

Lucerne swap decreased summer feed costs

CASE STUDY



Ben McHugh always suspected his dairy farm was losing dry matter production during the Summer because of the Italian ryegrass and white clover in some paddocks.

Farming at Mosquito Hill in South Australia's Adelaide Hills, it's common to have hot days during Summer.

This weather sapped soil moisture and delivered poor production from the biennial ryegrass and clover.

Replacing this pasture with tall fescue resulted in improved dry matter yields, but the McHugh's 330-head herd of Jersey cows didn't like grazing it once it turned "rank".

The next option was lucerne.

"We already grew some lucerne on another area of the farm," Ben said.

"The cows grazed it well over the Summer months. It produced so much more over Summer, and it was more water efficient."

Making the decision to add more lucerne to his dairy's grazing platform came from discussions as part of the Smarter Irrigation for Profit phase 2 program (SIP2), funded by the Department of Agriculture, Fisheries and Forestry, and Dairy Australia.

Concentrating on optimising irrigation water productivity, the McHugh's farm was one of the program's "optimisation sites" where local farmers explored water efficient technology and new irrigation practices.

Farming with his wife Katie and sons Tom 13, Henry 11 and Sam 9, Ben said installing moisture probes, as part of the program, was beneficial to his business.

The probes enabled better soil moisture monitoring to advise ideal irrigation timing.

Ben said this practice led to increased productivity and reduced costs.

"The biggest efficiency gain was at start-up," Ben said.

"Starting-up irrigation a couple of weeks earlier than we traditionally would have meant production growth rates stayed a lot higher for longer. We didn't let the soil dry out as much as we would have prior to the probes. We got more grazings and more growth, which meant we could come back and graze those paddocks faster and it also meant less supplementary feed."

It was these soil moisture probes and the subsequent monitoring that guided Ben's irrigation practices for the lucerne that replaced the biennial ryegrass and clover.

Using information from the moisture probes, as well as weekly weather and evapotranspiration reports, Ben adjusted his irrigation to suit the growth stage of the lucerne.



"The juvenile lucerne roots weren't very deep, so we watered smaller amounts more often," he said.

"Into the second year, the roots were a lot deeper, and we were able to do less watering and put on higher amounts – basically to get that water to filter through to deeper roots. That also prevented some competition from weeds because weeds have a shallower root depth. As we progressed, we also found a lot better growth rates if we let the pivot water twice over two consecutive days. There was a deeper penetration of the water."

Moving away from Italian ryegrass and white clover improved water and energy costs per tonne of dry matter and increased the daily growth rate.

The total cost per tonne of dry matter decreased 79 per cent between the first season – the Italian ryegrass and white clover – and the third season, when there was established lucerne.

The price of feed in season three was \$22.75/tDM, mostly due to improved yields, energy, and water efficiencies.

This irrigation program research didn't however provide enough information to evaluate the benefits of lucerne across the annual growing period, especially in winter when ryegrass would outperform lucerne.

It's because of lucerne's seasonality that Ben will continue to manage the existing amount of lucerne in his farm's pasture platform – despite its summer water efficiency.

"In the areas where we water lucerne, we lose a little production area in Winter; we don't get the growth rates," he said.

"We need to spread-out the growth rates on farm throughout the year. We need to maximise dry matter throughout the entire year."

As part of the program, Ben also received a weekly report, supplied by DairySA, which included weather forecast information, evapotranspiration rates and water balance calculations.

He used this information in conjunction with data from the soil moisture probes to inform irrigation rates and timing.

"It gives you peace of mind that what you are doing is the right thing," Ben said.

"With the probes, you can obviously see the RAW (readily available water) improving after a watering and quite often it meant that when we had a rain event we'd know when to start watering again because we'd know how far it lifted the moisture in the soil profile or how far it didn't."

MORE INFORMATION

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