Soil moisture probes – Gippsland host site

Producer case study: Bill and Sandra Livingstone

What's happening?

The aim of this project is to improve Gippsland producers' knowledge of soil probe information and to increase the use of soil probe data to provide a better guide to decision making strategies.

Soil temperature and moisture information collected from soil probes across the region could assist producers to make informed decisions, potentially reducing costs or increasing production and allowing more effective management of seasonal variability.

As part of this Producer Demonstration Site (PDS), we are investigating how soil probe data could assist with setting 'trigger points' for key management decisions such as selling stock early (or purchasing), buying-in feed and timing pasture sowing in autumn (before it is too cold) or spring (before moisture becomes limiting) and for sowing summer crops such as brassicas.

Bill and Sandra Livingstone's site at Buchan South, along with other sites at Omeo and the Gippsland Research Farm have been established to correlate pasture growth and productivity data with soil probe data. The sites also aim to demonstrate production benefits for more timely decision making.

Host farm/background

The host property at Buchan South, operated by the Livingstones is 275ha and currently running 100 breeders calving in spring, along with 40 yearlings. They also have 350 cross-bred ewes, with approximately 400 lambs at foot.

The Livingstones agreed to be part of this project to better understand the information provided by the soil moisture probe on their property. Currently, Bill looks at the moisture data on average twice a week. At this point, he uses it to confirm his current decisions rather than prompting earlier decision making.

Paddock goal

The demonstration paddock linked to the soil moisture probe for this project has been used as a sacrifice paddock. Bill plans to sow a permanent perennial pasture in the future.

Bill and Sandra would like to increase their understanding of the data to the improve timing of future pasture/crop sowing and fertiliser application.

Figure 1 Soil moisture probe location and trial paddock at Buchan South

Early results

Figure 2 shows an example of soil moisture probe information at the Buchan South site which will be used for decision making and for engagement activities.

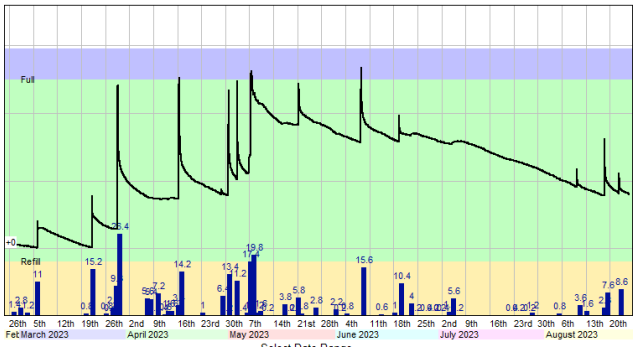

Figure 2 Data from the last six months on the soil profile. Note the spikes coinciding with rainfall, where the soil profile has filled before draining

Soil fertility has been tested to provide information for future interventions as part of the project.

Table 1 Soil test results prior to the demonstration

Analyte	**Unit**	
Soil Texture		Clay loam
pH (CaCl2)		4.6
Olsen P	mg/kg	14.9
Phosphorus Buffer Index		89
Colwell K	mg/kg	69
Available K	mg/kg	75
Sulphur (KCL-40)	mg/kg	19

To aid future discussions around the timing of fertiliser/amendments, a strip trial has been established in a section of the Buchan South demonstration site to investigate the possible effect on pasture growth from the application of urea and gibberellic acid (Figure 3).

Two weeks after application, a visual difference could be identified between the plots that had the gibberellic acid applied compared to the control and the plots with urea only.

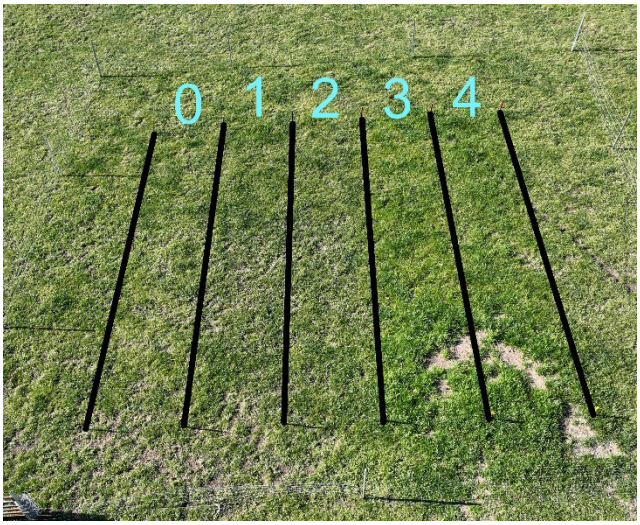

Figure 3 Strip Trials after two weeks. Plot 0- Control. Plot 1 - 80kg/ha Granular urea. Plot 2- 20kg of Nitrogen/ha dissolved urea. Plot 3 Gibberellic acid at 8g/ha. Plot 4- Gibberellic acid at 8g/ha and dissolved urea at 20kg Nitrogen/ha

Pasture cages have also been set up at the site to measure pasture growth during the late winter/spring growing season.

Where to from here?

The strip trial and pasture cages will continue to be monitored over the spring growing season and interpreted with respect to soil moisture and soil temperature. These two activities are replicated at the two other demonstration sites and overall results will be communicated via the Gippsland soil probe update and future engagement events.

For further information:

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