Perennial shrubs prove palatable option

Results from an initial small-scale farm trial carried out by Ian Ellery, Morchard, Upper North, South Australia, indicate that perennial forage shrubs could provide an alternative grazing option in marginal country. He shared the early results of his Future Farm Industries CRC-funded *Enrich* project supporting site with Kylie Nicholls.

"I am a member and vice chair of the Upper North Farming Systems Group, which looks at a range of cropping and livestock research applicable to low-rainfall areas," Ian Ellery said.

"We had been going through a series of poor cropping years and livestock were the only thing providing a good cash flow and some production. I was interested in taking some of our poorer paddocks away from the cropping program and swinging them back into grazing.

But the grazing potential of these paddocks had been destroyed due to long-term cropping so we had to look at what forage options might be available to sow.

So, when the then Upper North Farming Systems Group co-ordinator Charlton Jeisman approached me to see if I was keen in having a small-scale *Enrich* trial site, looking at the production and palatability of perennial forage shrubs, I was very interested in seeing how the research would work in our area.

Perennial shrub establishment

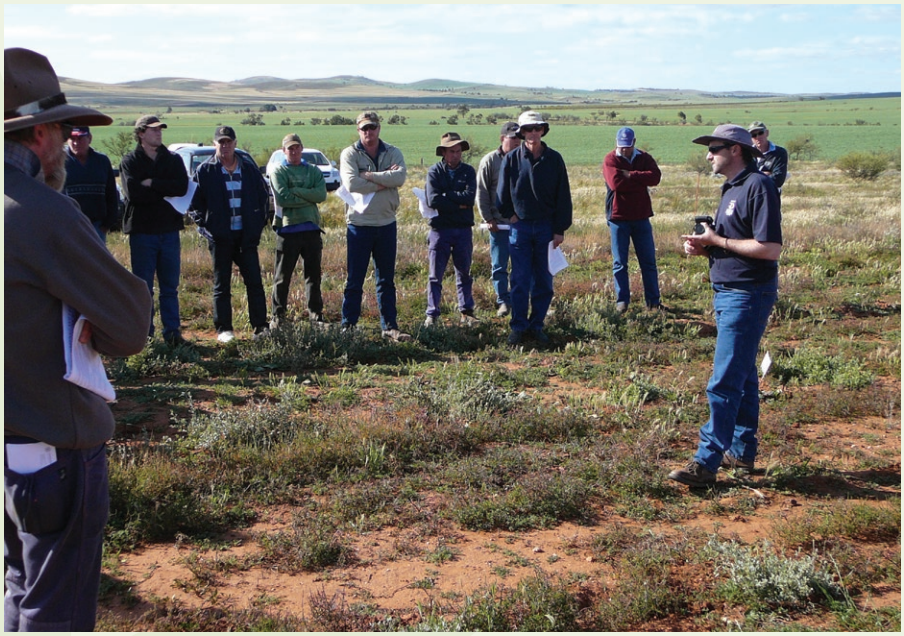
Based on the preliminary research carried out by the *Enrich* project, 14 shrub species, which had shown promise at the Monarto site, were selected for grazing. This included several saltbush species, rhagodia, tar bush and other Australian native species.

key points

- Perennial shrub grazing potential and palatability varies significantly between species.
- Perennial shrubs need a long rest period and a short grazing period.
- Sheep grazing preferences change as they become more familiar with the different shrub species.

farm info.

Case study: Ian Ellery
Location: Morchard, South Australia
Property size: 2500 ha
Mean annual rainfall: 320 mm
Soils: Clay loam
Enterprises: Cereal cropping including wheat and barley, self-replacing Merino flock



Perennial forage shrubs could have significant potential for farmers in low-rainfall areas as researcher Jason Emms discussed with the Upper North Farming Systems Group. (Photo: Charlton Jeisman)

The shrubs were planted during July 2008 and despite a dry start by June 2010, when the site was ready to graze, the shrubs varied in size with some of the saltbush shrubs reaching about waist height, while some of the groundcover shrubs had spread out to nearly 2 m.

Testing the palate

The trial was divided into four cells, and we rotationally grazed the site with about 38 sheep from the start of July, staying in each area for 6-7 days.

It was interesting to watch what the sheep ate and how their preferences changed as time went on. On the first day I went and had a look and some of the species had already been eaten back to the sticks while others had not been touched.

But as the sheep went through each area their preferences changed and some of the less-palatable species were eaten sooner.

The groundcover, creeping saltbush (*Atriplex semibaccata*), was preferentially grazed along with tar bush (*Eremophila glabra*).

An earlier version of this case study was published in *Future Farm* Issue 6, Dec 2010

One interesting result was the rhagodia (*Rhagodia preissii*), which the sheep avoided in the first cell but ate quite a lot of as they rotated through the following cells.

Small-scale potential

I think the potential for using perennial forage shrubs will be in small-scale non-arable areas we can't crop, although it could still be quite a significant investment as you would need to look at fencing and water so the grazing could be controlled.

There is also potential to harness some of the bioactive properties of these perennial shrubs, such as their ability to reduce methane emissions and provide worm control. It may be possible to use these areas for 2-3 weeks per year to reduce or destroy any worm burden.

The next step

As a result of this experimental work we have planted five species selected from the initial *Enrich* trial – old man saltbush (*Altriplex nummularia*), ruby saltbush (*Enchylaena tometosa*), creeping saltbush, river saltbush (*Altriplex amnicola*) and mealy saltbush (*Rhagodia parabolica*) – which were all planted from tube stock.

We planted tube stock on 10 ha adjacent to our sheep yards on saline ground, which was taken out of the cropping phase in July 2011. The shrubs have been grazed several times since but are still getting established to produce a site that can be used as an off-shears shelter belt. It has been useful as a short-term holding area for small mobs, due to the close proximity to the yards and for supplementary feed in summer.

I certainly think the perennial forage shrubs have potential to improve pasture productivity in the less profitable, marginal cropping areas."

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science behind the story

By Jason Emms, SARDI

- **A string of poor seasons in the Upper North of SA has highlighted the risk associated with cropping especially in marginal areas. Annual pasture production is similarly affected by the erratic nature of rainfall and seasonal conditions.**

Forage shrubs can help reduce the risk associated with these annual systems. Shrubs enable production on land classes unsuitable and uneconomic for cropping. Being able to reduce the intensity of cropping and avoid cropping on marginal soil types, without compromising whole farm profit, lowers risk to the farm business. Every farm is different, but the optimal shrub area is based on the premise that enough shrubs are needed to provide an adequate number of grazing days to have an impact on the whole farm feed budget, but not so many, that land is taken away from more profitable enterprises. Generally, the greater the area of low productivity land classes on the farm, the greater the optimum area of forage shrubs.

By growing perennial shrubs in combination with annual pastures, the stability of the whole farm feedbase can be increased. A study over six years of research in the *Enrich* project, showed greater annual productivity was achieved with the addition of forage shrubs in all but the first year. Forage shrub production was stable from year to year and contributed around 1000kg/ha. This 'extra' tonne available in times such as autumn is higher in crude protein and mineral content than the inter-row pasture of annual plant species that are dead at this time of year. Animals can only utilise the fibre in senesced pasture and crop stubbles if they have a source of nitrogen (crude protein), so forage shrubs provide a useful dietary complement.

Enrich work has identified several shrub species with desirable productivity, nutritive value or bioactive properties.

Details on the 'best bet' species identified by the *Enrich* project can be found in the booklet *Perennial forage shrubs – from principles to practice for Australian farms* available at www.futurefarmonline.com.au/research/future-livestock-production/enrich.htm

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