

Cover crop system

Kinross Station

CASE STUDY



Location

Balranald

Property name

Kinross

Owners

Tom and Deb Gaston

Enterprise mix

Broadacre cropping and grazing dorpers

Property size

1,750 ha

Average annual rainfall

324 mm



Figure 1

Tom and Deb Gaston at Kinross, Balranald have been looking for ways to increase productivity on their farm, particularly in dry seasons. This year they decided to sow a 'cover crop', to promote soil biology as well as produce a source of ground cover after multiple years with below average rainfall.

Reason for using cover crops?

As with the majority of farming enterprises, the key is cash flow. Using the cover crop system, Tom has been able to produce an income through tactical grazing of these cover crops, while contributing to the long-term sustainability of his property.

The problem

Multiple seasons with below average rainfall have led to low levels of ground cover, particularly over the summer period. This has been due to failed crops not producing stubble, or no crops being sown. As a result, income has been reduced, soil health compromised and productivity reduced.



The solution

The cover crop was sown on 15 April 2019. A mix of triticale, oats, barley, peas, clover, vetch and canola was sown at an average rate of 33 kg/ha (Figure 1). For the year 2019, the Gastons received 80 mm of rainfall. In an average year, it is expected that 200 mm of rainfall would have been received by October (Figure 4). Despite the low rainfall, utilising a mix of species produced a significant amount of biomass, at a low input cost.

The crops were grazed heavily in July after establishment, then allowed to recover, before being grazed again in October. Tom used a controlled rotational grazing system where 200 m by 200 m plots were grazed heavily for one to two days before the stock are moved to the next section.

Benefits

The Gastons grazed the plots with 1,000 dorper ewes, in a continuous lambing system (Figure 2). From this Tom estimates the ewes consumed 3 kg/head/day and made around \$3/week/ewe from the sale of lambs. By frequently moving the sheep he avoided excessive dust and trampling in camp areas, such as around water troughs. This promoted a more even graze of the paddock.

Electric fencing and portable troughs were used, meaning there were very few infrastructure costs (Figure 3).

Overcoming Barriers

In this system, the maintenance of ground cover is key. Ground cover levels need to be maintained about 50 per cent in order to protect the soil surface from erosion (Figure 4). Figure 4 shows that the cover crop increased ground cover levels by 10 per cent in July 2019 compared to July 2018. Therefore, not overgrazing the plots, particularly later in the year is a major focus of Tom's operation. This will ensure the soil surface is protected and will hold together over summer, especially if no further rainfall is received.

If further rain is received, Tom hopes to sow a summer crop into some of the paddocks to keep the soil biology functioning.



Figure 2



Figure 3

Next Steps

Tom believes that promoting a range of species growing in the soil will increase the symbiotic relationships that occur in soil biology, to increase soil organic matter levels in years to come.

This supports the notion that keeping active roots in the ground year-round will contribute to maintaining soil biology. Tom views this as being more valuable than having a fallow paddock.

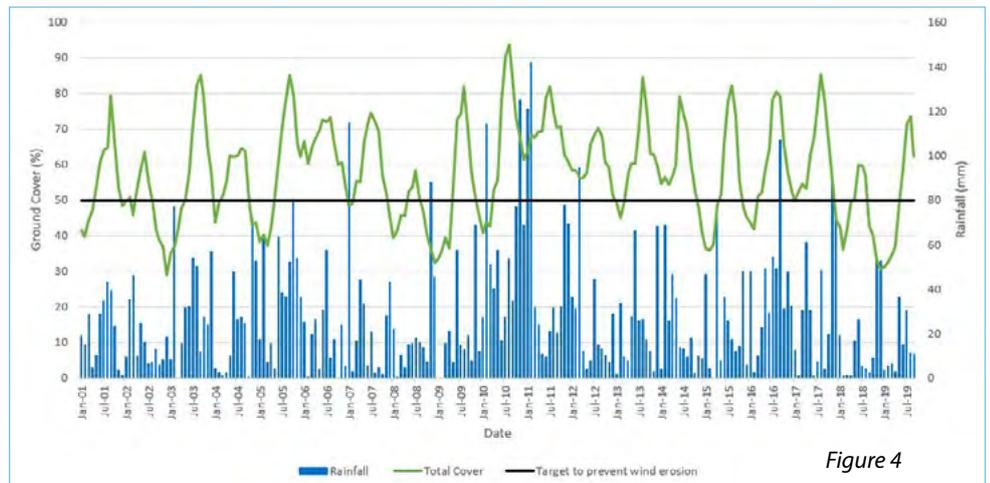


Figure 4

Figures:

Figure 1: A mixture of species were sown to promote establishment of the cover crop.

Figure 2: The crop was grazed using a controlled rotational grazing system.

Figure 3: An example of the portable troughs used to keep infrastructure costs to a minimum.

Figure 4: The rainfall (blue bars), total ground cover (green lines) and ground cover target (black line) for the paddock since 2001. Source: GEOGLAM RAPP.

For more information contact:

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