Publication Number 6 of 21

Have a yarn

talking salt with Terry & Linda Lee

"Tackling salinity in its infancy"

Decreasing crop and pasture production was the signal for Terry and Linda Lee to treat emerging salinity before the problem expanded.

Now, three years after they started planting salt-tolerant species over a 36ha site, they are benefiting from its grazing value.

The Lees bought South Uberin Farms 14 years ago - a property in the Fitzgerald Biosphere midway between Jerramungup and Ravensthorpe.

The property is typical of many light sand over gravel, mallee blocks cleared along the south coast in the early 1970s.

It is in a 370-400mm rainfall area that can usually be assured of receiving some good summer falls.

In previous years the Lees cropped up to 60% of the property but have reduced it to 40% with East Carinya blood Merinos run on the rest.

With the exception of the naturally saline Suzetta River that ran through it, the farm was free of salt but within two years of buying, the first signs of salinity appeared in high watertable areas.

The Lees fenced off 300ha along the river to exclude stock and are seeing the area regenerate naturally.

They also decided to seek help through the Sustainable Grazing on Saline Lands (SGSL) program to work on a 36ha site situated in the V-junction of two salt-affected drainage lines.

The area had small bare salt scalds starting to creep up the slope, but it also had the additional problem that the watertable was within 2m of the surface (slightly under seawater quality) and was extremely acid in testing pH 3.5-4.

Production had dropped to the point where the Lees no longer cropped the paddock and pasture had declined to almost nothing.

Rather than plant trees they wanted a treatment option that would give some production.

"The salt was encroaching and it looked terrible," Mrs Lee said.

"We wanted to treat it early before it expanded, but at that stage we didn't know where to start or whether we could make it productive."

Working with SGSL hydrologist Arjen Ryder from the The Department of Agriculture and Food it was decided the Lees' first step was to spread lime at 2t/ha to prepare the site.

In April 2003, the area received the first of two knockdown sprays and the salt scalds were cultivated.

In early July 2003, they sprayed again with the second knockdown with 250mL of Telstar added for bare-earth insect control.

On 24 July 2003, the salt scalds had puccinellia seed broadcast at 4.4kg/ha.

The next day tall wheat grass at 3kg/ha and 1kg/ha of lucerne were sown through the airseeder and compacted with press wheels with the addition of 60kg/ha of DAP fertiliser over the whole site including the scalds.

In the spring they used contractor Ashley Lewis with his Kimseed Saltland Seeder to direct-seed rows of old man, river and wavy leaf saltbush, acacias and bluebush in combination with a subtropical pasture mix of panic, Rhodes grass, Aztec siratro and tango grass.

It turned out to be a dry spring and Mrs Lee said the germination was variable.

"The saltbush germination was better on the saltier areas while the grasses were more successful on the fresher country," she said.

Mr Ryder commented about this initial establishment.

"The plants have found their niche and are doing well, such as puccinellia in the salty areas with lucerne and tall wheat grass in the fresher areas," he said.

The following autumn (2004) they broadcast winter annual legumes including Santorini, Frontier balansa, Dalkeith and Prima gland clover with 80kg/ha of super potash. Again it was dry but in the wet of 2005 the pasture proliferated and regenerated well in 2006.

Mrs Lee is the Fitzgerald River Catchment Demonstration Initiative project manager and the progress of this paddock selected as a demonstration site for the SGSL project has been shared with numerous visiting farmers.

The Lees' first light grazing was in December 2004 when they ran 80 Merino wether weaners on it for a month.

The sheep gained up to 6kg/head.

The paddock also has been the subject of grazing trials run by the Department of Agriculture and Food and CSIRO to measure stock performance.

The first of two supervised grazing trials was carried out in March 2006 when the area carried 220 wether lambs for six weeks during which time they gained an average 0.6kg a head and increased condition score from 2 to 2.5.

"Pasture looked better and the tall wheat grass was growing well."

In Mrs Lee's opinion grazing was at the right time when there was good green growth but a delay to the start of a second trial with 700 wether lambs meant growth was more rank and less palatable when grazed in late May.

Subsequent monitoring showed the sheep maintained body weight, which was good considering the time of year and the previous grazing.

