Automated irrigation systems: Advancing the adoption of climate-smart, innovative irrigation control technology for the cotton and dairy industries

1. What is the project about?

This project will translate VARIwise, a precision irrigation optimisation and control system, from the research phase to a commercial-ready package that can be adopted in any irrigation system.

Research has found barriers to adoption of precision irrigation include poor interoperability and connectivity between existing irrigation sensor systems, and access to ongoing precision technology support. This project will address these barriers by involving irrigation technology companies and precision irrigation consultants to develop VARIwise into a format that can easily interface with any on-farm sensor and irrigation system. The project includes on-farm demonstration activities led by irrigation technology consultants. These will be at Moree-Narrabri, the Darling Downs and in Tasmania at Burnie-Ulverstone and the Meander Valley-West Tamar. Growers and consultants will be invited to visit the sites to learn more about VARIwise technology.

VARIwise was developed by A/Prof Alison McCarthy and A/Prof Joseph Foley (UniSQ) through previous Cotton Research and Development Corporation (CRDC) led national projects under the Australian Government Rural R&D for Profit program supported by the cotton and dairy industries: Smarter Irrigation for Profit 1 and 2 (SIP). Project partners are CRDC, the University of Southern Queensland, the University of Tasmania, Swan Systems Irrigation and AgLogic.

The project is being supported by funding from the Australian Government's Climate-Smart Agriculture Program's Partnerships and Innovation Grant and CRDC.

2. Is remote control of irrigation practical?

The autonomous irrigation technology commercialised through this project will support unassisted operation of autonomous broad-acre irrigation systems for cotton and dairy. The vision of operating a broadacre irrigation system remotely is now a reality. VARIwise uses advanced irrigation decision-making approaches that integrate multiple data streams, including soil, plant, and weather information, to assess site-specific irrigation requirements precisely, unlike traditional approaches that only consider soil-water status.

3. How will the research benefit irrigators?

On-farm research has demonstrated VARIwise can deliver 10 per cent in water savings and a five per cent productivity improvement in cotton and pasture, significantly increasing the climate resilience of irrigators while reducing emissions from water logging. Other benefits include reduced labour costs and lower energy costs due to reduced pumping. VARIwise will also assist industries to demonstrate their water productivity credentials.

For more information

Irrigation automation in dairy and cotton – Dr Alison McCarthy (podcast)
https://smarterirrigation.com.au/irrigation-automation-with-dr-alison-mccarthy/
Variable rate irrigation using VARIwise; https://www.youtube.com/watch?v=fL1DG07Fge8&list=PLQy8KAPn-DyrR0kMHHeiZyCGcIWp_6hZf

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