free of contaminants, plastic contamination from round module wrap is a major concern for the global industry.

CottonInfo Fibre Quality Technical Lead, René van der Sluijs, said Australian gins are looking at technology to detect and remove the wrap, due to the impact not only on their equipment and productivity, but also the impact on spinners, weavers and the reputation of the industry.

The long-time industry researcher is in constant contact with local ginners as well as overseas merchants, spinners and weaving mills.

"It has to be said that Australian cotton continues be the most contaminant-free by global standards, and by quite a long way," René said.

"According to surveys by the International Textile Manufacturers Federation we are sitting at a rate of five per cent, compared to just over 20 per cent globally.

"While 'traditional' sources of contamination such as leaves, feathers, dust, metal and different types of fabric still appear sporadically, it is plastic wrap that is raising concern."

Spotlight spoke to Jason Wilde at North West Ginning at Moree to get a ginner's view of contamination.

"Module wrap is the main contaminant that we see come into the gin, but the other types are plastic bags, items of steel and belting from the harvester or chain bed," Jason said.

"While the type and level of contamination of these items may vary each season, module wrap is always there from year to year."

Each round module is covered in 23 metres of plastic (polyethylene film). Jason said they see both small and large pieces of it in the modules, along with slivers, which cause the most headaches. And although they have protocols in place to detect the wrap, it is an ongoing battle.

"When each load arrives in the gin yard, we have people who identify any contamination in a yard check and when they complete their fire checks," he said.

"Generally, wrap can be identified on the side of the round module for all our staff to see when the module comes into the gin, so they will then break that module open to make sure that the contamination doesn't enter the gin.

"But usually it's a sliver from the wrap that we find when it's wrapped around the gin machinery and is then chewed up into smaller pieces that you find the remains of in the cotton bale.

"If we get any contamination in the gin, in the machinery and/or the bale, our staff have a set of procedures to follow so that the gin is cleaned out before we continue, to minimise the contamination breach.

"Apart from having a contaminated bale to deal with, we have to shut down the gin to clean the machinery. We also perform a contamination check between growers to make sure we do not take any over to the next grower.

"That's why gins are going for automated contamination detection and removal systems as a final step in preventing plastic entering the gin, because by the time we see it, it's too late."

While gins work to avoid contamination,

decisions in the field like the choice of wrap can also contribute to the issue. Poor quality wrap lacks strength, deteriorates too quickly in the elements, and doesn't maintain the shape of the module. The wrap thickness, strength and glue quality can affect the integrity of the module and risk contamination.

"The threat of plastic contamination is real and the industry must remain vigilant," René said.

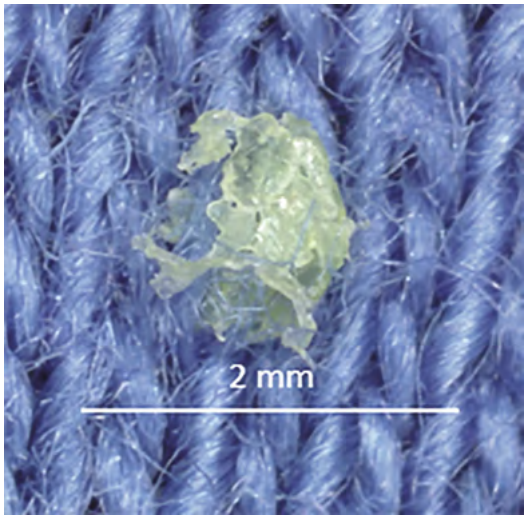
"We don't have a minimum standard for wrap like they do in the US, and with more wrap options now, choosing the supplier wisely is paramount.

"Things to consider would be the length of storage time for modules on farm, the mode of transport (flatbed, specialty trailers), the distance to be transported and the length of storage time at the gin.

"The cheaper option isn't always the best one."

Jason has also highlighted machinery maintenance as a possible factor in what they are seeing at the gin.

"We've been told by some contract harvesters that if routine maintenance is not conducted, it will throw that plastic wrap back into the round module," he said.



Plastic module wrap is fragmented into very small pieces during processing and in most cases is only detected in finished fabric. This can lead to large financial claims and losses.

"If anything, I think we need good training from the manufacturer when selling the equipment and good quality wrap products to make sure the modules stand up to the weather while waiting to be ginned."

For more
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Guidelines for choosing module wrap

The Australian Cotton Shippers Association with the Australian Cotton Ginners Association have developed guidelines for growers when choosing module wrap. By choosing the right products, monitoring module integrity and taking timely action, growers and contractors can help ensure Australian cotton remains the global benchmark for quality and purity.

The guidelines recommend before purchasing wrap, talk to growers in your region, harvesting contractors, local industry representatives and gin grower services teams as they can provide valuable insights into how different wrap brands perform under local conditions. Also ensure contract pickers understand the issues and risks in using inferior quality wrap.

How you can help

Every grower and harvest contractor plays a critical role in preventing plastic contamination. The choices made at harvest have a direct impact on the quality, marketability and reputation of Australian cotton. Before choosing your wrap, ask your supplier questions – and understand why they count.

Not all wraps are manufactured equally. Understanding specifications and what defines a quality wrap gives confidence the wrap will perform from the field to the gin.

Ask your supplier:

- Has the wrap been tested for tensile strength, UV resistance, puncture and tear resistance and thickness?
- Has it been designed for Australian conditions – high temperatures, UV load, outdoor storage and transport stress and with Australian harvester and ginning systems?

Check traceability and RFID tag performance

Unreliable RFID tags can result in inaccurate harvest data in the JD Operations Centre, undermining the agronomic decisions for the following season. It will also create significant problems for the gin, making it difficult to accurately match Operations Centre information with the data captured at the weighbridge. Malfunctioning RFID tags compromise the ability to trace cotton through *my*BMP marketing systems, putting compliance and verification evidence at risk.

Confirm manufacturing consistency

Changes to the manufacturing process and/or materials could mean that the performance of the wrap in the picker or in staging/transport could be different to what it was last season. Ask your supplier if any changes have been made and if it's been trialled locally.

Know what works in your region

Wrap performance can differ under varying climatic pressures. Local experience matters. Seek feedback from growers and gins in your region to ensure the wrap you select is proven to withstand your specific environmental conditions.

