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Dairy Australia

22 September 2021

Irrigation tool helps farmers get more crop for their drop

Three upcoming Irrigation Field Days will give Tasmanian farmers the opportunity to test out a new irrigation tool that uses local weather data to enhance water budgets and irrigation scheduling decisions.

Developed by the Centre for Agricultural Engineering at the University of Southern Queensland, the Tasmanian Institute of Agriculture (TIA) and Dairy Australia, IrriPasture is designed for Australian dairy farmers to help use water more efficiently.

IrriPasture is a simple web-based tool that uses a dashboard, accessible on the phone, to provide recommendations as to how much and when to irrigate.

Farm details are set up in IrriPasture, and it then uses weather data from Bureau of Meteorology sites and irrigation data to calculate the water budget and provide recommendations for irrigation.

IrriPasture has been developed as part of the Smarter Irrigation for Profit - Phase 2 (SIP2) project, a partnership between the dairy, cotton, horticulture, rice, and grain sectors, supported by funding from the Australian Government Department of Agriculture, Water and the Environment as part of its Rural R&D for Profit program and each of the industries involved.

The first phase of the project, Smarter Irrigation for Profit - Phase 1 (SIP1), was conducted between 2015 and 2018. The outcomes were significant for the dairy industry in identifying irrigation management practices that were constraining optimal yield of pastures and crops on irrigated areas. SIP2 has been developed using the findings from SIP1.

“SIP1 was our opportunity to collect data. Through that process we recognised farmers were only growing at about half of what they potentially could be achieving, James Hills, TIA Senior Research Fellow and Centre Leader, Livestock Production said.

“From West Australia to Queensland, to New South Wales, Victoria, South Australia, and Tasmania, we installed technology to understand what was happening in terms of our irrigation so we can optimise our irrigation practice to get the best productivity out of it,” James Hills said.

“With that knowledge, and through that process of investigation, we found one of the biggest issues was the simple scheduling of irrigation.

“We found that by adjusting scheduling - not necessarily using more irrigation – just adjusting their scheduling, they were able to double their productivity.”

In combination, data gleaned from rain gauges, soil moisture probes, weather stations, and weather forecasts help farmers put together a picture that helps them predict optimal water use.

“Soil probes give us a picture of what is happening underground; weather stations allow us to measure evapotranspiration rates, which tells us how much is going out of the system;

rain gauges tell us how much is going into the system and simple online scheduling tools bring all the data together,'' James said.

"This information shows farmers where their water budget is, how much they are using and how much is going into the system, while forecasting tools such as the Bureau of Meteorology, are predicting weather that allows farmers to determine optimal times to irrigate."

SIP2 Dairy Optimisation Sites Coordinator, Marguerite White, said "Ten sites across mainland Australia have deployed these tools to assist host farmers make more informed and confident irrigation decisions for the growing conditions and farming systems of the region." There are a further five sites across Tasmania.

Key to the SIP2 project is benchmarking against the possibilities.

"It is really important to get out there and measure, so you understand what is happening on your farm," James said. "Have a look at what your productivity is like, then ask questions – is it because of our watering?"

By scheduling optimal water use, IrriPasture helps farmers improve crop and pasture yields and increase profits.

"Monitoring the soil moisture and using IrriPasture information allowed us to make confident decisions on when and how much to irrigate," site farmer Brian Chappell commented.

"Keeping soil moisture within the Readily Available Water (RAW) zone is really important.

"When I saw that either the soil probes or IrriPasture graphs were trending downwards towards the refill line, I irrigated to either maintain or increase my soil moisture. The graphs showed me that I had some room to move before hitting the full-point."

Brian said that making sure he started irrigation at the right time after rainfall, and by not over applying, he saved on his water use and energy costs.

TIA Irrigation Field Days

Tuesday 28 September - 177 Irishtown Road, Smithton

Wednesday 29 September - 112 Brocks Road, Montana

Thursday 30 September - 1259 Waterhouse Road, Waterhouse

Go to https://www.utas.edu.au/tia/events to reserve your spot

For the latest tools, resources, and information to help you get more crop for your drop, visit the Smarter Irrigation for Profit 2 webpage on the Dairy Australia website at dairyaustralia.com.au/SIP2

The Smarter Irrigation for Profit 2 project is supported by funding from the Australian Government Department of Agriculture Water and the Environment as part of its Rural R&D for Profit program, and Dairy Australia.

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