



Managing land classes for better feed utilisation

SITE INFORMATION

Landholder: Rob Walsh

Location: Cowell

Rainfall: 280 mm

Site Description

This site is an 830 ha (724 ha arable) paddock located on Robert Walsh's property at Midgee, north of Cowell.

The site consists of round granite hills with heavy red soils (light sandy clay loams over dispersive red clays) intersected by parallel siliceous sand ridges. The sandy soils have low inherent fertility, are water repellent at the surface and are highly susceptible to wind erosion. The remaining 106 ha consists of mallee vegetation on granite outcrops.

Aim and Objective

The purpose of the demonstration

Rob's heavier soils tend to be hard setting and can become compacted with heavy stocking rates and the light textured rises have a very high erosion risk. This means that the Rob has only been able to graze this area for short periods of time before the heavier soils become bared off and the sandier soils are exposed to a risk of wind erosion. The paddock currently contains two watering points.

Rob wanted to increase soil cover for erosion protection on the site by fencing off the sandy rises to help manage grazing and establishing an appropriate perennial pasture. He considered that the best way in which to do this would be to fence off 220 ha of the deep sand dune system, and establish a new water point. Due to the high risk of unfavorable conditions for pasture establishment on this site, Rob decided to establish perennial veldt grass over a two year period.

The paddock had been planted to wheat in 2010 and was left as a ley pasture paddock with summer weeds dominating during 2011. Rob would like to intensify his grazing on the site (he runs 2000 sheep).

Approach/Methodology

What was done?

Following rain in March 2012, Rob used a Kelly chain to pull out the woody summer weeds, he also applied glyphosate at 1 L/ha to control herbaceous summer weeds to prepare the paddock for seeding.

In June, he sowed half of the paddock with a mixture of Bevy Cereal Rye (20 kg/ha) and veldt grass (2 kg/ha) at 22.5 cm row spacings with 40 kg/ha of 18:20 fertiliser using a disc air-seeder and press wheels. The remainder of the paddock was sown to 60 kg/ha wheat with 55 kg/ha of 18:20. Winter rainfall only totaled 150 mm prior to August and there was no rain received in a six weeks period from August. Despite the low rainfall the cereal rye and wheat grew very well. However there was a very poor germination of veldt grass and the lack of rain combined with moisture competition from the cereal rye, resulted in poor growth.

At harvest the wheat yield averaged 1.1 t/ha, and despite the low cereal rye seeding rate, it yielded around 0.6 t/ha (64 t of which Rob was able to sell for \$282/t). Rob hoped that summer rains would result in a secondary germination of veldt grass; however, this did not occur.

In October 2012, Rob fenced the site into two paddocks (north and south paddocks) and excluded the remnant vegetation using nine kilometres of five line cyclone fence. The native vegetation on Rob's property includes native pine and provides important habitat for malleefowl, acting as corridors between the larger patches of native vegetation.



One of the holding tanks required for a new trough.



Results/Successes

Using a Kelly chain to pull out the woody summer weeds was effective in preparing the site for pasture establishment. As the soil was moist at the time of cultivation with the Kelly chain, it did not result in an excessive risk for wind erosion. The glyphosate knockdown spray prior to seeding also gave excellent weed control and enabled Rob to sow into a clean moist seedbed.

Sowing the site with a disc seeder further minimised soil disturbance, reducing the risk of wind erosion, and the use of press wheel firmed the seedbed and created moisture harvesting furrows.

Despite competition for moisture from the cereal rye Rob was surprised at just how much veldt grass had survived. However, this was mostly in the areas that only had a low density of cereal rye. The plants that were present were only very small and had suffered obvious moisture stress.

The following rain in autumn 2013 produced an excellent germination of clover across the paddock as well as some wild turnip, brome grass and a low density of volunteer cereals. Rob grazed the paddock lightly in June 2013 with 500 sheep. He was considering spraying the paddock with a light rate of glyphosate to reduce the level of competition by the annual weeds for light and moisture and to assist any surviving veldt grass.

Challenges and Lessons Learnt

What problems were encountered?

The main problem that Rob had with the site was getting a good establishment of perennial veldt grass. Although the cereal rye provided good protection for the soil against wind erosion, it was highly competitive and Rob noticed that where the cereal rye was the thickest, there was little or no veldt grass. Dry conditions from August until the end of summer also impacted upon the establishment of the veldt grass pasture, accentuated by the moisture competition from the cereal cover crop.

Rob stated that "Sowing the paddock with a low rate of cereal rye made the crop easy to harvest with less harvester blockages than I have previously experienced when growing cereal rye". However, he said that "trying to find a market for the rye grain was difficult and takes a lot of time, and eventually found a market in Sydney".

Another problem encountered was the need to use a larger pressure pump to pump water eight kilometres to supply the tank and trough with the recommended flow rate of 1-1.5 L/second. The cost associated with lost water from burst pipes and replacing pipe with a higher pressure rating would have been better spent on header tanks and/or additional pumps near the troughs.

What will you do differently?

Rob recognised that actively growing cereal rye competed vigorously with the veldt grass for moisture. In future Rob would look to sow veldt grass into standing stubble, or if there is no stubble on the paddock, only sow the cover crop with a very light seeding rate (10 kg/ha) so the paddock is protected from wind erosion without the competition for moisture during the veldt grass establishment.

Although it was difficult for Rob to find a market for the rye grain he said that there are few other sowing options available on the deep sands. He wonders if wheat would provide the same protection from wind erosion without the same level of competition with the veldt grass for moisture.

As the paddock has a reasonable fall, Rob considers that in future to minimise the need for high pressure pipes he would place a 20,000 litre header tank in the paddock at the top of a rise. This could be filled using a lower pressure pump and then gravity feed (6 m fall) into the trough. If this system did not supply an adequate flow rate, Rob would supplement the gravity feed with a low pressure solar pump attached at the tank. He considers that such a system would fulfill his requirements for less than the cost of replacing pipes.



Before and after Cereal Rye providing excellent ground cover for protecting wind erosion prone sites.

Conclusions/Recommendations

The key recommendation that Rob wanted to make from this site, was for growers to be aware of the amount that cover crops can compete with available moisture when establishing perennial pastures. Perennial pastures are very slow to establish compared to annual cereal crops. By sowing perennial pastures into standing crop residues, growers can ensure that the paddock is adequately protected from wind erosion while eliminating the competition for moisture from the cover crop.

Rob states that “perennial veldt grass seed is cheap and readily available.” He suggests “shopping around to get the best price you can on seed”.

The other key recommendation is to plan the watering point setup appropriate for your site. The recommended 1-1.5 L/seconds flow rate for water troughs in rotational grazing systems may be able to be achieved using gravity fed header tanks.

Future potential benefits

By fencing the large paddock into smaller management zones and establishing new watering points within each paddock, Rob has an opportunity to better manage grazing for increased feed utilisation and to protect soil against wind erosion. If he can get a good establishment of perennial veldt grass on the site, it will provide good surface cover for wind erosion protection over summer and establish the paddock as a productive permanent pasture.

References/Acknowledgements

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