Know your rights

Lastly, know your rights if things go wrong. Find out if you have protection if there is a failure or something goes wrong. Does your supplier have a written warranty or replacement policy, local representative or dealer support and have they supplied to other growers in your region this season?

To read the full checklist, go to www.bit.ly/48wJsJt

The 2024 AFCL graduates at the Australian Cotton Conference.

Creating a future of change-makers and leaders

Ready to take your skills to the next level? Growers and all cotton industry people can unlock leadership and development opportunities through the support of CRDC and other industry partners.

Growers are invited annually to apply for the Nuffield Australia Scholarship, while the Australian Rural Leadership Foundation's (ARLF) Australian Rural Leadership Program and TRAIL Emerging Leaders program are open to the wider industry each year. The Cotton Australia and CRDC Australian Future Cotton Leaders (AFCL) program runs every second year, with the next program taking place in 2026. And, the new CRDC Cotton Course will kick off in 2026, adding to the list of opportunities to upskill and find networking opportunities throughout the industry (see story page 7).

These programs are so popular that people often undertake more than one course over their career, and invariably these people show up in positions of leadership and responsibility across all sections of the industry.

"These programs give the confidence and skills to take charge of their future – be it a leadership role within their business, the cotton industry, or representing the industry on national and international stages," CRDC's Megan Baker said.

"Our industry has been built by strong leadership, and that's why CRDC, Cotton Australia, CSD and other partners back our cotton people through these programs."

To ensure these programs continue to deliver for the industry into the future, CRDC is conducting a review in 2026 to assess the effectiveness and impact of the current programs and identify potential new programs.

"By building up the skills of our workforce and backing future leaders, we're helping Australian cotton tackle big challenges and create strong, resilient communities," said CRDC Acting General Manager of Innovation, Susan Maas.

"Our goal is to make sure cotton has a diverse group of leaders with the know-how to drive change, support sustainable growth and shape the future of our industry and rural Australia.

"This review will also look at other leadership programs, identify any gaps and find ways to strengthen what we offer. We'll work closely with Cotton Australia and the wider industry to gather feedback on what's working and explore new opportunities to improve.

"In the end, it's about continuing the success stories we've already seen – creating strong leadership and capacity that benefits the whole industry."

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Authenticity and integrity in leadership

Participating in the Australian Rural Leadership Program (ARLP) is challenging and requires serious commitment, but the rewards are immeasurable, says Gabrielle Coupland.

Gabrielle is the current cotton industry participant in Course 32 of the program, supported by CRDC, Cotton Australia and Cotton Seed Distributors (CSD).

After growing up on the family farm at Finley in the southern Riverina of NSW (Yorta Yorta country), Gabrielle worked for 20 years in agribusiness roles across the country before returning home in 2015. Along with farming – growing cotton, winter crops and sheep – Gabrielle's focus is on water policy, agricultural advocacy and her role as a shareholder director of Murray Irrigation Ltd.

Gabrielle has chaired many industry groups including Southern Riverina Irrigators, Local Land Services Murray Landholder, Aboriginal Community Advisory Group and Partners in Grain WA, as well as being vice chair of the NSW Nationals and participating in many other community-based organisations.

A return home to farming

Today, Gabrielle farms with her parents on an expanded footprint in preparation for the succession of her own children.

The family are in their fourth season of growing cotton under overhead irrigation, which they believe has delivered significant water efficiencies while minimising the risk of cold shock that can hinder productivity in the shorter season of southern growing regions. Her parents were the first to bring the T-L 'continuous movement' irrigator system to Australia, from Nebraska in the US.

Gabrielle has joined a diverse group of 27 leaders from across the country in the ARLP, each sharing their own experiences, knowledge and commitment. They've just returned from a trip to New Zealand, which included meeting Australia's High Commissioner to NZ, Daniel Sloper PSM, and Consul-General, Brad Williams. The cohort met Māori elders and community leaders and toured the famed Eden Park, home of the All Blacks Rugby Union team.

"...the course facilitators gave me a framework to have a couple of courageous conversations when I got home..."

Surround yourself with like-minded individuals

Gabrielle said it was these immersive experiences, and her awareness of the impact that the program had on past participants, that attracted her to the ARLP.

"I applied for this program because I want to contribute to the conversation about the future of our regional industries and communities, and what better way to do that than with a group of like-minded, passionate people?" she said.

"Like most farmers, I'm practical and learn by doing, so the immersive experiences and the opportunity to work with others who are also building self-awareness and skills really suits me.

"The course gives me the opportunity to step in and be completely present with these people for 10 days, then step out, reflect for a few months, then step back in for the next session.

"The insights gained aren't just about yourself but about the bias you bring to situations or interactions with others, and you learn to filter personal bias or reactions from the facts.

"This cycle of learning and reflection can teach us about ourselves in any role, whether it's as a parent, farmer or leader. The skills are universal."

Course participants all concur that the ARLP has benefited them in both their personal and professional lives.

"I know a lot of people who've completed the ARLP. I see the way that many of the alumni hold themselves, the way they lead and support people," Gabrielle said.

"I aspire to step up and lead like they do. Not always from the front, but always with authenticity and integrity.

Gabrielle Coupland is the current ARLP participant supported by CRDC, Cotton Australia and CSD.

"We all need to find the time, space and willingness to learn, and the most important thing is that everyone is heard. It is not about winners or losers but asking 'What can we do differently?'

"I look forward to giving back to the cotton industry which is supporting me on this journey, and I am genuinely grateful to my cotton sponsors.

"I've wanted to undertake the ARLP for 20 years, but children, business and life always seemed to get in the way. The rewards for taking part in the ARLP are immeasurable.

"You will gain insights into yourself and have interactions with people and culture that are so rewarding that taking time away from the farm to do it will be repaid ten-fold."

The ARLP is Australia's longest-running and most in-depth experiential leadership program for rural Australia, run by the Australian Rural Leadership Foundation. The cotton industry has supported the ARLP since it started in 1993, with 48 cotton industry leaders selected to participate in the program over three decades.

