PROJECT CATALYST

Case Study

Increasing Irrigation Efficiency Through Scheduling and In-field Moisture Sensor Monitoring

LANDHOLDER	Sib Previtera
LOCATION	Home Hill
CATCHMENT	Burdekin
RAINFALL	948mm
PROPERTY SIZE	50ha
ON-GROUND PROVIDER	BPS

Project Catalyst is a grower led, sugar cane innovation and adoption project that explores, develops and validates farm management practice change to improve the enduring water quality of the Great Barrier Reef.

BROADER ADOPTION VALIDATION & GROWER SUPPORT

Founded in 2009, the project operates in the Mackay Whitsunday, Burdekin and Wet Tropic regions to deliver valued practice change outcomes and develop methods for industry adoption. Under the Broader Adoption and Grower Support program, professional on-ground service providers assist selected growers to adopt and validate appropriate change practices. Service providers continue to monitor implementation bene its and derived environmental performance improvements. Through targeted extension activities, the program seeks to accelerate the uptake and broader adoption of improved farming practices at local, regional and industry levels.

G-dot installed at Sib's

Irrigweb showing irrigation entries and estimated crop deficit.

Australian Government | REEF TRUST | Great Barrier Reef Foundation | THE Coca-Cola FOUNDATION | WWF

Goal

To improve irrigation efficiency through scheduling based on in-field moisture sensors and irrigation scheduling tools.

Furrow irrigating with fluming.

Overview

Sib's farm is located in reasonably well drained soils outside of Home Hill. He grows sugarcane on most of his farm along with a combination of chillies and pumpkins.

Sib was interested in how he could manage his irrigation more efficiently since pumping and electricity costs are increasing. His normal practice was to irrigate on a set cycle without monitoring his soil moisture.

Performing a pump flow assessment on a bore using an ultrasonic flow meter

Action

A readily available water map (RAW) was created for the farm to calculate how much water the different soil types could retain for the cane to readily use. A G-dot soil moisture sensor was installed on one block to monitor in-field moisture and was calibrated to the optimal growth point. Pump flow /cup flow tests were completed to help calculate the actual amount of water applied per irrigation. Irrigweb was then set up for the G-dot block and other surrounding blocks with similar soil types. The G-dot helped to ground truth what Irrigweb was indicating as the best time to irrigate based on current weather patterns and irrigation events.

We are now looking at how irrigation practices can be modified to help improve irrigation efficiency and water uptake by the crop as the season progresses.

Outcome

Sib is now monitoring his G-dot which has made knowing when to irrigate easier for him since he can just drive to the block and read his G-dot. He is also entering his irrigations into Irrigweb and scheduling when the most appropriate time to irrigate is rather than being on a set cycle.

Once we have a full season's worth of data we will be able to compare pumping costs and water use efficiencies to other blocks that are on a set cycle and not currently monitored with moisture sensing equipment and scheduling tools. When the cane is harvested we will also see if there is much of a difference with the efficient block compared to others of the same variety and class.