

# Data drives irrigation decisions

## CASE STUDY



Embracing new irrigation technology and forecasting tools helped one NSW dairy farmer work with seasonal conditions to improve water use efficiency.

In doing so, he now has robust irrigation data to demonstrate a responsible use of natural resources – something he said was vital to maintaining the dairy industry's 'social licence'.

Matt Brett is the farm manager at the NSW Department of Primary Industries Tocal dairy in the lower Hunter Valley.

This farm, which milked 280–300 cows year-round, was an "optimisation site" for the Smarter Irrigation for Profit phase 2 program (SIP2), funded by Department of Agriculture, Fisheries and Forestry, and Dairy Australia.

Matt said the program demonstrated the value of soil moisture probes and weather forecasting information to improve water use efficiency, regardless of the seasonal conditions.

"In the drier years we learnt we could be more proactive, looking at our soil moisture probes and IrriPasture (pasture irrigation software) showed us we could have irrigated two-to-three days earlier in some instances," he said. "Especially in Winter when it was a bit cooler."

**Beginning irrigation a few days earlier meant there wasn't any decline in pasture growth.**

"It made sure we optimised every bit of pasture growth," Matt said.

"Basically, that means getting the maximum amount of dry matter which helps push towards an extra cut of silage over the year.

"Maximising the amount of conserved feed helps profitability."

Irrigation is used at Tocal year-round to supplement rainfall in the subtropical climate.

The milking platform of 130 hectares contains 80ha of mixed irrigation including three centre pivots that irrigate 37ha.

The Smarter Irrigation for Profit phase 2 program was run across three seasons.

The first irrigation season was dominated by hot and dry conditions until the drought broke in February 2020.

Extensive and substantial rain events, with breaks of high temperatures across several days, were common throughout seasons two and three.

This weather in seasons one and two resulted in high daily evapotranspiration variation.



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## Matt said moisture probes and forecasting data provided valuable information that enabled him to use irrigation to supplement rainfall events rather than sticking to a fixed irrigation schedule.

This improved water efficiency, as water stress and water logging were minimised.

Matt said the SWAN Systems Weatherwise seven-day forecasts -were "pretty accurate" at predicting rain events and evapotranspiration.

"In the wetter seasons we could see big falls coming," he said.

"In the La Nina season we were happy to let it dry out because we knew another dump was coming.

"If the moisture probes said it was time to go (irrigate) during a La Nina season – when we were due to get 50 to 80mmm – we'd know how to manage this to avoid soil run-off."

Matt said it was important for dairy farmers to be "good stewards" of land and water and the project helped demonstrate proof of this with the water efficiency data.

"We have a lot of people coming onto the farm, so knowing how much water we pump, how much feed it grows and then translating that to human nutrition enables us to draw the whole process out and demonstrate responsible land and water use," he said.

"Social licence is important, and farmers will become more and more accountable in years to come for using resources."

### MORE INFORMATION

Cath Lescun, Dairy Australia

National Soils and Irrigation Lead

E: [Cath.Lescun@dairyaustralia.com.au](mailto:Cath.Lescun@dairyaustralia.com.au)

[dairyaustralia.com.au/smarterirrigationforprofit](https://dairyaustralia.com.au/smarterirrigationforprofit)

[smarterirrigation.com.au](https://smarterirrigation.com.au)