Money in the bank from standing haystack

Fly over *Bundilla* near Lake Grace Western Australia and you see something resembling a giant asterisk. But unlike Stonehenge, this structure owes nothing to ancient man or even extra-terrestrials. Closer inspection reveals that it is actually saltbush, as Michael Lloyd revealed to Georgina Wilson.

Case study: Michael and Margaret Lloyd, *Bundilla*
Location: Lake Grace, 370 km south-east of Perth
Property size: 2150 ha (1800 ha originally arable)
Mean annual rainfall: 330 mm (180–420 mm range)
Soils: Sandy loam over clay
Enterprises: Sheep for wool and meat, some barley

"Some people might reckon I'm a research junkie with about 100 hectares or 15 per cent of my saltland involved in different trials, but I'm always learning something interesting and useful.

And the results speak for themselves. Average district carrying capacity is about 3 dry sheep equivalents per hectare but we run more than 5 DSE/ha on the trial areas and 4-5 DSE/ha across the whole farm. Previously this sort of saline country could only manage 1 DSE.

During the drought in 2001 and 2002, we had no paddock feed and had to buy hay. We fed 3000 sheep on the hay and saltbush for about 50 weeks with no other supplements. This cost us about 20 cents per head per week. If we'd bought grain in, it would have cost another dollar per head per week — or $150,000 over that period.

I got my first block of land, 540 acres on conditional purchase, in 1958 when I was in Year 11 at school. The farm area has grown over time, but I've seen a lot of it go salty.

Photo: G Wilson

Suffolk-Merino lambs are finished on saltbush to improve meat quality. Production has been 'phenomenal' following summer rain

Key points

- Early intervention is important, before land goes saline
- Saltbush has made saltland more productive and valuable to the farm enterprise than arable land
- Carrying capacity is now greater than the district average thanks to saltbush

In 1967 one section of 450 ha was 400 ha arable and 50 ha saltland. But only 40 ha is now arable, so we've had to learn to adapt. I don't think a lot more will go salty, but maximising production is important, and thanks to saltbush my saltland has become more productive than the arable land.

Hooked on saltbush

While we had native bluebush here for years, it was 1989 at a field day at Ashley Lewis' place that I could see the potential of saltbush. I hired a machine, seeded 17 ha and was hooked! I bought my own unit the following year and kept on going.

We've learnt a lot since then but there's still a lot more to learn, and research is helping fill those gaps. If it's being done on my place I can see first-hand how we can do better next time.

At first we planted across the samphire flats, but they are too salty and you don't get production. Now, we mainly target 'moderately saline' country that would grow barley grass.

On *Bundilla* lucerne has died out after about three years on this sort of land. This pasture might be fine for phase farming, but not if you want a permanent fodder reserve. With saltbush, throw in some hay and you have a low-cost, balanced diet.

At first we had no old man saltbush, but that has now proved the best. Sheep eat it as high as they can reach, and jump up or even climb on each others' backs to get the high stuff. But it's still good to have a mixture with some river saltbush and wavyleaf working to help keep the water tables down and to provide a lower barrier for wind erosion.

We run about 3500 Merino sheep and cut about 120 bales of 20–21 micron wool. We couldn't contemplate that number of sheep or level of production without the saltbush which allows me to run an extra 1500–2000 sheep.

Photo: G Wilson

Some samphire flats remain on the farm and are probably too saline for productive saltbush

But I'm keen to get more into prime lambs, finishing them on the saltbush. Its vitamin E stops the meat darkening and overcomes a health issue. There may be less worm burden also, but that's still not proven. At present we've got some Suffolk-Merino cross prime lambs, but the first Finn cross lambs drop in July and should improve lambing percentages and maintain wool production.

On the Shoebridge site planted in 1997 we put 1500 to 1800 stems of saltbush per hectare in narrow (4 m) alleys, but it was probably too many. Those on outside rows are taller, obviously accessing more moisture. Since then, we have reduced the density to about 1000 stems and plant them further apart with wider alleys to allow us to grow barley in between. Cropping that every second year would provide stubbles to complement the saltbush and make a very profitable system.

You always learn. We planted the rows east-west, but next time would go against the prevailing winds, north-east to south-west, so that wind doesn't howl down the alleys.

Planting saltbush can have two objectives — water use or feed supply. Our main objective is water use, with fodder second! Feeding saltbush only during autumn when other green feed is scarce is most efficient for farmers with small areas. But if you have more saltbush, you can be creative, such as putting in sheep in early summer and them moving them to stubbles and then back to the saltbush. Its major benefit is not production on the saltbush itself, but as a supplement to stubbles, hay and improving the environment for understorey."

CONTACT

Georgina Wilson, CRC Salinity (WA)

T: (08) 6488 7353
E: gwilson@fnas.uwa.edu.au

The science behind the story

By Dr Ed Barrett-Lennard

Increasing numbers of farmers with salt-affected land are now using saltbush to increase productivity, and Michael's system is a good example of using saltbush successfully on a large scale. My colleague Dr Hayley Norman estimates Michael's saltbush with understorey is achieving 700 sheep grazing days per hectare more than the district average.

The farming system provides a high degree of resilience to extreme seasonal variation, both drought and flood. It allows production of green feed on small amounts of rain compared with annual pastures only. In the unusually wet summer just gone when *Bundilla* received 180 mm of rain in two months, dry annual pastures were rotting on the ground and smelling like a piggery, while the saltbush surged away.

One of the big messages is to intervene early, without waiting for the land to become deeply salinised. Michael has had the foresight to recognise that his land was at risk of salinity and to put in saltbush before it "fell over".

He has come up with a system that uses extra water and has drawn the water table down to about 2.5 metres in most years. This changes the environment and allows the understorey species to grow.

I believe the saltbushes are using groundwater, but whether they are concentrating the salt in the root-zone in the long-term remains to be seen. Long-term research is needed to better understand what is happening. If the system remains as profitable as it is now for the next 25 years then it will have been an extremely worthwhile investment by the farmer.

• *Dr Ed Barrett-Lennard, Department of Agriculture and Food WA, is a researcher with the CRC Salinity where he leads an SGSL project* Optimising the saltland pastures system for profitable use.

CONTACT

Dr Ed Barrett-Lennard, DAFWA

T: (08) 9368 3441
E: egbarrettlennard@agric.wa.gov.au