

Key Points

- *Saltland must be managed separately from other land classes*
- *Well managed saltland can be productive*
- *Grazing from saltland can be successfully integrated with other components of the farm business*

Integrating Saltland into the Whole Farm Operation

By Gordon, Neville & Brian Stopp

- *Location: Upper South East of SA*
- *Area: 3730 ha*
- *Mean annual rainfall: 470 - 530 mm; winter dominant*
- *Enterprises: grains; oil seeds; pulses; lucerne seed; wool; prime lambs*
- *Soil types:*
 - *Home farm - Grey sand to sandy loam over clay/limestone rubble*
 - *McNamara farm – shallow grey sand over calcrete on flats; deep sand on rises.*

The farm

Our home farm, which we run as a family partnership, is about 10 kilometres north west of Keith in the Upper South East (USE). Of the 1500 hectares, about 1100 ha are continuously cropped, most of the remainder being sown down to dryland lucerne for seed production. Salinity is only a minor problem on the home property.

We have a further 2200 ha at our 'McNamara' block, about 15 km west of the home farm, and that is where the salt really is a major issue. This land was still being cleared up until the early 1980s, although it now retains about 480 ha of heritage scrub and about 310 ha of swamp, shelter and wasteland.

The saltland and learning to live with it

We first noticed salinity in 1981 when we had a very wet year not long after the blue-green aphid had knocked out most of the region's lucerne. At this time the flats at McNamara, until then the best grazing land, was reduced to bare scald and practically useless. This was followed in 1982 by the most serious drought for 40 years, putting great pressure on the sandy rises that were carrying the breeding flock we wanted to retain.

It was very difficult to manage this saltland back in the 1980s. Little seemed to be known about appropriate management practices and we tried many different and supposedly salt tolerant pastures and establishment techniques with very little success. From all the trials, only puccinellia showed any real promise.

McNamara is a grazing block where, for much of the year, we run our 3200 merino ewes with lambs and 1200 hoggets. Despite its real management challenges, it now fits very nicely into our whole farm plan.

Of the 1400 ha of pasture on McNamara, about 400 ha are salt affected. These are flats which generally occur as ribbons between sandy rises or as larger areas surrounded by higher country. Most of these flats have water lying on them for a couple of months in a normal wet winter and the groundwater (about 12.8 deciSiemens per metre) is only about 0.50 metres below the surface at the end of summer.

Managing the saltland

We have completed a property management plan that aims to reduce groundwater recharge, manage the different land classes sustainably, and provide productive grazing to complement our other farming enterprises.

Most of the flats have been sown down to puccinellia and the larger areas fenced off so that they can be managed separately. Much of the higher country has been sown to lucerne with primrose and veldt grass on the higher sand dunes.

Ideally we would fence off all the saltland as separate units, but this is difficult where it occurs as relatively small or narrow flats.

Over the years we have learned more about the value of appropriate weed control, fertilizer requirements and grazing management. Much of this new knowledge has come from our own trial and error, but also from a network of like-minded graziers in the Upper South East and the Primary Industries and Resources SA agronomists who have become involved.

Establishing pucci is now straightforward provided the sea barley grass is controlled by spray topping for at least one year before seeding and provided also that the seedlings are well up before it gets too wet. We scratch up the ground, spread the seed from a snail bait spreader and follow with a roller. The pucci responds well to fertiliser which we apply at 50 kg/ha of 19:10:0:13 (NPKS), doubling the rate if we intend harvesting the seed. We don't graze in the first year and of course we shut up areas which are to be reaped for seed.

The USE drainage scheme when completed should benefit this property by taking away the surface water that tends to pond in late winter. This flooding poses the greatest threat to the puccinellia but it also leads to salt concentration when the flood retreats.

Establishing lucerne has been a challenge since the Hunter River variety was wiped out in 1978 by the blue-green and spotted alfalfa aphids and with the increasing incidence of non-wetting sands. However, we have had considerable success with Trifecta and we are now trialing Hallmark. Each year we try to increase the area under lucerne, so stabilising the sandy rises, reducing groundwater recharge and increasing the productivity of the property.

We have found that the key to success with lucerne is firstly to spray-top in spring, particularly to remove silver grass. After a knockdown herbicide we sow late winter into furrows 25 cm apart, applying a wetter behind the press wheels and lime at 80 kg/ha through the fertiliser box. Clay spreading has been used with great success on non-wetting sands in the USE and we will try this if we can locate suitable clay nearby.

A frustrating feature of much of our land is the break of slope between the sandy rises and the flats. This potentially productive part of the landscape is too high above the water table to support puccinellia but too low for lucerne once its roots reach the saline groundwater. We are currently trialing Salado lucerne in this area because of its relative salt tolerance.

Saltland as part of the farming system

Puccinellia has proved to be an excellent pasture for our sheep. It provides a nutritious seed-free environment for weaners before shearing in November and quality dry feed in autumn to extend the paddock rotation when the lucerne is becoming less active. The one thing that is really lacking is a truly salt tolerant legume.

McNamara is relatively cheap land. Managed carefully, it provides very good sheep breeding country. With its combination of flats and hills, abundant shelter and perennial pastures we achieve 120 per cent lambing with cross-breds and 100 pc with merinos. Cross-bred weaners can be brought back to the more productive home property and finished on grain

and lucerne stubbles. In this way it nicely complements our cropping and seed production enterprises.