



Have a yarn

talking salt with Grant Robinson

farm life
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"Making the most of an opportunity"

Like many WA farmers, Bruce Rock producer Grant Robinson had noticed increasing problems with salinity on his property.

The rising watertable and occasional flooding of Kurrenkutten lakes had led to problems with saline and acidic soils on large areas of the farm.

"There are a number of affected areas on our property and the problem has been getting worse over the last decade," Grant said.

"Kurrenkutten lakes have been flooding more regularly, each time leaving salt behind."

Unfortunately, iceplant was also contributing to the soil degradation and controlling it was a priority.

"Iceplant can easily take over large areas and is toxic to sheep," he said. *"It is important that we control it so it does not continue to spread to other areas of the farm."*

After attempting to grow barley on the problem areas

for several years, Grant Robinson finally decided the paddocks were costing more than they were making and something needed to be done.

He heard about the Sustainable Grazing on Saline Lands (SGSL) grants from saltland recovery and wildscene specialist Robin Campbell and thought this might give him the opportunity to make this fast deteriorating land productive.

"The idea of the grant is to create feed for sheep during the autumn period and eventually all year round, making the land more productive," he said.

"The trial was also set up to help evaluate a range of herbicides for controlling iceplant, while lowering the watertable, which would hopefully prevent or slow down the spread of salinity on my property."

Mr Robinson chose a 100ha site which had been suffering from declining barley yields for a number





of years. The site itself had little vegetation before the trial started apart from a small amount of barley grass and a significant amount of iceplant.

Situated 35km north-west of Corrigin, an average 300mm of rain falls on the site every year.

Shallow sandy duplex soil covers some of the area, while the rest is heavy loam and clay.

Before the trial started the soil was highly saline and acidic but recently the pH has risen above 7.5 (slightly alkaline).

The first thing Grant had to do was prepare the site which involved spraying the weeds with Roundup.

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 metre alleys which left room for an airseeder to go between the rows to sow Stirling barley.

In September 2003 saltbush was

planted over 107km of rows which included old man, Eyres Green Giant and Rivermor varieties.

But low rainfall resulted in poor establishment which left Grant questioning the benefits of saltbush.

"Hardly any saltbushes came up in the first year which made me wonder if they were going to be of any use at all," he said.

"We had already used a big chunk of our grant on preparing the trial for the first year and were wondering whether to continue."

He was told if the saltbush did not establish the first year the seeds might germinate the following year. But again nothing came up.

"After consecutive years of poor establishment we were really considering giving up but after much consideration thought we would give it another bash," Grant said.

In 2005 they again sprayed the site with Roundup to control the weeds and iceplant and then experimented with hand planting different varieties of saltbush which included river and old man.

"We planted seedlings rather than seeds and got them into the ground in late June when it was still wet," he said. "This turned out to be the way to go because the saltbush established well and grew quickly."

Grant observed that the sheep first grazed the saltbush nearest the water points and then moved outwards from here.

This has made Grant think about the relationship of paddock size and number and location of water points.

"The idea of the grant is to create feed for sheep during the autumn period and eventually all year round, making the land more productive."

Perhaps a transportable trough and tank is an option. Grant observed that on his site the sheep first grazed the river saltbush varieties, then the old man saltbush.

He is particularly impressed by the vigour and recovery from grazing of the Eyre Green Giant clone variety of old man saltbush.

"There is a high variability in the palatability of saltbush even within varieties," Grant said.

"I have been told the sheep will eventually eat any saltbush once all others run low."

"I am planning to establish further areas of the farm to turn the non-productive soil around," Grant said.

"I will select the most palatable bushes and grow seedlings in these new areas."



Grant Robinson was extremely pleased with the growth of the seedlings and said they provided some much needed feed during the autumn period.

"The early problems provided us with some valuable knowledge which allowed us to enjoy great establishment in the following years," he said.

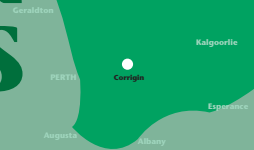
"This year we will plant a minimum of 5000 saltbushes to extend the site and provide more feed during difficult times.

"We are right on the edge of finding out some valuable information so I hope we receive further funding to allow us more time."

"After consecutive years of poor establishment we were really considering giving up but after much consideration thought we would give it another bash."



QUICK FACTS



Location: 35km north-west of Corrigin

Rainfall average: 300mm

Enterprise mix: Wheat, barley and sheep

Trial size: 50ha

Trial aim: The project aims to establish forage and pastures on saltland and profitably graze them. Also a small trial will compare herbicides for controlling iceplant.

Saltland pasture mix: River saltbush, old man saltbush, Eyres Green Giant saltbush with pasture/barley in the inter-row.

Original vegetation: Tea-tree, York and salmon gum

Soil type: Clay loam and shallow sandy duplex

Watertable: -1.07

Water salinity: 7580mS/m (saltier than seawater)

Water pH: 3.31

Clearing date: 1940s



Word from the gate...

In saltland pasture establishment, the first problem that we are often confronted with includes controlling the toxic weed, Slender Iceplant (*Mesembrythemum nodiflorum*). This weed, introduced from South Africa, is toxic to stock due to its high oxalate levels, restricting grazing opportunities during late spring and summer.

Iceplant appears to create its own favourable environment even on only marginally saline land by accumulating salt from depth and storing it in epidermal bladder cells. As the plant dries off, salt is locked up in the stubble residues. Summer and breaking rains cause leaching of salts from the stubble probably causing osmotic stresses to winter germinating pasture plants. Generally by spring, leaching rains allow the ice-plant to germinate from the surface where it appears to establish a monoculture.

It is possible that the failure of the saltbush to germinate in this trial could have been partially attributed to the higher salt levels leached from the surrounding iceplant stubble. This effect would be accentuated in a drier year.

Even with successful establishment of saltbush, the potential problem still remains with toxic iceplant between the saltbush rows. Early and continuous control of ice-plant, with flushing rains appears to be



Lorinda Hunt



John Borger

the basis for successful understorey pasture establishment.

The biology of iceplant has not been studied in any depth in Western Australia. We do not have a good understanding of its biology or its seed dynamics. Initial work in the Northern Agricultural Region however suggests that there is some form of seed dormancy as one or two applications of a knockdown herbicide appears insufficient

to remove the weed in the same or following years. It is known that the iceplant seeds are released on three separate occasions following a rainfall event. Each set has different germination abilities, thus allowing a number of germinations throughout the year.

The only herbicide registered for use on slender iceplant in WA is Dicamba in a mix with 2, 4-Damine. This option is only registered in a non-cropping situation. Initial work in the NAR would suggest that the triazines (atrazine 1 litre, simazine 2 litres) and the SUs (Chlorsulfuron 15g, Metsulfuron-methyl 5g) are effective in removing iceplant. However further work is needed to ascertain the timing of applications, and saltbush tolerance to these herbicides. Such triazines or SUs are currently not registered in salt land, thus they can not be recommended. Further work on herbicide options to remove iceplant in saltbush pastures is needed.

John Borger is a Research Officer with DAFWA with a special interest in controlling cropping weeds in broadacre agriculture.

"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

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