

Making the most of saline ground

Case study: Malcolm Schaefer

Location: Kangaroo Island, South Australia

Area: 1200 ha with a further 400 ha leased

Average Rainfall: 550 mm

Enterprises: Wool, prime lambs, oats and vetch



Serradela on a non-wetting sandy rise treated with clay.

Salt has always been evident in these parts of Kangaroo Island, which is hardly surprising since we are only a few kilometres from the Southern Ocean.

Clearing commenced on our property in 1904 and continued up until about 1950, even though some parts of the land were obviously salt affected. I remember my father saying that the land almost asked to be cleared because the main vegetation type was tea-tree which was very easy to clear.

I realised that the salinity problem was getting dramatically worse in 1984 after a very wet year. That was when I started a small program of planting salt-tolerant grasses and trees on affected areas. In those days, with not much experience to fall back on, it took several years to thicken up the grasses and most of the trees (which cost \$2 each) were eaten by kangaroos. Another wet year in 1992 saw the salt spread even further, many more old trees died and I could see that the problem had now become urgent.

About one third of my land is salt affected, another third is non-wetting sand and the remainder is good cropping land. Because I am at the landlocked bottom of a large groundwater system, there is not a great deal I can do about lowering the watertable. I can probably protect assets like dams with targeted local revegetation, but I also need to protect the land that is not salt-affected and live productively with the land that is.

A major breakthrough occurred when I attended a local Landcare conference in 1994 and saw the opportunities for direct seeding of native vegetation. Not only can large areas be sown quickly, the 'roos don't seem to find this as attractive as the tubestock. As my farm is bounded on three sides by native vegetation I have an abundant seed source as well as an abundance of kangaroos.

Preparation for direct seeding consists of spraying 700 mm wide strips with glyphosate in June and then again about five weeks later to kill the second germination of weeds. Seeding is done in August, but germination seems to be staggered over the next 12 months depending on the weather conditions, so it does not really matter much if we have a dry spring and there is not much to show for awhile.



Dundas tall wheat grass in the middle ground with puccinellia in front and behind.

Photos: Bruce Munday

In 1995, I visited the Upper South-East region of SA to look at clay spreading to overcome non-wetting sands. While I was there I also saw the dramatic impact of fertiliser on salt tolerant pastures. Their swards were much more productive than I was used to, and by sowing tall wheat grass and puccinellia separately they were also able to reap their own seed.

After a number of small trials and having seen the results in the Upper South East, I have now developed a good system for establishing puccinellia and tall wheat grass:

- Spray top in spring to remove barley grass
- Three weeks after the opening rain, spray with glyphosate at 800 ml/ha
- Scarify, then sow pasture seed at 8-10 kg/ha through a combine, just dropping the seed on the surface and covering with combine harrows
- Fertilise with 60 kg/ha plain super and spray for red legged earth mite
- Lightly roll, mainly to prepare the paddock for seed harvesting
- Because our land has such light relief I put in shallow surface drains to minimise waterlogging
- In late August I apply urea at 50 kg/ha.

I am now using the new pasture variety Dundas tall wheat grass which seems to have a much better growth habit, being far less 'clumpy' than the traditional variety Tyrell.

In March I can reap both the puccinellia and the tall wheat grass so that I am pretty well self sufficient in seed even as I expand my planting. The reaped paddocks provide excellent clean grazing for drenched sheep as they have

Key points

- There are real opportunities to use saline land productively
- Managing saline land productively is relatively 'new territory'
- There is much to be learned from others who are also dealing with salinity on farms

not been grazed since the previous September. So far I have established about 60 hectares and I have spraytopped a further 120 ha to be sown this year, reflecting the confidence I now have in the system. This program has been accelerated because we have temporarily destocked the home farm whilst Ovine Johne's Disease is being eradicated.

Last year I did some trial work spreading clay on non-wetting sands. With technical support from PIRSA staff at Kingscote I have trialled several rates of clay ranging from 50 to 200 t/ha and five different pasture species: veldt grass, serradella, biserrula and two varieties of lucerne. Each established quite well, with the serradella (a very acid-tolerant legume) producing a great amount of bulk. Given that these sands are usually bare, erodible and significant sources of recharge, it will

be a real step forward if I can get good productive growth there. This year I will be sowing 40 ha of lucerne on non-wetting sands that have been ameliorated with clay.

The other resource I am really keen to protect is my surface water. Even on the relatively elevated land I have dams which have 'gone salty' as a result of surface salt appearing in the drainage lines.

By fencing off a couple of hundred metres leading into the dam and planting trees and shrubs I have been able to keep this local salt down. A dam which registered 13,000 mg/l at the end of summer before planting now has a salinity of 8500 mg/l at the same time of the year.

Over the years I have learned a lot about managing salt and I am now confident that I am working towards a pretty good system. Lots of trial and error, looking at what others are doing, support from PIRSA staff and NHT incentive payments have all helped to get me to a situation where I can manage my saline land productively and protect my good land.

- *Malcolm Schaefer spoke with Bruce Munday, NDSP Communication Co-ordinator (SA)*

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