



Have a yarn

talking saltland grazing with **Charlie Bell**



“Preventing a site from deteriorating”

A Corrigin farmer has managed to defy the odds and convert a section of saltland on his property for grazing.

After purchasing a block with more than 100ha of saltland six years ago, Charlie Bell started thinking of ways to make use of this seemingly unproductive area. The site had been suffering from declining barley yields for a number of years and he knew something had to be done.

After inspecting the property, saltland recovery and wildscene specialist Robin Campbell said the land was losing production quickly and it was time to act before it became too expensive to reclaim it. She suggested Charlie look into the Sustainable Grazing on Saline Lands program (SGSL).

He was delighted to receive an SGSL producer grant as it gave him the chance to make use of this quickly deteriorating land.

The objective of the SGSL project was to investigate the potential for intercropping barley with annual legumes between saltbush alleys and the effects of increasing the potassium levels on pasture production.

“We hoped to prevent the site from deteriorating, to establish sustainable production, to reduce the watertable level enough to support pasture and thus reduce the salt levels,” Ms Campbell said.





On top of this, Mr Bell hoped changes would provide feed for his sheep during autumn and difficult years.

Located 20km south-west of Corrigin, the trial site is on duplex soil with hardpan at 10cm. On average, 300mm of rain a year falls on the 20ha site, which is prone to waterlogging and at risk of becoming a bare salt scald.

"We chose this area for the trial because it is prone to waterlogging and I was concerned about how quickly it was deteriorating," Mr Bell said.

"While it was still possible to grow a barley crop on the area, the yields were below average and quickly declining."

Ms Campbell said although the site was salt-affected and quickly deteriorating, they were fairly confident it could be pulled back at a reasonable cost.

Small patches of salt scalds and the rising watertable, around 60cm from the surface and sometimes on the surface, put it at high risk. There were also large patches of narrow-leaf iceplant and salt-tolerant weeds.

The first thing they had to do was eradicate the weeds so they could begin planting pastures and saltbush.

In 2004 the site was fenced off in two parts to allow for deferred grazing and sprayed with Roundup Max at 800mL/ha.

After spraying the weeds they used a niche seeder to direct-sow double rows of saltbushes and perennial grasses.

The saltbush was planted allowing 15 m alleys which left room for an airseeder to go between the rows to sow Stirling barley and salt-tolerant clovers, medics and serradella.

In addition, they planted several rows of sheep-tolerant

trees and shrubs to provide shade and shelter.

"A number of different forage shrubs were planted by hand including wattles, bluebushes and saltbushes," Charlie said.

Potash was spread at 50kg/ha on the intercropped barley/legume alleys in one section, at 100kg/ha on another, but no potash on the third.

Now in its third year, the trial site is producing 1-3m high saltbush and providing feed for sheep during autumn. Groundwater levels have dropped down to 1 to 1.5m and land deterioration has halted.

"This area can feed up to 640 weaners for three to four weeks and they do not lose condition," Charlie said.

"It is a useful plot, which we can use for additional feed during the autumn period."

Ms Campbell said Orion and Snail medic as well as Prima gland clover grew quickest. The stock were particularly interested in the old man and river saltbushes and the Italian ryegrass. They were not interested in wavy leaf saltbush and tall wheat grass but would eat them once everything else was off the menu.

Charlie Bell is interested in extending his trial site to other areas of the farm.

"Adjoining blocks have been suffering from declining barley yields in past years," he said. *"While the crops reach average*

"This area can feed up to 640 weaners for three to four weeks and they do not lose condition."



yields on dry years, on wet years the yields decrease as a result of waterlogging.

"I plan to extend the plot to make use of these areas and to prevent the problem from getting worse."

Charlie will take the information learnt from the trial to improve other areas of his property.

"I will choose the varieties sheep like and those with quick growth rates," he said.

This year in particular the trial site had provided some much needed sheep feed. While the season has been difficult, he was still impressed by the pasture growth in the inter-rows.

"It is important to have extra feed, especially in years like these," he said. "Despite the lower rainfall, the pasture growth was not bad and the saltbush still provided some much needed feed."

He knew if he had not interfered, the 20ha trial site would have soon been a salt scald.

"I am glad we got onto it early, preventing the problem from getting any worse and at the same time making the land productive.

"We hope to expand the site so other problem areas do not get worse and we can make use of the saline land."

Robin Campbell agreed the trial site had been particularly important this year (2006) and urged all farmers to give it a go.

"Saltland is a resource which

can be developed to provide productive and sustainable grazing especially in autumn breaks," she said. "While awaiting the long delayed break this year, the trial site provided the only green feed."

Charlie Bell never expected to make money out of the saltland when he brought the block and was pleased to make the land productive.