For more
Australian Rural Leadership Foundation
www.rural-leaders.org.au

Leadership journey yields good things for Australian growers

Fourth generation Dalby cotton grower, Matt McVeigh, has participated in two of agriculture's foremost leadership programs: the Australian Future Cotton Leaders program and the Nuffield Australia Scholarship. Matt says these opportunities gave him the skills and confidence to start an off-farm business and develop the first locally-owned, after-market cotton module wrap. A director on the board of Cotton Australia, Matt is also a well-known face in his local Cotton Growers Association.

Dry times in agriculture are blamed for a lot of things, none of them very positive for farming businesses. However, for Matt McVeigh, a drought was the driver for him to step into the world of product development and international manufacturing over a nine-year, fairly (read 'very') steep learning curve.

The passionate farmer and contractor has spent his entire life working in and researching the cotton industry. Matt's love of everything cotton and picking was the driver behind him setting up a retail machinery parts business, and developing the first after-market, commercially available polyethylene module wrap in Australia.

Developing the wrap has been a huge undertaking which has involved travel to China, learning about international trade and manufacturing, product development, shipping, marketing and "many sleepless nights" Matt says.

Turning thoughts into action

Matt says he wouldn't have taken the project on if he hadn't been a grower with his own pickers. He also cites the skills, contacts and confidence he gained through the industry-supported leadership and discovery programs, Australian Future Cotton Leaders and Nuffield Australia, as integral to his success.

Forty cents from every module wrap used goes back to regional communities, through a partnership with Cotton Grower Services. Matt is pictured with Darling Downs Cotton Grower Association President Dave Walton, and Cotton Grower Services Dalby Branch Manager Will Lange.

Dalby cotton grower and contractor Matt McVeigh says being a part of industry leadership programs gave him the confidence to bring new module wrap products to Australian cotton growers and start an off-farm retail business.

"Because we grow cotton and have our own round-module pickers, we were well-placed to trial and work on the product at our own pace," Matt said.

"At times it was very stressful. We would essentially be responsible for wrapping up millions of dollars worth of product, so it wasn't something we could afford to get wrong."

Matt also used his knowledge as a cotton grower and machinery operator to oversee the practical development of the product, and made many trips backwards and forwards to China to build a relationship with the firm that produced the wrap.

"With most things in life there's got to be good relationships and trust, and that's especially true when working internationally, which was a key takeaway from my leadership experiences," he said.

Giving back to regional groups

Forty cents from every wrap that makes it onto a module goes back to regional communities, through a partnership with Cotton Grower Services.

"Being able to give back to the cotton industry and broader, rural community is another thing I'm really proud of," Matt said.

"We had some interesting conversations about the cotton industry with people/groups we've supported who aren't directly attached to it, and they're really chuffed that cotton growers have thought of them.

"That has been really good to see and it's good for the industry more broadly as well."

Industry support

Matt says he's been able to accomplish such a large project with support from family, friends and the cotton community, highlighting the role that industry-supported leadership programs played in his decision to take on the venture.

Matt was a member of the Australian Future Cotton Leaders cohort in 2012 and became a Nuffield Australia Scholar in 2015. These opportunities were made possible with support from CRDC and Cotton Australia.

As part of AFCL, participants develop and undertake a project of their choice. Matt's was to develop a staff workplace communication program, to resolve conflict, build a productive team and develop leadership skills.

AFCL facilitator, Jo Eady of RuralScope, remembers a conversation from that time.

"An activity we did on the AFCL course caused Matt to think deeper than he had before about his future and what his vision could look like, five to ten years out," Jo said.

"I saw Matt develop real confidence in himself and what he could offer our group, his family

business, the cotton industry and agriculture as a whole."

It's often a natural progression for AFCL participants to undertake further leadership opportunities such as Nuffield Australia and/or the Australian Rural Leadership Program.

Three years after AFCL, Matt successfully applied for a Nuffield Scholarship to research the quality and grading of cotton in the Australian market, to find better ways to manage colour downgrades.

Travelling across 11 countries, Matt met many fellow cotton growers and identified an opportunity to source quality after-market machinery parts for his farming operation back in regional Queensland.

Within two years he had created an off-farm retail outlet and started work on the module wrap project.

"I saw Matt develop real confidence in himself and what he could offer our group, his family business, the cotton industry and agriculture as a whole."

"I'm personally thankful for the investment that Cotton Australia and CRDC have made in me and the many others they've supported in their leadership journeys, who are kicking goals across the industry.

"It really gives me a lot of hope and reassurance that we will continue to be part of an enjoyable, thriving and sustainable industry."

Talking technology through Nuffield scholarship

The Internet of Things (IoT), artificial intelligence (AI), automation and robotics can unlock the next frontier of farming performance, according to 2026 Nuffield Australia Scholar, Simon Blyth.

From Delungra (Kamilaroi country) on the north west slopes of NSW, Simon is being supported in his scholarship by Cotton Australia, CRDC and AgriFutures Australia.

"I want to explore a tech-enabled future for cotton farming," he said.

"I will investigate how the world's most advanced innovation ecosystems are accelerating the adoption of best practice on-farm, through new technologies like smart irrigation, autonomous crop inspections, AI applications, spray drift control and robotic use cases."

It's an area Simon is very familiar with as the leader of a national team at INCYT (by LX Group), an IoT company focused on solving real-world problems with practical, human-centred technology, particularly for cotton growers. His Nuffield project will explore how to make Australian farms AI-ready, so that new research and innovation "doesn't sit on a shelf and improves operations overnight".

"Cotton growers are being asked to do more with less — less water, less labour, tighter margins," Simon said.

"We need tools that don't just work in trials, but that make real decisions easier under pressure.

"My goal is to help Australian agriculture, particularly cotton, supercharge local knowledge with smarter systems, real-time data, and better infrastructure to keep pace with global change."

Simon Blyth will explore a tech-enabled future for cotton farming on his Nuffield journey.

Simon will travel to the US, Brazil, Israel, the Netherlands, Japan and Germany visiting farms, research centres and global tech leaders like OpenAI and Tesla, to understand how breakthroughs become working systems and how those lessons can be adapted for Australian agriculture.