The trial demonstrated the value of the area as a tool to fill the autumn feed gap, however, the sheep were selective in

their grazing, preferring the acacias to saltbush and heavily grazing lucerne in preference to Rhodes grass.

While the area will provide valuable feed in autumn it will receive another grazing in the spring to keep the grasses and perennials under control and fresher for the following autumn grazing.

Mrs Lee is particularly pleased with the establishment of puccinellia on the salt scalds.

She said that aesthetically it looked better and the tall wheat grass was growing well.

The Lees have since used the same basic treatment on a second 10ha site but with a better feeling for what does and doesn't work they have refined their seed mix and included some Cavalier medic over the entire area.

The noticeable exclusion was the subtropical species.

"It has made it cheaper, but now the main cost is the saltbush contracting," Mrs Lee said.

DAFWA economist Allan Herbert has completed an economic analysis of the site showing it cost $323/ha to establish and will take six years to pay back that cost.

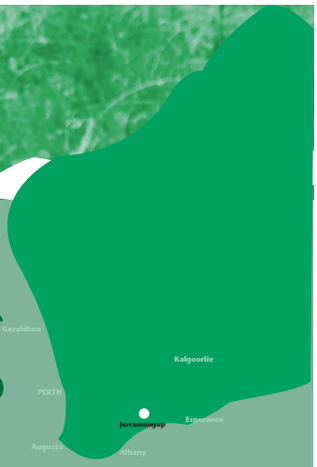
While the paddock has been a successful example of the production that can be achieved on saline land the Lees adhere to a philosophy of early intervention.

With a high watertable over much of their country they now routinely use lucerne for a four-year phase to lower the watertable before spraying it out and cropping for a two- or three-year period.

"If we think we are going to have a salt problem we put the paddock into lucerne - it is a very efficient tool, very productive with the summer rain and a good economic option for finishing lambs," Mrs Lee said.

"It is good lucerne country and we are fortunate to have Jeff Bee, an experienced lucerne grower in the district, as a mentor at Jerramungup."

QUICK FACTS



Location: 60km east of Jerramungup

Rainfall average: 370-400mm

Enterprise mix: sheep and cropping

Trial size: 34ha

Trial aim: Determine the establishment of perennial pasture species in the local environment and the impact on the depth to groundwater. Also determine if the perennials can be fitted into the farm system, their economic viability and if they can be easily established without specialist equipment.

Saltland pasture mix: Puccinellia, tall wheat grass, lucerne, old man, river and wavy leaf saltbush, acacias, bluebush, panic, Rhodes, Aztec siratro, and tango grass. Annual legumes including Santorini, Frontier balansa, Dalkeith, and Prima gland clover.

Original vegetation: Mallee

Paddock cover before trial started: barley grass and bare salt scalds

Soil type: Sandy duplex

Watertable: -0.89m and -2.43m from two bores on trial site

Water salinity: 5560 mS/m (three quarters seawater)

Water pH: 3.51

Clearing date: 1970s

"If we think we are going to have a salt problem we put the paddock into lucerne - it is a very efficient tool, very productive with the summer rain and a good economic option for finishing lambs."

A word from the gate...

Plants find their niche in paddocks with varying salinity levels.

Sowing a mixture of plants with different growth requirements into a variable site has shown that good coverage can occur.

In the case of the Lees the decision was made to treat the whole 34ha paddock rather than just the 11ha which was salt-affected. This decision has meant the area has become more productive overall, the area of salinity contained and rainfall use has been maximised.

To achieve this, an alley system of saltbush with perennial pastures in the inter-row was used. Mixing tall wheat grass, lucerne and puccinellia in the inter-row across the salinity range of mild to high has enabled each species to perform within its own favourable conditions.

The puccinellia has done very well in the bare saltland areas, with lucerne being the top performer on the fresh shallow bedrock areas while the tall wheat grass persisted over most of the salinity range. Saltbush performed its best in the marginal areas around the bare saltland.

The lessons learnt from the site include:

- the need to understand that your saline areas are variable
- select plants suitable for the variable site conditions so that the paddock can be managed as one unit
- treat the whole paddock and save on fencing costs
- improving the good land along with the poorer land has allowed for easier management.

Arjen Ryder is a hydrologist with DAFWA and has special interest in perennial pastures as a tool for managing salinity.

"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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Date in press: 26th October 2006 PF071266