Innovation Alley

There are a host of technologies and innovations in development that will drive impact in cotton production and the supply chain. Through Innovation Alley at the 2022 Australian Cotton Conference, we're connecting you with 12 of these!

Innovation Alley is an initiative of CRDC, the Australian Cotton Conference and AgriFutures Australia's grow[AG]. You can find Innovation Alley in the Conference trade hall, and in the program: Session 3c on Tues 16 Aug (4:15pm in room 5): Let's hear it for the innovators!

brought to you by

CRDC

2022 AUSTRALIAN COTTON CONFERENCE

AgriFutures grow AG

Innovation Alley:

growAG – global innovation gateway

AgriFutures growAG is a partnership between the 15 Research and Development Corporations (RDCs), including CRDC, and the Department of Agriculture, Fisheries and Forestry. AgriFutures growAG is the gateway to Australia's agrifood innovation system. Launched in April 2021, growAG. makes RD&E outcomes transparent for growers and the community, positions Australia as a global agrifood innovation hub, and makes it easy to explore, find and connect with potential partners and opportunities. The platform has a focus on deal-flow, attracting capital investment and driving collaboration. growAG. is currently showcasing 225 of CRDC's research projects, and has showcased five CRDC commercial opportunities.

For more: www.growag.com

Goanna Ag - spray hazard warning system

A five-year partnership between CRDC, GRDC and Goanna Ag will deliver a hazardous inversion warning system for growers and spray operators, called WAND: Weather and Networked Data. It will provide real-time weather data and alerts about the presence of hazardous temperature inversions. The first tower in the WAND network was installed in April at Goondiwindi, with the entire system aiming to be up and running for the 2022-23 summer cropping season. The partnership is CRDC's single biggest investment in our 30 year history, and could help the industry avoid $40 million in losses and costs associated with spray drift over five years.

For more: www.goannaag.com.au/spray-inversion-network

LX 'Maverick' – BRII challenge winner
SwarmFarm – BRII challenge winner

CRDC and GRDC partnered with the Department of Industry on the Business Research and Innovation Initiative (BRII) to solve a major challenge: revolutionising spray applications to reduce drift. The goal is to discover unique ways to reduce off-target spray drift, improve efficacy of application, and avoid damage to the environment. Two companies were chosen for the 'proof of concept' phase, receiving $1m each: LX and SwarmFarm Robotics.

- LX: recognised for its creation of an easy to use, globally scalable and real-time spray application feedback system using AI technology, called 'Maverick'.
- SwarmFarm Robotics: recognised for developing a system for robots to make informed, autonomous decisions on pesticide application based on actual weather conditions.

For more: www.lx-group.com.au and www.swarmfarm.com

PestDetect App – AI tool for whitefly

CRDC, University of Southern Queensland, Queensland Department of Agriculture and Fisheries, and tech specialists Clevvi are creating a novel machine vision tool for use in the field. The Cotton Pest Detect App is a digital tool to assist with sampling for silverleaf whitefly (SLW) nymphs by providing image-derived insect counts using a phone camera. Pest Detect will count SLW nymphs and integrate this information with crop development and pest density thresholds to assist agronomists and growers to make better-informed management decisions. The app will also allow users to track where pests may be building more rapidly on individual farms or fields. It can also enable timely, impartial measurement of the efficacy of insecticides.

For more: www.cottoninfo.com.au/insect-and-mite-management

meet the innovators!

iMapPESTS – sentinels to identify airborn pests

The cross-industry R&D program, iMapPESTS: Sentinel Surveillance for Agriculture, brings together Australia's plant RDCs (including CRDC), to research and develop a smart national surveillance system with the latest cutting-edge diagnostics to rapidly monitor and report the presence of airborne pests and diseases for agricultural sectors including cotton, viticulture, grains, horticulture, sugar, and forestry. The project features custom-designed mobile surveillance units, or 'sentinels' with sophisticated airborne trapping. The sentinels have been on trial at the IREC site near Griffith to understand the cotton pests and pathogens that can be detected and how this information may support on-farm pest management decision making.
For more: www.imappests.com.au