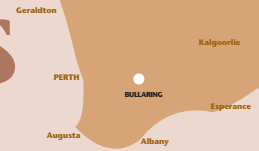
"We did not see it as productive land but it turns out we were wrong," Mr Bell said.

Ms Campbell said DAFWA, Australian Wool Innovation and Land, Water and Wool were to be congratulated for providing funds for farm scale on-ground work on saltland.

"We greatly appreciate the practical and valuable advice and the assistance given by the DAFWA project leader Justin Hardy and his team," she said.

"I am glad we got onto it early, preventing the problem from getting any worse and at the same time making the land productive."

QUICK FACTS



Location: Bullaring, south-west of Corrigin

Rainfall average: 300mm

Enterprise mix: Sheep and cropping.

Trial size: 20ha

Trial aim: The project will establish saltbush and clover on saltland. Investigate potential for producing barley between saltbush alleys to feed with saltbush when grazed in autumn.

Saltland pasture mix: Saltbush alleys, clover and ryegrass between the alleys.

Paddock cover before trial started: Barley grass

Soil type: Duplex

Soil pH: 4.6 (acid)

Watertable: -1.4m

Water salinity: 3180mS/m (half seawater)

Water pH: 3.19 and 3.37

Clearing date: 2004



A word from the gate...

For the site, lucerne can be used in the inter-rows as a short forge pasture phase of three to four years followed by a cropping phase of shorter or similar duration.

Winter production can be boosted with annual medics sown into the established lucerne which can also form the basis of a pasture system with subsequent cropping. The cropping duration can be adjusted according to watertable readings. A significant drop in the watertable through the use of a lucerne phase can enable a longer cropping phase. This method of phase farming with lucerne can ensure that subsequent cropping will not be at risk from a rising saline watertable.

Establishing lucerne pasture will cost about \$130-150/ha, \$30/ha to maintain and \$12/ha to remove. Lucerne and other annual medics prefer a well drained soil profile with a soil pH_{Ca} >4.8. Low rainfall areas tend to support lower densities of lucerne and it is likely that lucerne will largely use fresh water derived from rainfall at the trial site. Highly winter-active lucerne varieties will be the best choice for the site eg. SARDI 10, Sceptre, Sequel HR and L90. With a short growing season, begin weed control before the lucerne establishment year. After the break, apply a double knockdown and incorporate Trifluralin if the site has problems with ryegrass,



Chris Loo

wild oats and wireweed. Apply 10 units of P and 15-20 units of K and Cu-Zn-Mo if the site has not had trace for 6-10 years. Lucerne will benefit from an earlier sowing due to the short growing season. Sow at 2-3kg per ha at 0.5-1cm depth with press wheels to ensure good seed-soil contact. Apply a bare earth insecticide after seeding. Use registered herbicides for post-emergent weed control. Lucerne can be grazed in the first year at 10% flowering. Graze hard to 1-2cm height and allow a rest period when secondary regrowth has reached 5cm (~4-6 weeks).

Lucerne will benefit from an annual application of 10 units of P and 15-20 units of K. Annual medics such as burr medic (cv. Serena is well adapted to mildly saline flats), Strand (cv. Herald) and barrel medic (cv. Caliph) may be sown into lucerne at 4-6 kg/ha. They require similar nutritional and grazing management to lucerne but when flowering, graze lightly to allow good seed set if the goal is to set up a long term pasture system. At the end of the lucerne pasture phase, lucerne plants should be chemically removed late autumn after annual medics have senesced. Early removal will ensure breakdown of lucerne residue to release nitrogen for the subsequent inter-row crop.

Chris Loo is a former Research Officer with the Department of Agriculture and Food. He is working on lucerne with the WA Lucerne Growers Association.

"The Sustainable Grazing on Saline Lands program (SGSL) aims to support sheepmeat producers and woolgrowers profitably manage by dryland salinity on their farms.

SGSL involves building a network for testing and exchanging information, providing farmers with useful, timely and relevant information and conducting on-farm research into saltland production options.

The program operates in WA as a producer network of regional farmer groups undertaking individual sustainable grazing projects on local salt-affected farms as well as a Research & Development project through the CRC Salinity of which CSIRO and DAFWA are principal contributors.

The SGSL is a National program initiated and funded by Australian Wool Innovation, MLA and the Federal Government's Land, Water and Wool agency. In WA the project is co-funded, administered and delivered by the Department of Agriculture and Food WA, in conjunction with the CRC Salinity and CSIRO."

Further products in this series available at www.landwaterwool.gov.au

Contact

Charlie Bell
9065 7052

John Paul Collins
Department of
Agriculture & Food
9821 3249
jpcollins@agric.wa.gov.au