For more
Nuffield Australia
www.nuffield.com.au

Michael's keen to work with the best irrigators in the world – right here

IRRIGATION research engineer Michael Scobie has been selected as the CottonInfo Technical Lead for Irrigation, and will use his expertise to help growers continue to improve water use efficiency.

Michael has spent nearly 15 years working in his research field in Australia and overseas. He is a senior research engineer in irrigation and water resources and co-lead of the Ag Tech Adoption team at the University of Southern Queensland (UniSQ) in Toowoomba (Barunggam country).

Evaporation accounts for the largest loss of water from irrigated farms, and mitigation technologies have the potential to save substantial volumes of water for Australian cotton growers. Currently his research is largely focused on strategies to mitigate water loss through evaporation from on-farm storages.

A large body of Michael's work is determining the most cost-effective system of solar photovoltaic floats and panels to optimise power generation, maximise evaporation mitigation and minimise cost. This work will help inform the $13 million solar evaporation project led by Ag Econ with support from the Australian Government, CRDC, UniSQ and Macquarie University (see the cover story in the Winter 2025 edition of Spotlight).

With support from CRDC in conjunction with the One Basin CRC, Michael will be spending time in the regions researching evaporation in the Northern Murray Darling Basin. The project will research and quantify the scale of losses, identify mitigation strategies for small and large storages and develop a roadmap for commercial-scale demonstration and adoption of technologies.

"We want to provide growers, policy makers and other stakeholders with a strategic framework for practical, proven solutions that reduce losses and support ongoing resilience," Michael said.

"We would anticipate substantial water savings over the long term, even with the reduced water availability due to climate change.

"For generations, irrigators have accepted evaporation losses as inevitable, factoring the losses into their annual water budgets. We are aiming to reduce the need for that."

MELANIE JENSON

Joining CottonInfo as the Technical Lead for Irrigation is industry research engineer Michael Scobie.

Under a third project, Michael is also investigating the use of spray drones to apply chemical film. Research has shown the potential of this innovation to reduce evaporation loss by between two and 10 ML/ha/year in storages in northern NSW and south-east and central Queensland, and between two and seven ML/ha/yr in the southern valleys (based on product performance ranging from 10 to 40 per cent).

"Chemical products provide the most feasible option for large storages but application has always been a barrier, so we are using drones to explore smart targeted application strategies," he said.

"These novel systems need to account for chemical constraints, design and operation, sensors and dosing.

"We are looking into the flexibility of drone application coupled with the optimal low volumes of suppressant required to reduce the cost of the system.

"By only applying the product where and when it is likely to succeed, we can reduce the cost per ML."

Moving into the CottonInfo role means Michael will have the opportunity to share his knowledge while working with growers on an individual basis to reduce losses on farm.

"The water use efficiency achieved already by Australian cotton growers is definitely something the industry should be proud of," Michael said.

"In 2019 I was lucky enough to receive an award that enabled me to live and work in the United States, and I thought I was going to learn from the experts in irrigation.

"It turns out that we are the experts! Australian cotton irrigators are some of the best in the world, and their innovation and adoption of new technology and techniques is second to none."

So what does the future hold and where are the WUE gains likely to be found?

"We are well on the way to improved precision," Michael said.

"Broader adoption of automation and control will be key in the next five years, and we will see better-connected sensors to inform these systems.

"The projects focused on mitigating evaporation from storages are really exciting, as evaporation remains one of the 'last frontiers' to manage and accounts for around 40 per cent of water loss on farms.

"I'm looking forward to getting out and meeting more growers from across the industry and initially exploring the southern regions, as I've not spent much time down there. That'll help me to understand the challenges better and identify opportunities for growers."

For more

Michael Scobie
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A time to celebrate and share world-class science

Cotton researchers from across Australia descended on Narrabri in north-west NSW (Kamilaroi country) for the Australian Cotton Research Conference over three days in August.

The 6th biennial event hosted by the Australian Association of Cotton Scientists (AACS), the conference serves as a platform for researchers to present and discuss concepts, key issues and their latest findings.

With the theme 'Innovation from the ground up' there was no shortage of RD&E on offer. More than 180 people attended, mainly researchers and students as well as CottonInfo, CRDC and CSD representatives, to hear a packed program of more than 80 speakers.

"This year's conference has been a great success," AACS President, Dr Iain Wilson said.

"It's an event that provides the opportunity for cotton researchers to come together in cotton growing country to share research, extend their networks and form collaborations.

"Bringing all the researchers together also instils a sense of enthusiasm.

"We are very grateful to the CSIRO and NSW DPIRD staff at the Australian Cotton Research Institute (ACRI) who ensured that the Twilight Tour of the facilities was one of the highlights of the program.

"It has also been fantastic to see the involvement of early cotton career scientists and students embracing the events organised by CRDC Innovation Broker Rachel Holloway .

"Rachel does a wonderful job,

"Bringing all the researchers together also instils a sense of enthusiasm."

PhD scholars Arun Chandra Manivannan, Akila Ravindran, Bhagya Samarasinghe, Xinyue Tang and Yuchen Miao with CRDC Innovation Broker Rachel Holloway, at a networking event at the Australian Association of Cotton Scientists conference in late August. CRDC hosted events for students and new researchers including visiting a cotton farm, gin, and classing rooms.

it's about the future for the industry, and we need to attract the best talent, and a lot of that is through sharing our stories/research and having a welcoming atmosphere (see story page 30)."

Another highlight was the presentation of awards at the conference dinner.

Two industry researchers, Dr Gary Fitt and Dr Steve Yeates, were presented with life memberships.

Gary joined CSIRO in 1977 and moved to ACRI in 1983, where he played a crucial role in the transition of pest management, from the chemical-dominated regimes of the 1980s and 90s through to the current GM era. Gary made important contributions to understanding the ecology of Helicoverpa spp. and other major pests, and was integral to the development of insecticide resistance management and area-wide management, playing a key role in integrating Bollgard varieties into IPM. He has mentored many students and early career researchers in entomology and in other fields, and served on the CRDC Board as a Director from 2020 to 2023.