Regrow Ag – remote sensing technology

CRDC has been partnering with Dr Anastasia Volkova and her company FluroSat (now Regrow Ag) since 2017, when we supported her through a series of start-up workshops allowing her to incubate and grow her project. Since then, she's gone on to secure millions in investment to further develop the state-of-the-art remote sensing and crop/soil modelling technology that allows farmers to measure crop health 'from the air'. Today, Regrow Ag is an award-winning global company that's commercialising climate action through regenerative agriculture. It empowers some of the world's largest brands to reduce greenhouse gas emissions across their supply chains and combat climate change through food production.
For more: www.regrow.ag

Smarter Irrigation for Profit 2 – key innovations

The cross-industry Smarter Irrigation for Profit Phase 2 program, led by CRDC with support from the Australian Government's Rural R&D for Profit program, tackled the challenge of reduced water availability by focusing on practical, cost effective strategies to improve water productivity. The project developed new irrigation technologies including new sensors, advanced analytics for scheduling and strategies to reduce water storage evaporation, and cost effective, practical automated irrigation systems. The objective was to improve the profit of over 4000 cotton, dairy, rice, grains and sugar irrigators. As a result of this project, the cotton industry is commercialising a number of innovations developed through support of the project, including Variwise, SISCOweb and sensor technology.
For more: www.smarterirrigation.com.au

Cotton Landcare Tech Innovations – key innovations

The Cotton Landcare Tech Innovations 2021 project focused on enhancing biodiversity on Australian cotton farms. The project built on international best practice to develop and implement cutting-edge technologies such as direct seeding technologies using drones and tractors, acoustic monitoring sensors and regional biodiversity restoration webtools to assist growers better manage and monitor on-farm biodiversity. The project was funded by CRDC with support from the Australian Government's National Landcare Program Smart Farming Partnership Initiative Round 1. The project is a partnership between CRDC, Queensland University of Technology and the University of New England with support from international collaborators University College of London and Dendra Systems (UK).
For more: www.crdc.com.au/cotton-landcare-tech-innovations-2021

Australian Research Council (ARC) Hub for Sustainable Crop Protection – game-changing crop protection

The Australian Research Council (ARC) Hub for Sustainable Crop Protection was established to address challenges of fungicide resistance, chemical residues, off-target effects and environmental harm. It is led by the University of Queensland (UQ), in collaboration with 15 partners, including CRDC and fellow research and development corporations (RDCs) GRDC, Wine Australia and Hort Innovation and industrial partner Nufarm Ltd. The Hub research team are taking on the global challenge of transforming crop protection technology by developing and commercialising the innovative biological alternative to chemical fungicide: BioClay™. This breakthrough technology, developed by scientists at UQ, has the potential to become a game changer in cotton crop protection. BioClay™ is an environmentally friendly biopesticide that aims to control important pathogens of cotton such as silverleaf whitefly and Verticillium wilt, allowing versatility and high target specificity, without affecting the crop's beneficial organisms.
For more: www.crophub.com.au

AquaTill – high pressure crop destruction for dryland

AquaTill is ultra high-pressure waterjet technology developed as an alternative post-harvest crop destruction tool in dryland cotton. Using a liquid jet-stream generated by 50,000 psi and operating near Mach 3, AquaTill can cut through plant matter and penetrate soil. Developed by Flow International and the SA NoTill Farmers Association, AquaTill was first tested on mulched cotton in a project supported by CRDC in 2017. CRDC supported further independent trial work in 2019 and 2020 by the Dryland Cotton Research Association (DCRA). AquaTill is progressing towards commercialisation with PSS Ag coming on board as the Australian agent.
For more: www.aquatill.com

John Deere See & Spray™ Select – innovative vision-based plant detection tech

Vision-based plant detection technology released by John Deere in 2021 was developed through projects supported by CRDC with researchers from the University of Southern Queensland (USQ). The See & Spray™ Select technology, integrated into John Deere's new 400 and 600 series sprayers is the only technology of its type available in Australia and the industry's first factory-installed, targeted spray solution. See & Spray Select camera technology rapidly detects green plants within fallow ground and automatically triggers an application to those plants. In doing so, it achieves a similar hit rate to traditional broadcast spraying but uses, on average, 77 percent less herbicide. Operators can apply complex tank mixes more efficiently and can switch from targeted to broadcast spraying, without the need to leave the cab. **For more: www.deere.com.au/en/sprayers/see-spray-select**