

Irrigation Insight Programme

Farmer case studies

How are our pilot farmers using Irrigation Insight tools and knowledge?

Three irrigation management tools are under development for testing and refining in the final years of the programme. Twenty irrigating dairy farmers in the Canterbury region are trialling the prototype tools.

Strategy tool

What irrigation approach fits my farm?

Designed to help farmers make strategic irrigation decisions such as scheduling approaches and infrastructure development

Scheduling tool

Should I irrigate today?

Incorporates soil properties, current soil moisture, future rainfall and evapotranspiration, and costs of irrigation to help farmer choose when and how they irrigate

Soilmate app

How variable is my farm?

Combines soil water measurements from a mobile soil moisture sensor and NIWA's high-resolution weather forecast to provide a site-specific 6-day soil moisture forecast



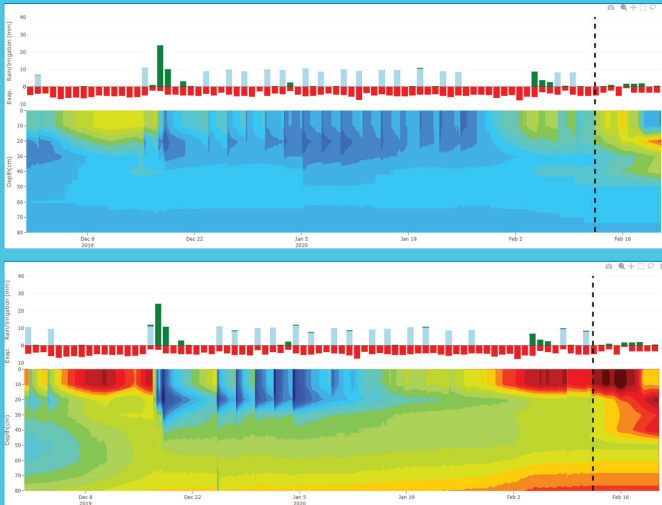
Using the scheduling tool: three pilot farmer case studies

PILOT FARMER ONE

FARM FACTS

- 222 effective ha
- Centre pivot irrigator
- 860 peak cows
- Mix of heavy and light soil types

Farm challenge: *One irrigator, two soil types*



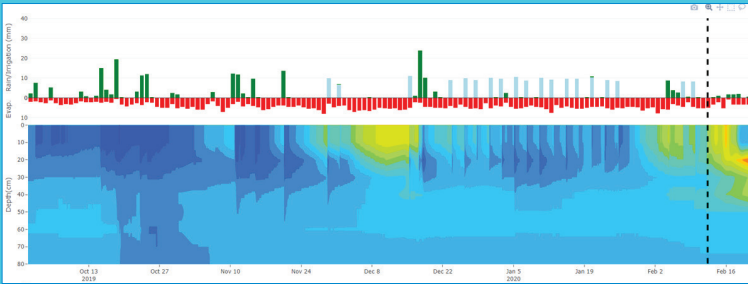
FARMER INSIGHTS

- Same irrigator goes over two different soil types – one gets dry faster than the other, needing a varied irrigation application
- A water balance of approach of just accounting of metered water at the irrigator would not capture the differences between the soil types.

FARMER ACTION

“The Insight soil moisture plot shows the difference in soil moisture response between light and heavy soil. The irrigator has been reprogrammed to adjust the application rate for each soil type.”

Farm challenge: *Demonstrating good irrigation practice*



FARMER INSIGHTS

- Use of Insight plots as an evidence for irrigation practices not resulting in any avoidable drainage during the irrigation season
- An annual Insight plot is simple visual proof of how irrigations have been managed.

FARMER ACTION

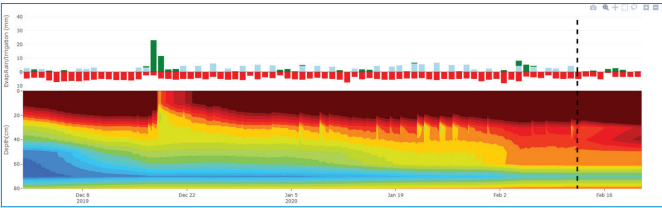
“At the end of the irrigation season I can send a copy of the seasonal soil moisture plot as evidence of my good irrigation management practice. The rootzone soil moisture also indicates how well soil moisture conditions were maintained for optimising grass growth.”

PILOT FARMER TWO

FARM FACTS

- 110 ha
- Centre pivot irrigator
- 400 cows
- Medium to heavy soil types

Farm challenge: *Irrigation limited by water supply*



FARMER INSIGHTS

- The Insight plot helps to see how quickly the soil profile dries up between irrigations and rainfall events
- Irrigations must be carefully managed due to the limited access to water
- With limited water availability, centre pivots are better suited to keep the soil moist than roto-rainers and guns.