Fellow researchers had much to say about Dr Steve Yeates' capacity for original thought, coupled with an innate understanding of, and ability to think like, a cotton plant. His 30 years of research work as a Principal Research Scientist with CSIRO have been instrumental in assessing the feasibility and sustainability of cotton production throughout Australia's tropical regions. His work emphasised the importance of understanding local biotic and abiotic factors and demonstrated the necessity for region-specific production systems. This approach led to the development of the NORpak grower guides with fellow cotton researcher Dr Paul Grundy.

Steve has been an advocate for responsible cotton production, contributing to research on crop physiology, yield potential, canopy management, effective irrigation for Bollgard and nitrogen management, coupled with extensive extension to equip growers and their advisors with

best practice information. Much of his work focused on adapting agronomic management to overcome or mitigate climatic limitations, and in 2017, Steve received a joint CSD Researcher of the Year award (with Paul) for his work.

The AACS Service to Cotton Science Award went to Kristen Knight, Bayer's Australian Technology Development Lead: Insect Traits, who leads a team at the company's cotton research laboratory in Toowoomba. As a skilled science communicator, Kristen is actively involved in educating all levels of society about the importance of science and innovation, from hosting school students and science teachers at the facility to meeting with industry representatives and growers in the field.

The Early Career Scientist Award was presented to CSIRO's Dr Manish Patel, and the Scientific Publication Award went to CRDC-supported PhD student, Arun Chandra Manivannan, along with Logeshwaran Panneerselvan, Raji Kandaiah, Akila Ravindran, Dr Guna Nachimuthu, Dr Meredith Conaty, and Professor Thava Palanisami, for their paper.

Iain paid tribute to the hard work of the conference committee and volunteers, and expressed his gratitude to conference sponsors.

"We are deeply grateful to our sponsors whose support makes this event possible, in particular, CRDC and CSD, who have been our major backers from the beginning, as well as our long-standing partners, CSIRO and Bayer Crop Science," he said.

"We also thank the 2025 supporters, the Sydney Institute of Agriculture, the Hawkesbury Institute for the Environment, Narrabri Shire, the Australian Plant Phenomics Network, Cotton Incorporated and Cotton Australia.

"If growers or consultants would like to gain a deeper understanding of the depth and breadth of research happening right now in Australian cotton, I would strongly recommend they have a look at the proceedings on our website."

For more
www.australiancottonscientists.org/conference

Shape the future of rural industries

FOR Georgie Oldham, winning an AgriFutures Horizon Scholarship and being sponsored by CRDC was transformative.

"I didn't have any connections or know-how when it came to entering the cotton industry, so when the opportunity came up to be sponsored by CRDC, I jumped at it," Georgie said.

"I honestly think it's completely changed my life. It's really opened doors for me and I've met some incredible friends and mentors, which makes me really excited to graduate and get into the industry."

Applications are now open for those ready to step into a future with boundless opportunities in agriculture, through the 2026 Horizon Scholarship program.

The Scholarship is for students entering the final two years of an agriculture-related undergraduate degree, or a science, technology, engineering or maths/finance (STEM) degree with majors relevant to agriculture. It is designed for emerging leaders who are passionate about shaping the future of Australia's rural industries.

CRDC is proud to continue supporting the program and encourages emerging researchers to apply for this outstanding opportunity. The AgriFutures Horizon Scholarship provides eligible university students with a $10,000 bursary over two years, to develop their leadership skills and expand their networks. As part of the program, students also attend an annual professional development workshop and complete two industry work placements per year, aligned with the scholar's area of interest.

Opportunities to network and gain knowledge at a range of industry events are a highlight for participants.

"Being a Horizon Scholar in 2023-34 was transformative for me, and it provided unparalleled professional development and networking opportunities," Georgie said.

"My highlights included work placement at Katherine in the Northern Territory (Jawoyn country) and attending the 2024 Australian Cotton Conference."

In late 2024, Georgie graduated from the University of New England with a Bachelor of Rural Science with first class

CRDC-supported Horizon Scholar Georgie Oldham at Katherine as part of her industry placement.

honours, for her thesis investigating photosynthetic targets to breed heat-stress tolerance into cotton. CRDC also supported Georgie through her Honours study.

"Working with such innovative researchers at Western Sydney University was invaluable. Their unwavering encouragement made this challenging year incredibly rewarding," said Georgie.

Georgie leveraged the opportunity to get a foot in the door of the cotton breeding industry, and is looking forward to taking up a new role in 2026.

"I have always been fascinated by the cotton industry, considering it's been kind of a backbone in the development of genetics and biotechnology," she said.

"Moving into agriculture was the best decision I've ever made, and I am exceedingly grateful to CRDC for their ongoing support throughout this adventure."

Applications close 26 January 2026.

For more
AgriFutures Horizon Scholarship
www.agrifutures.com.au/opportunities/horizon-scholarship/

Students who receive CRDC-supported scholarships join a strong network of peers and offered opportunities to attend major industry research events, regional tours and activities, including visits to cotton ginning facilities.

Be a part of something bigger in a welcoming and supportive industry

Attracting scientists, researchers, technicians and extension specialists to join the Australian cotton industry is crucial to maintaining world-class research, development and extension (RD&E).

To ensure the whole industry from growers to shippers continues to benefit from quality research, the CRDC supports undergraduate and postgraduate students via CRDC scholarships.

CRDC's undergraduate Summer and Honours Scholarships provide up to $10,000 to enable university students to conduct short research, extension or industry projects under the direct supervision of a researcher or extension officer. The scholarships are open to all university students with high study standards who are completing their senior years of an undergraduate degree or are enrolled in an honours program. Applications open annually, with the next round to commence in April 2026.

CRDC's postgraduate assistance includes the PhD top-up scholarship, which offers up to $36,600 per year and is open to applications from PhD students who are interested in joining the Australian cotton industry, whose study is relevant to cotton, and who are already receiving a Research Training Program or equivalent scholarship. To be eligible, candidates must be undertaking postgraduate study at a recognised institution, and projects should align with CRDC's Strategic Plan, Clever Cotton.

Students who receive CRDC-supported scholarships join a strong network of peers, have opportunities to attend major industry research events, regional tours and activities, and are supported by CRDC Innovation Broker Rachel Holloway to capitalise on opportunities within the cotton industry.

