



# Doubling stocking rate through better grazing management

## SITE INFORMATION

**Landholder:** Emie Borthwick

**Location:** Pillaworta, Tumby Bay

**Property Size:** 1,400 ha

**Annual Rainfall:** 500 mm

## Site Description

Emie's 1400 ha consists of 1085 ha of hills country, of which only 272 ha are arable and suitable for improved pastures. The remaining 315 ha of the farm consist of 167 ha of cropping (oats and barley) and 148 ha of native vegetation. Feed utilisation is often an issue in hill grazing, due to large paddocks and limited watering points consisting mainly of dams. This leads to livestock overgrazing areas of the paddock whilst leaving other areas relatively untouched. The overgrazing can result in low ground cover which increases exposure to erosion risk.

## Aim and Objective

Pillaworta has been in Emie's family for six generations. Emie wanted to ensure she could hand-on a productive, sustainable farm to future generations. Emie also saw a need to adapt the property to manage climate variability which has hindered production on Pillaworta in recent years. A whole farm property plan for the 1400 ha was developed to focus their management efforts with the objectives of increasing stocking rates, improving grazing and pasture utilisation, reducing potential of erosion, fencing to land class, providing reliable water systems to each paddock and revegetation.

Before implementing any changes on the property, benchmarking of the sheep enterprise was undertaken to identify where changes could be made to improve profitability. One key indicator of livestock enterprise performance is stocking rates. The property started off running 3.9 DSE/winter grazed hectares (Wgha). With better paddock utilisation there is the potential, based on rainfall, to increase stocking rates to 9 DSE/Wgha.

## Approach/Methodology

### What was done?

### Changing grazing management

Emie has recognised that improving pastures on the arable land by establishing perennial cocksfoot increases winter grazing potential. Italian ryegrass was established to provide high quality feed for weaned lambs in spring.

Low input cereals are being utilised for early feed at the break of season and then grazed as a standing crop in summer. Managing stocking pressure and rotational grazing is also being used as a tool to improve the native grass composition in the un-arable hills areas.

Using six line plain wire fences (a cheaper option than the traditionally used cyclone fences), two paddocks were subdivided to implement the first stages of the property plan. These constituted:

- A 154 ha hills grazing paddock with unimproved native grasses and annual grasses, which was divided into four paddocks incorporating a raceway. Shelterbelts of native vegetation were direct seeded into the raceway; and
- A 100 ha cocksfoot / medic pasture that was established in 2006, which was sub divided into three paddocks.

One thousand five hundred ewes are run as one mob rotating through all the paddocks dedicated to grazing on the property. Ewes are set stocked in smaller mobs for lambing. Once the lambs are tailed at six weeks, the 1500 ewes with lambs at foot are then run as one mob again, resulting in a stocking pressure of 135 DSE/ha.

Emie's sharefarmer Andrew Cabot found that, shifting 1500 sheep every three to four days was easy once they got used to the routine.



Shifting 1,500 sheep.

## PRODUCER CASE STUDIES



The advantage of moving sheep regularly is they do not become used to camping around dams, water troughs and on the tops of hills, thus avoiding over grazing one area of the paddock whilst leaving the remainder un-grazed.

As the property did not have a strong history of fertiliser use, it provided the ideal opportunity to investigate the response of pasture and native grasses to different rates of fertiliser and trace element application. Initial soil tests taken from the property indicated that soils were deficient in phosphorous, zinc and copper.

Two small demonstration sites were established in each of the two subdivided paddocks; a cocksfoot / clover pasture and a native annual grassy pasture. Each site was established to determine pasture response to either high phosphorus application at (30 kg/ha) or low phosphorus at (10 kg/ha), and three trace elements; Sulphur at 10 kg/ha, Zinc at two treatments (1 and 2 kg/ha) and Copper at (100 gm/ha). The Zinc and Copper treatments were applied as foliar sprays.

