



Fodder shrubs fill the summer gap and keep soils under wraps

A passion for running sheep, improving land sustainability and boosting biodiversity has seen Western Australian mixed farmer Don Nairn trial fodder crops. While the fodder shrub challenge is in its infancy, Don has been able to increase stocking rates and reduce or negate any soil erosion problems. Laureta Wallace talked to Don about the results so far and what more is needed to be known about fodder shrubs.

"I believe in running a mixed farming operation. In our situation that means cereals, lupins and Merino sheep," Don said.

There are different ways farmers can improve profitability in livestock and cropping and at the same time address sustainability issues.

To improve our livestock profitability we had to increase the stocking rate without causing soil erosion. Because we needed to double our Dry Sheep Equivalent (DSE) we had to come up with a different approach to running sheep. Running sheep the traditional way, that is, in small mobs in big paddocks, was financially unrewarding.

We decided to change the practice instead of changing the breed of sheep — enter strip or intensive grazing.

When we introduced the new grazing practices during 2004, an automatic electric fencing system enabled us to erect and dismantle temporary poly-wire fences.

The system fits onto our ATV and carries up to four reels of wire. Each reel holds up to 800 m of wire. The ATV mechanism is powered directly from the back tyre, with no mechanical adjustment needed. We carry plastic stakes or tread-ins on the ATV's carrier. The system is simple and quick.

key points

- Increased stocking rates required a change in grazing management from set stocking to strip (intensive) grazing
- High stocking rates have increased livestock profitability
- Fodder shrubs provide a grazing solution during summer.

farm info.

Case study: Don Nairn

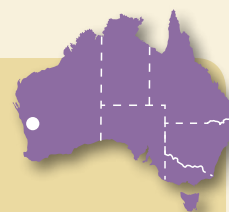
Location: East Binna, Western Australia

Property size: 2476 ha

Mean annual rainfall: 320 mm

Soils: Red loam and yellow sandplain

Enterprises: Cereals and legumes, Merino sheep, fodder plantations



Photos: Greg Lawrence

The introduction of fodder shrubs has provided a summer grazing option for Don Nairn (above) that allows high stocking rates while still protecting fragile soils from wind erosion.

With the fencing system up and running we now have the new grazing system in place and the tools to manage it.

Strip grazing

Sowing fodder and cereal crops, then intensively grazing them at high stocking rates, has enabled us to maintain the Merino flock and increase profitability, even through the two driest years of the farm's history.

Now we can run higher numbers of stock during winter. But the question was what about summer? Where was the feed going to come from and what was going to happen to the country with such high stocking rates?

It is not practical to run a lot of stock during winter and then have to sell them in summer to a poor market.

Fodder shrubs

Our solution was to introduce fodder shrubs into our farming system, which has resulted in the following benefits:

- High stocking rates during summer without creating soil erosion
- Reduced costs and time spent supplementary feeding during summer and autumn
- A better environment for livestock such as shade and shelter



Shrubs such as *Rhagodia* help drought-proof Don's farm. INSET: A 54 hectare *Tagasaste* plantation planted during 2004 on high, wind-blown country. The paddock has been heavily stocked but there is no evidence of erosion.

- The ability to capture out-of-season rainfall
- A means of drought-proofing the farm.

We planted the shrubs on our marginal soil types that are prone to wind erosion. Shrubs are planted in cells of 2000 trees in six rows. Enough room is left between each cell for fodder establishment.

Using guidance navigation allows us to leave one, two or three passes of the seeder, depending on the soil type. This way the sheep can be run on marginal soil and the better soils can be cropped.

Lessons learnt so far

Fodder shrubs work if you like sheep and still want to protect your land.

There is somewhere to put the sheep and fill the feed gap during summer and autumn.

Tagasaste, *Rhagodia* and saltbush are suitable but we still need more varieties.

We also need to investigate the planting of fodder shrubs by seed, because of the high cost of seedlings across a large area.

Where fodder shrubs are incorporated with other pastures and crops, it helps restore marginal land and make farming more profitable.

There needs to be biodiversity on farms. Combining plant diversity with sound grazing management and embracing the animal's capacity to seek and deal with a diverse diet, offers good scope for moving forward." ↓

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By Dean Revell, *Enrich*

science behind the story

- Don Nairn's management and visions make sense. He is demonstrating that modified systems incorporating perennial forage shrubs can be more profitable and sustainable. A key to Don's successful approach is the way he considers the whole farming system, rather than trying to manage a block of shrubs in the back corner of his property.

Forage shrubs effectively add a layer (physically and metaphorically) to on-farm forage production helping to build resilience to farming enterprises. The extra layer adds to the feed base during the critical out-of-season period (summer/autumn), which typically limits the livestock profitability.

Farming system analysts Felicity Byrne and Marta Monjardino have shown that a modest area (for example, about 10 per cent, depending on particular circumstances) of a 'typical' mixed crop-livestock farm used for forage shrubs can boost whole-farm profit by 15-20%, principally by reducing the expense of supplementary feed during summer/autumn. It also allows deferment of annual pastures at the

break of season, increasing carrying capacity. It is important to recognise that sufficient quantities of forage shrubs are required for them to be able to 'earn their keep', while bearing in mind the opportunity costs of planting and managing too many. The wide spacing between Don's shrub rows allows the establishment of grazing pasture or grain cropping is an example of how shrubs should be managed – that is, as part of the mix of farming enterprises.

There are sound economic reasons for Don's interest in the biodiversity benefits of shrubs, such as an improved capacity to deal with prolonged dry periods or out-of-season rainfall. We need to consider the way a mixed palette of plants can sustain farming enterprises and healthy landscapes rather than assessing individual plant species in their own right.

Don also indicates his interest in finding and using other shrub options to complement the *tagasaste*, old man saltbush and *Rhagodia* already established.

The *Enrich* project is screening about 60 species of Australian native shrubs

for a range of traits, including biomass production, nutritive value for livestock, and bioactive effects on rumen microorganisms and gastrointestinal parasites. We have put forward 20 species as being of particular interest at this stage. Some possess favourable traits in one or more areas, but rarely does a species meet all criteria.

Nine regional groups across southern Australia are participating in further evaluation of this short list, with each group planting 15 species to assess shrub performance in their own locality. Don Nairn will be hosting one such site.

This is a fantastic opportunity for researchers and land managers to learn together about new shrub options and how to best manage them.

- Dean Revell is the *Enrich Project Leader within the FFI CRC*.

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