Akila Ravindran is a current CRDC-supported PhD scholar at the University of Newcastle, working on exciting research into creating a circular economy for Australian cotton. Her groundbreaking project is aimed at recycling cotton textile waste into biodegradable, controlled-release fertiliser coating (see story on page 14).

Spotlight spoke with Akila about her experience as a CRDC-supported PhD scholar.

How have you found the PhD program?

Rewarding and challenging. Coming from a microbiology background, it has pushed me to grow into a more independent, multidisciplinary researcher, someone who can think from the micro scale (microbes and polymers) right through to the industry level.

My PhD project has given me space to develop new skills in experimental design, advanced techniques and data interpretation. There have definitely been tough times, but those have taught me resilience, better planning and how to work more efficiently as part of a wider research team. Overall, it's been a very positive experience that has shaped how I see my future career.

How important has the CRDC's support been?

CRDC support has been absolutely critical for this work. Beyond funding scholarship and research costs, it has allowed me to design a project genuinely aligned with the real problems faced by Australian cotton growers, especially in nitrogen use efficiency, soil health and sustainability.

The support has enabled me to think outside the box. Just as importantly, being linked to CRDC gives my project a clear pathway to impact. I know that if our Controlled Release Fertiliser (CRF) formulations show promise, there is a mechanism for the results to inform grower practices.

What's it like working in cotton research?

Insightful! Before this, I mostly thought in terms of lab systems and materials; now I think about whole farming systems, seasonal conditions, soil constraints, fertiliser decisions and economics, and how our biological and materials-based solutions fit into that reality.

I have enjoyed seeing how data and experiments translate into practical questions like, 'Will this product work under real-world conditions?', 'Can growers use it easily?' and 'Does it improve profitability and reduce environmental risk?' It's very motivating to know that my work is not just theoretical, but connected to actual farms, soils and communities.

I appreciate the strong culture around sustainability. There is genuine interest in reducing inputs, improving soil health and managing environmental risks. For a researcher interested in biopolymers, microbes, and circular bioeconomy ideas, it's a very energising environment.

Hopes for the future

I hope to stay at the interface of research, working on technologies that improve both productivity and environmental outcomes for agriculture, especially cotton. I'd like to further develop bio-based solutions, such as microbial consortia, biopolymer-based coatings and other tools to enhance nutrient use efficiency and reduce microplastic and chemical burdens throughout a product's life cycle.

Ideally, I see myself in a role where I can help translate lab and glasshouse results into field-ready products, whether that's through a postdoctoral position or in an industry R&D role. I also want to contribute to building a stronger, more sustainable cotton sector in the long term.

For more

www.crdc.com.au/researchers/scholarships-travel

Rachel Holloway
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CRDC support creates award-winning engagement for scholars

Winning the 2025 Scientific Publication Award at the Australian Association of Cotton Scientists (AACS) conference was a career highlight for CRDC-supported PhD student, Arun Chandra Manivannan.

With CRDC's support, Arun is working at the University of Newcastle's (UoN) Australian Plastic Research and Innovation Lab (APRIL) on his PhD project 'Closing the loop in textile production by composting textile waste for improved carbon footprint' (see story page 13).

Spotlight asked Arun about the winning paper, his PhD experience, the impact it has had on his research career, and the opportunities it offers.

"My experience with the CRDC has been incredibly positive and career-shaping. CRDC has given me the platform to explore new ideas and opportunities without any restrictions on innovation. They've always encouraged us to think beyond conventional approaches, and whenever they see real potential, they support it, whether through funding or by helping us build strong networks across the cotton industry.

"We initially received funding for a project focused on composting textile waste and returning carbon back to the soil. However, our early findings showed that dyes and microplastics present in post-consumer textiles could make composting unsafe and environmentally unsustainable. When we then approached CRDC with a more circular alternative – closed-loop recycling of cotton textiles to keep cotton in the supply chain, rather than sending it to waste – they immediately recognised the potential and supported us to develop a much stronger research direction.

Arun and members of the UoN team were acknowledged by fellow cotton scientists by receiving the 2025 Scientific Publication Award at the Australian Association of Cotton Scientists (AACS) conference.

"CRDC's conferences and engagement avenues have also been invaluable. They help us showcase our research, meet growers and industry partners, and connect with people who genuinely care about the future of cotton.

"I'm especially grateful to Dr Meredith Conaty at CRDC, Dr Guna Nachimuthu from NSW DPIRD and Professor Thava for giving me the space and encouragement to explore these ideas fully. They've played a major role in shaping the research and my development as a researcher.

"Winning the AACS Best Publication Award was a proud moment for the team.

"I am grateful for the support, trust and opportunities the CRDC has given us. It has provided one of the best industry-linked research experiences I could have hoped for and helped bridge the gap between research, industry, policy and the wider cotton community, which is something I couldn't have achieved without CRDC."

MELANIE JENSON

YEAR IN REVIEW

Investment, innovation, impact

As growers know, the Australian cotton industry is highly regarded for its innovation and commitment to investing in RD&E. CRDC's role is to turn this investment in innovation into impact, guided by our Strategic RD&E Plan for 2023-28, Clever Cotton.

The just-published CRDC Annual Report and Performance Report look back at the major developments in Australian cotton RD&E during 2024–25, our second year of investment under Clever Cotton. In this *Spotlight* feature, we highlight some of these key investments.

CRDC RD&E achievements 2024-25

Cotton industry data platform: build phase underway

The build phase of the cotton industry data platform has commenced. The platform is a fundamental goal of Clever Cotton, building on nine years of CRDC investment into the digital needs of the cotton industry, commencing with the CRDC-led cross-sectoral Precision to Decision Agriculture project in 2016 (the first project to bring together all 15 Rural Research and Development Corporations (RDCs)) and its successor, Growing a Digital Future for Australian Agriculture. Based on the recommendations of these projects, a cotton industry group led by CRDC and comprising industry bodies, growers, gins, merchants, classers and researchers developed a digital strategy for

the Australian cotton industry, which was finalised in 2023–24. The data platform is the next step following this strategy, designed to aggregate, store, analyse and communicate data to the industry and beyond. CRDC's goal is to create a transparent and trusted data platform to deliver greater profitability and productivity through better decision-making, facilitating innovative research and building trusted engagement.

