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Soil moisture monitoring has positive trickle-down effects on Barossa farm

LOCATION: Flaxman Valley

ANNUAL RAINFALL: 600 mm

FARM SIZE: 2000 ha

ENTERPRISES: Wool, lamb, beef cattle

Information from Barossa Improved Grazing Groups weather monitoring station located at Flaxman Valley has proved valuable for decision-making on Michael Evans grazing property.

The monitoring station records both climate and soil moisture data and knowing how full the soil profile is at any given time has assisted with decision making for stocking rates, feed budgeting and in-season nitrogen application.

The Evans graze 2000 hectares and have a flock of 600 self-replacing Merinos, as well as 1400 Merino ewes mated to Poll Dorset rams for prime lamb production. The property is also home to 120 beef cattle, down from about 200 last year.

The Evans check soil moisture availability to make sure there is enough moisture for good pasture growth before winter, which can help with feed budgeting decisions.

Michael also believes that monitoring how quick soil moisture is being used during the growing season has made it easier to make decisions about stocking rates and destocking at the end of the season.

In 2018, the Evans' began selling cattle in late August, which was earlier than usual. Michael suspects without the soil moisture information, they may well have tried to hang onto the cattle through what turned out to be a dry spring and summer. This would have meant purchasing extra feed, increased labour costs, and possibly compromising paddock groundcover due to the higher stocking rate. However, the cattle were destocked in good condition, gaining a good market price.

Michael was therefore able to make an informed decision that was the best for the land, the cattle and the business.

The soil moisture information has also been used by the Evans to ensure there was enough soil moisture available for in-season nitrogen applications so to boost pasture production.

Data from the Flaxman Valley monitoring station has also showed the value of having a perennial component in their pastures.

In late spring 2018, the perennial species, phalaris was still able to access moisture deep in the soil profile after the annual grasses had died off. This exhausted the moisture profile, but provided extra paddock feed and groundcover. In comparison, the annual pasture system paddocks where BIGG's monitoring stations are located at Keyneton and Koonunga, remained 20-25% full into autumn 2019.

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While most of the information the Evans access from the Flaxman Valley weather monitoring station is used to make decisions related to stocking rates, pasture growth and feed budgeting, they have also utilised the station's delta T data.

Delta T is a relationship between temperature and relative humidity and determines if conditions are suitable for spraying. This is especially critical in summer as higher temperatures and low relative humidity limits spraying time.

The station's grassland fire danger index also keeps the Evans informed of high local fire risk periods and so is a 'reminder' to ensure any farm activities are appropriate for the level of fire risk at the time.

SOUND DECISION: Michael Evans was able to achieve good prices for his cattle in spring and save on feed purchased for the following dry summer, after paying close attention to soil moisture data from BIGG's weather monitoring station on his Flaxman Valley property.

KEY DECISIONS

Began selling cattle earlier than usual due to lower than average winter soil moisture levels – this decision reduced future feed purchased and saved groundcover, while still getting a good market price.

Perennials in a pasture mix provided extra growth in summer (compared to annuals only) by accessing moisture at depth and out of season rainfall

Spraying when conditions are suitable based on Delta T data.

This project is supported by the Adelaide and Mount Lofty Ranges Natural Resources Management Board, with funding from the NRM levy.
For further information visit http://biggroup.org.au/project/soil-moisture-monitoring/