

Perennial pasture systems for the upper Eyre Peninsula

Fiona Tomney, Ian Richter and Neil King
SARDI, Minnipa Agricultural Centre

Key messages

- **Perennial pasture systems have the potential to generate profit through livestock, even in poor cropping seasons, whilst improving the long-term health and fertility of the soil and providing stability against wind erosion.**
- **These trials failed to establish in the 2020 growing season but are worthy of further investigation.**

Why do the trial?

The objective of this project was to turn land that is considered to be of low productivity for cropping into productive livestock pasture via the use of perennial pasture systems, in the low rainfall areas of the upper Eyre Peninsula.

Perennial pasture systems contain a mix of species with the potential to provide a greater amount of feed over a longer growing season and valuable feed in times of drought or late season breaks. Plant species diversity may enable the pasture to take advantage of unseasonal rainfall events such as heavy summer rainfall. Deep rooted perennial species can better utilise available soil moisture. The roots of grass species have the ability to stabilise soil even when the surface vegetative cover is low, thus there is less chance for soil to be lost through wind erosion during hot, dry periods.

Whilst the concept of perennial pastures is not new, they are not widely adopted on the upper Eyre Peninsula as there is a lack of knowledge on how to establish a pasture that will persist through dry conditions, and whether we do have suitably adapted species that will also provide nutritious feed.

How was it done?

Two trial sites were selected based on their low productivity for cropping. One on a grey calcareous soil at Kane Sampson's property at Warrambo, and the other on a shallow, limestone loam at Jerel Fromm's property at Minnipa.

Plant species were selected based on their suitability for the local rainfall and soil type, seed availability, ability to be included in mixes, nutritional value and palatability to livestock; and existing district practices. The species were also selected to include legumes, grasses, cereals, herbs and shrubs. Treatments were the perennial species: Veldt grass, Lucerne, chicory and saltbush (unsown); and the annual species: Safeguard annual ryegrass, medic (Toreador Disc at Warrambo and PM-250 Strand at Minnipa), triticale (Warrambo) and cereal rye (Minnipa). The perennial species were sown as both monocultures and mixtures also containing annual species.

The site at Warrambo was cultivated by the grower in early June to control weeds, The Minnipa site was sprayed with a knockdown herbicide on 4 June.

The Warrambo site was sown on 23 June and the Minnipa site on 24 June 2020, both using SARDI plot seeding equipment.

What happened?

The trials were sown in late June with rainfall in July well below average, coupled with frosts and very cold overnight temperatures. This resulted in extremely poor plant emergence for all species. Of the perennial species only a few tiny chicory plants were present. The annuals all emerged but growth was

very poor and the Toreador Disc medic failed to establish at Warrambo. Due to this poor establishment the decision was made to not sow the saltbush seedings into the trials in late July as was originally planned.

Although some Lucerne and Veldt grass plants emerged following the spring rainfall, there was still insufficient growth to complete any trial measurements. Due to the poor establishment the trials are not expected to persist into the 2021 growing season.

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Logos

NLP, AIR EP, SARDI

Location

Minnipa

Rainfall

Av. Annual: 324 mm

Av. GSR: 241 mm

2020 Total: 367 mm

2020 GSR: 255 mm

Location

Warrambo

Rainfall

Av. Annual: 313 mm

2020 Total: 266 mm

2020 GSR: 223 mm

Plot size

12 m X 4 m plots replicated three times