Australian Cotton Disease Collaboration: strategic partners and director announced

CRDC's first major initiative under Clever Cotton – the Australian Cotton Disease Collaboration – achieved another milestone in 2024-25 with the announcement of the program's strategic partners, Qld DPI and UniSQ, the appointment of the Director of ACDC, Associate Professor Sambasivam (Sam) Periyannan, and the establishment of the ACDC Virtual National Centre in preparation for the program's first 10 key strategic research projects. ACDC is a comprehensive and collaborative approach to disease research, designed to address disease as a major priority issue for the cotton industry. Through ACDC, the cotton industry's understanding of the impact of disease will be deepened, foundational pathology resources and capability will be enhanced, and tactical management and innovative technical solutions for cotton growers will be delivered. The CRDC and ACDC goal is to reduce the economic impact of current and emerging diseases of cotton to less than five per cent of the cost of production, down from 14 per cent, through RD&E and practice change.

NEESTI: transformative technology to solve evaporation and generate energy

A landmark $13 million research initiative is set to revolutionise irrigation dams across Australia by tackling evaporation and enabling renewable energy generation. With significant support from CRDC and the cotton industry and $6 million in co-investment from the Australian Government, the Novel Energy and Evaporative Storage Technologies for Irrigators (NEESTI) project will support Australian farmers and regional communities to build their drought and climate resilience. The project will investigate the use of floating solar photovoltaic (FPV) technology to reduce evaporation losses and convert farm irrigation dams into energy-producing assets. Targeting multiple cropping sectors, including cotton, wheat, sugarcane, rice and macadamias, the initiative brings together researchers, industry bodies and growers. It builds on decades of irrigation efficiency RD&E, led by CRDC, and has the potential to mitigate evaporation, offset emissions,

diversify farm income, and unlock regional economic benefits – a win-win for sustainable agriculture and resource stewardship.

CottonInfo: partnership and program enters new era

CottonInfo, the cotton industry's extension program, is now in its 13th year as a collaboration between joint venture partners CRDC, Cotton Australia and CSD. While the purpose and focus of CottonInfo remains the same – providing a crucial conduit between researchers and growers, communicating research results and encouraging their adoption – in 2024-25, CottonInfo underwent a structural change. CSD chose to transition from a member of the CottonInfo Management Committee and employer of the CottonInfo Regional Extension Officers (REOs) to the key investor in the CottonInfo program. Under the revised structure, the CottonInfo Management Committee now comprises representatives of CRDC and Cotton Australia, and leads the CottonInfo program. The CottonInfo strategic plan has stronger alignment with CRDC's Clever Cotton. CRDC manages the program and team, Cotton Australia delivers the industry's best management practices program *my*BMP, and CSD is the key investor in the program, funding the REOs and their activities.

CRDC Emissions Reduction Research Strategy: towards a low-emissions future

CRDC developed a science-based Emissions Reduction Research Strategy in 2024–25, in conjunction with Cotton Australia, to guide the cotton industry's transition to lower emissions. The strategy maps current practices, future goals and the research investments required to empower growers to reduce emissions. Many of the actions required to address climate-related risks are already underway, and the purpose of the strategy is to coalesce and prioritise actions,

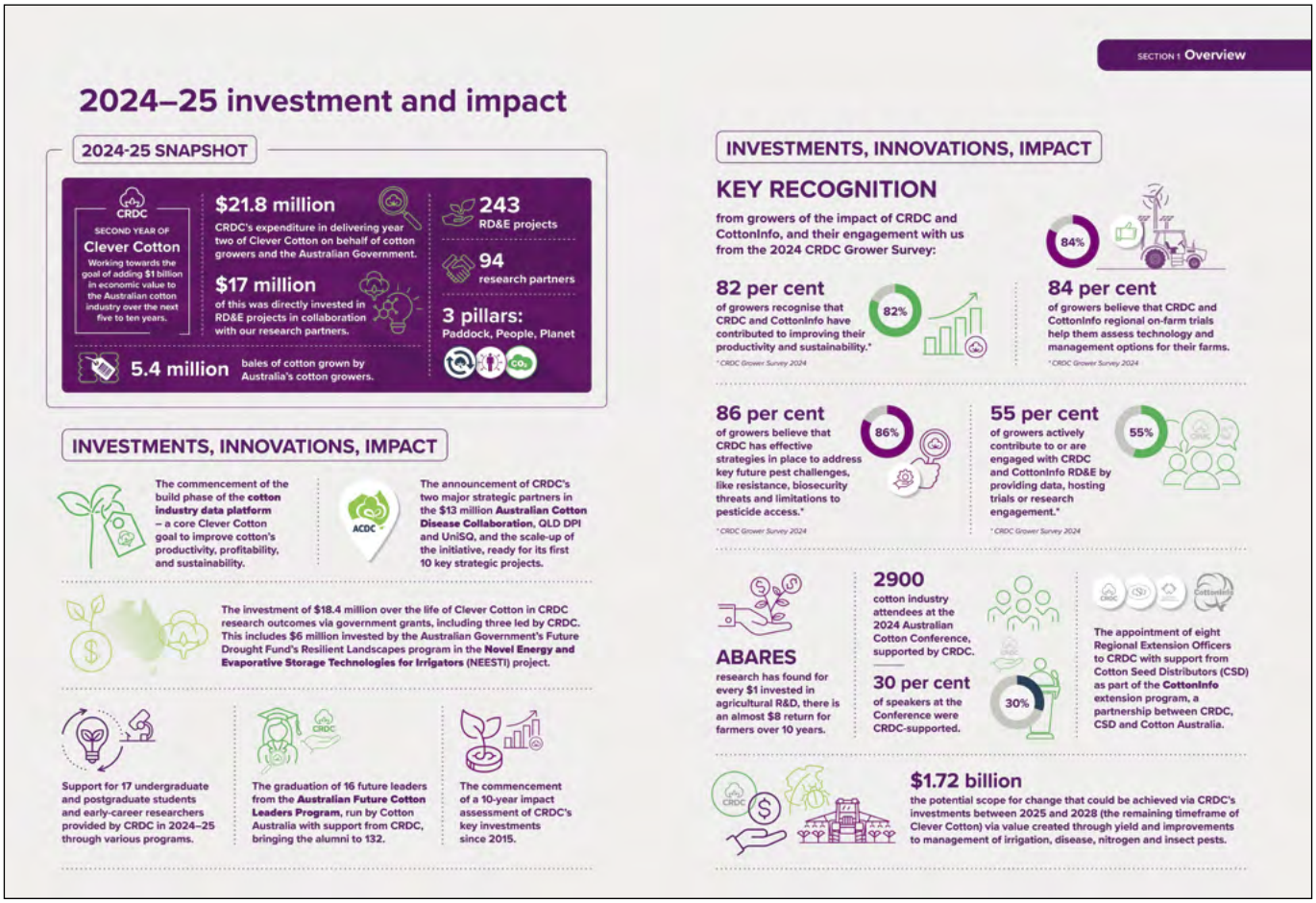
identify gaps, and outline practical steps with clear timelines. The strategy focuses on three key areas: cutting fossil fuel reliance; reducing emissions from nitrogen fertiliser; and improving soil health. A credible, actionable pathway will ensure cotton's competitiveness, align with market expectations, and provide growers with clear actions.