FARMER ACTION

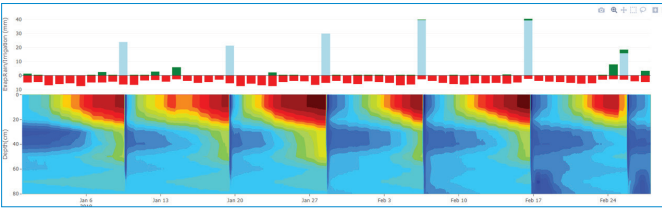
“From the Insight plot, I see the soil is drying over the season. With limited access to additional water I am altering my irrigations to apply less water more frequently, attempting to keep the soil near the stress point, while keeping an eye on the forecast.”

PILOT FARMER THREE

FARM FACTS

- 119 ha
- One Roto-rainer, two gun irrigators
- Medium to heavy soil types

Farm challenge: *Irrigation hardware limits*



FARMER INSIGHTS

- Irrigation frequency is limited by irrigator availability
- By altering the irrigation amount, the farmer was able to keep the water in the root zone without causing drainage.

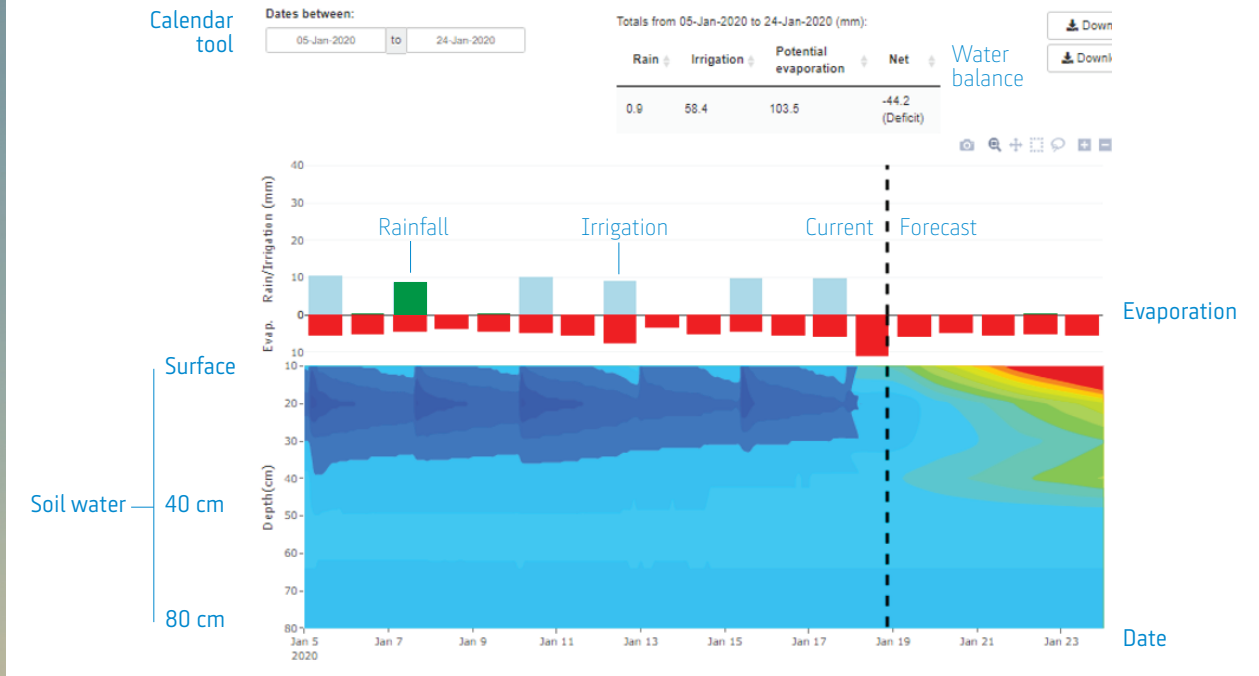
FARMER ACTION

“I am limited by an irrigator that has a fixed return period to each paddock. However, I can speed it up or down to alter the irrigation application in each paddock. I do that to reduce drainage and leaching while still keeping the root zone wet. I use the Insight plot to help find where my sweet spot irrigation amount is.”

IRRIGATION *Insight*

ECONOMICALLY SOUND & ENVIRONMENTALLY RESPONSIBLE

Components of an Insight plot



Programme contact

MS Srinivasan

MS.Srinivasan@niwa.co.nz

03 343 8031

Find out more at www.irrigationinsight.co.nz



Research Partner



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