Pasture cuts were taken during the demonstration period to measure dry matter production response to fertiliser application. Also visual assessments were made for changes in pasture composition and analysis of pasture samples for the nutritional benefit of the dry matter produced for grazing livestock.

This trial was undertaken purely for demonstration purposes; however, some conclusions can be made. Soil nutrient analysis may help you in determining soil deficiencies by providing background levels to guide fertiliser decision making. Over the long term, this can save you money through not having to apply fertiliser unnecessarily or in excessive amounts.

Pasture growth at all sites responded to phosphorus applications both at low and high rates. As historical fertiliser applications had been limited this was not surprising.

The Pillaworta farm property plan was revisited in March 2012, reviewing the short and long term aims for the property and planning the next stages of paddock subdivision and revegetation.

The fertiliser response demonstration continued in 2012. Three new treatments were added to the site. Lime was spread at 1 t/ha and 2 t/ha with a zinc / copper mix sprayed on the soil surface. During spring, dry matter cuts were taken and samples analysed for nutrient levels and feed value.

The treatment with high phosphorus, copper and zinc applied at 1 kg/ha recorded the highest dry matter result of 3.44 t/ha.

Palatability dramatically reduced once the silver grass, soft brome grass and wild oats matured. High grazing pressure will be required early in the season to reduce these annual grasses when they are more palatable. Also, to increase the percentage of native grasses, grazing pressure needs to occur in mid spring, this reduces competition and seed set from other annual grasses. *Austrostipa sp* (spear grass), a perennial native grass, also needs to be grazed early before it goes to head and sets seed, to reduce livestock contamination by grass seeds.

The crude protein from the native grasses / annual grasses site varied from 13% -20% and recorded an average of 8 MJ ME/kg DM (megajoules of metabolisable energy per kilogram of dry matter) This site also lacked sufficient calcium and magnesium to maintain lactating ewes. The low ME may also be limiting for lactating ewes requiring further supplementary feeding to meet nutrient requirements.



Pastures responding to better grazing management.



## Conclusions/Recommendations

### What was achieved?

Managing grazing potential to utilise feed in the mix of pastures and the type of sheep is critical to improving production and maintaining soil cover.

High stocking rates and rotational grazing provides the ability to rest pastures, allowing pasture recovery and revegetation.

High stocking pressure has reduced annual weeds and increased native grass densities, thus providing more valuable livestock fodder reserves and dry matter throughout the year. It is important to undertake regular soil testing to monitor nutrient levels and “feed” the pasture with appropriate levels of nutrients to encourage robust perennial pasture growth.

To date the two large paddocks have been subdivided into seven paddocks with shelter belts established between the four paddocks. Emie is progressing to the next stage with three more paddocks being created by subdividing another paddock; water courses have been fenced off and revegetation is underway.

Emie intends to further increase grazing pressure and by better pasture monitoring will improve the amount of dry matter that can be produced during the growing season.

Through investing \$20,000 to \$30,000 per year, Emie has transformed this hill country into a more profitable and sustainable grazing system. This highlights the value of implementing property plans and benchmarking the sheep enterprise.

Emie and Andrew have been benchmarking the sheep enterprise for four years. As a consequence the winter grazed hectare stocking rate has doubled over the past five years. Adult sheep numbers have increased due to better feed utilisation, and there has been an increase in lambing percentage and a reduction in lambing deaths. This has resulted in more lambs produced per hectare and more stock for sale.

Over the life of the project Emie and Andrew have improved their operating efficiency by 18%.

Emie said, “We are now in a situation where due to our efforts in developing our pasture, we actually need to further increase our stock numbers to utilise the feed.”

### Awards

Emie Borthwick won the 2011 SA Landcare Award for Sustainable Farm Practices and was a finalist at the National Landcare Awards in Sydney in September 2012, where Emie presented her story to the National Conference.

### References/Acknowledgements

Acknowledging the work of the landholder Emie Borthwick, Natural Resources Eyre Peninsula officers and Rural Solutions SA consultants for the technical support to implement this demonstration site.



High stocking pressure on subdivided paddocks