Climate-Smart Agriculture grants: driving emissions reduction and irrigation efficiencies

Two CRDC-led cotton-focused research projects are among 12 projects selected nationally from over 100 applications in 2024–25 to receive support from the Australian Government's Climate-Smart Agriculture Program. The projects are delivering new tools and technologies to cotton growers to support emissions reduction and climate resilience. The first project is accelerating the adoption of VARIwise, the autonomous irrigation system, enabling cotton growers and dairy producers to improve water productivity and reduce emissions. VARIwise offers up to 10 per cent water savings and five per cent productivity gains. Through this grant, it will be developed into a commercial-ready package. The second project will evaluate enhanced efficiency nitrogen fertilisers, which represent an immediate pathway to reducing nitrous oxide emissions – the largest contributor to cotton's greenhouse gas (GHG) footprint. It is producing robust emission factors, building predictive algorithms, and supporting more accurate carbon accounting. Together, these two projects are providing practical, farm-ready climate-smart solutions, strengthening cotton's water-use efficiency, and providing new opportunities for sustainable cotton production.

Strategic Roadmap: determining the path forward for Australian cotton

The development and implementation of a strategic roadmap for the Australian cotton industry continued in 2024–25 via a collaboration between Cotton Australia, CRDC and the Australian Cotton Shippers Association (ACSA). The roadmap is focused on helping Australian cotton remain competitive in changing international fashion and textile markets. Five key topic areas are being addressed: traceability; industry data; sustainably certified cotton/the *my*BMP program; human rights; and Australian cotton marketing. The need for the strategic roadmap emerged from changes in the global cotton and textile landscape, including new overseas legislation affecting market access,



companies being required to report on social and environmental impacts, and global frameworks requiring evidence of social and environmental impact back to farm level. CRDC-supported RD&E is crucial to many of the roadmap elements, and CRDC is leading two programs of work under the roadmap pillars: the cotton industry data platform; and a strategic review of the industry's *my*BMP program to ensure it is fit for purpose.

Sustainability progress: annual update showcases progress and performance

In 2024–2025, CRDC and Cotton Australia released the third annual progress update against cotton's key sustainability indicators, outlined in the PLANET. PEOPLE. PADDOCK. Sustainability Framework. The annual update, which looks at the year ending June 2023, provides a snapshot of cotton's performance against the eight indicators – PLANET: water, GHG, native vegetation, pesticides, and soil health; PEOPLE: workplace; and PADDOCK: productivity and profitability. The annual updates are designed to fit between cotton's comprehensive five-yearly sustainability reports, providing important insights into progress, so the industry can keep track of areas performing well, and those that need more emphasis. The Sustainability Update 2023 shows that cotton growers have dramatically improved productivity over time. The five-year average area planted to cotton has increased by just 19 per cent since 1994, yet total production has increased by 94 per cent. It also shows a long-term trend of reducing hazard to bees (from insecticides) and algae (from herbicides), reducing by 91 per cent and 60 per cent respectively since 2004.

2024 Australian Cotton Conference: research showcased at cotton's major event

The 2024 Australian Cotton Conference – proudly supported by CRDC as a foundation sponsor – provided a platform to showcase CRDC-supported RD&E to the industry in 2024–25. Over 50 CRDC-supported researchers, directors and team members presented across the three-day event. CRDC and Cotton Australia co-chaired two key sessions focused on the future of Australian cotton and the Strategic Roadmap, including updates on the *my*BMP program review and an overview of the cotton industry data platform. Two major announcements took place at the Conference – the awarding of the CRDC Chris Lehmann Young Cotton Achiever Award to researcher Sharna Holman, and the formalisation of CRDC's partners in ACDC: Qld DPI and UniSQ. The conference broke attendance records with 2900 delegates, the largest number of industry participants since the event began. CRDC has supported the Australian Cotton Conference since its inception, providing discounted registrations for cotton growers and supporting researchers and students to attend to showcase their research.

MELANIE JENSON

Australian Future Cotton Leaders Program: developing cotton's leadership capacity

A record number of applications were received for the 2024 Australian Future Cotton Leaders Program, conducted by Cotton Australia with support from CRDC. From 46 industry applicants, 16 program participants were selected from across the cotton supply chain including growers, consultants, merchants, researchers and extension officers. Held every two years, the program is designed for emerging leaders within the cotton industry. It has produced 132 graduates since commencing in 2006, with many alumni now holding leadership positions within cotton industry organisations. CRDC has supported the program since inception. Together, CRDC and Cotton Australia provide support for a number of leadership programs, including the Australian Future Cotton Leaders Program, the Australian Rural Leadership Foundation's TRAIL and Australian Rural Leadership Program, and Nuffield Australia's Farming Scholarships. One of the 2024 Future Cotton Leaders' graduates, Kate Lumber, has been selected as cotton's 2025 Nuffield Scholar, with support from CRDC and Cotton Australia.

For more

2024-25 Annual Report and Performance Report

www.crdc.com.au/publications/crdc-annual-report

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COTTON RESEARCH AND DEVELOPMENT CORPORATION

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