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- Stories from the land -

SOUTHCOAST NATURAL RESOURCE MANAGEMENT INC

land

Resilience through Perennials

Growing perennials on marginal lands

FARMER PROFILE

Name: Sam and Lauren Lehmann, Ian and Sandy Lehmann
Location: Cranbrook
Average Annual Rainfall: 400-425 mm
Enterprise mix: Livestock (sheep) and cropping (canola and barley)
Property size: 2000 hectares
Soil Type: Sandy duplex (Yellow sands Uc5.22)

NUTS & BOLTS

- Right combination of perennial species and soil type is the key to success in marginal farming.
- Saltbush with perennial understorey of tall wheatgrass and puccinellia suits waterlogged land.
- Planting millet into establishing kikuyu provides excellent early feed.
- Anameka™ is a new saltbush variety selected from old man saltbush which is more palatable and digestible than other saltbush genotypes.
- Perennial systems in marginal farming have environmental benefits from better ground water management including increased ground cover, reduced runoff and the potential for carbon sequestration.

FARMING ON MARGINAL LAND

Sam Lehmann is a third generation farmer who is always looking for new farming options that he can adopt to improve his farm.

Sam's farm sits in a unique environment where ground water moves very slowly. The landscape has no natural drainage system to move the water on, and is dominated by lakes and evaporation ponds. The land is susceptible to waterlogging and salinity issues.

"WE'VE got a lot of country if we do nothing with it, it would give you nothing back. We found in that the water logged areas, if you don't use that water, it soon becomes saline and creeps into your better country." said Sam.

Waterlogging refers to the saturation of the root zone by excess water and causes a decline of root and shoot growth.

Under saline conditions, waterlogging causes plants to increase their rate of salt uptake which has adverse effects on plant growth and survival (Barrett-Lennard, 2003).

With his parents Ian and Sandy, Sam has experimented

Salt affected land can be turned into productive land

Salt affected land can be turned into productive land

with various perennials looking for the best option for these areas. It has been trial and error, but they have found that the right combination of plants is the key to their success.

It is important to match land-use with land capability, the plants selected for waterlogged and saline areas should be carefully considered for their relative tolerances to waterlogging and salinity (Figure 1, Bennett 2009).

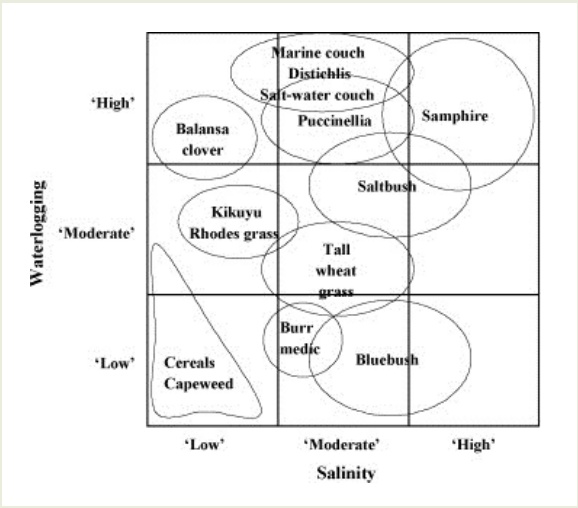


Figure1 Relative tolerances to salinity and waterlogging of different plants in southern Australia (Barrett-Lennard, 2003; Bennett et al., 2009)

PERENNIAL SYSTEMS IN MARGINAL LAND FARMING

In Sam's case, he found the kikuyu on lighter country has worked well and on the more waterlogged soil, they have had good success with saltbush and an understorey of tall wheat glass and puccinellia. As a next step, Sam is keen to include a legume understorey that grows on saline and waterlogged soils, and increase protein content of the understorey (e.g. Neptune messina, Department of Primary Industries and Regional Development, 2017).

"The system turned salt scaled land into high quality perennial feed" said Sam. He has also found that the perennials used up excess water and stopped any erosion from occurring.

The area of farm under perennials is now approximately 27% and has successfully changed the way Sam farms, with the added bonus of increasing his stocking rate.

Although perennial pasture species have a higher establishment cost compared to annual pastures, the ongoing management costs are relatively low and allow him to run stock through the summer without solely relying on supplementary feeding. Sam has also noticed that even when there's not enough kikuyu to graze, there is still saltbush available to provide fresh green feed for his stock.

"THERE'S no particular way but we know the sheep are happy. When they are on good lush kikuyu and fresh saltbush, even if you drive into a paddock with a sheep feeder, there are not particularly interested in the sheep feed. That's a sure sign that sheep are pretty content." said Sam.

Saltbush alleys on waterlogged and salt affected land

ANAMEKA™ SALTBUSH

After planting varieties of saltbush, Sam is currently trialling a new saltbush variety Anameka™ saltbush.

Anameka™ saltbush was selected from old man saltbush and is considered Australia's most palatable and digestible genotype developed through the Enrich project by the Future Farm Industries Cooperative Research Centre (CRC), based on reducing risk through use of perennial forage shrubs on grazing land. Anameka™ was selected for higher digestibility and palatability by sheep, from 60,000 plants assessed across WA, SA and NSW. (Norman, 2009, 2012)

In newly established Anameka™ saltbush with tall wheat grass and puccinellia understorey, Sam experienced an immediate positive result of 10 DSE from what was a bare land. He noticed Anameka™ saltbush seemed to be very palatable and showed a relatively quick recovery from grazing.

Looking at the performance of these perennials, Sam feels his farming system has the resilience to ride out tough conditions. He is keen to expand out his perennials including saltbush, targeting the marginal country that needs it the most.

Saltbush provides out of season feed to livestock that is a rich source of protein and vitamin E.

KIKUYU WITH MILLET

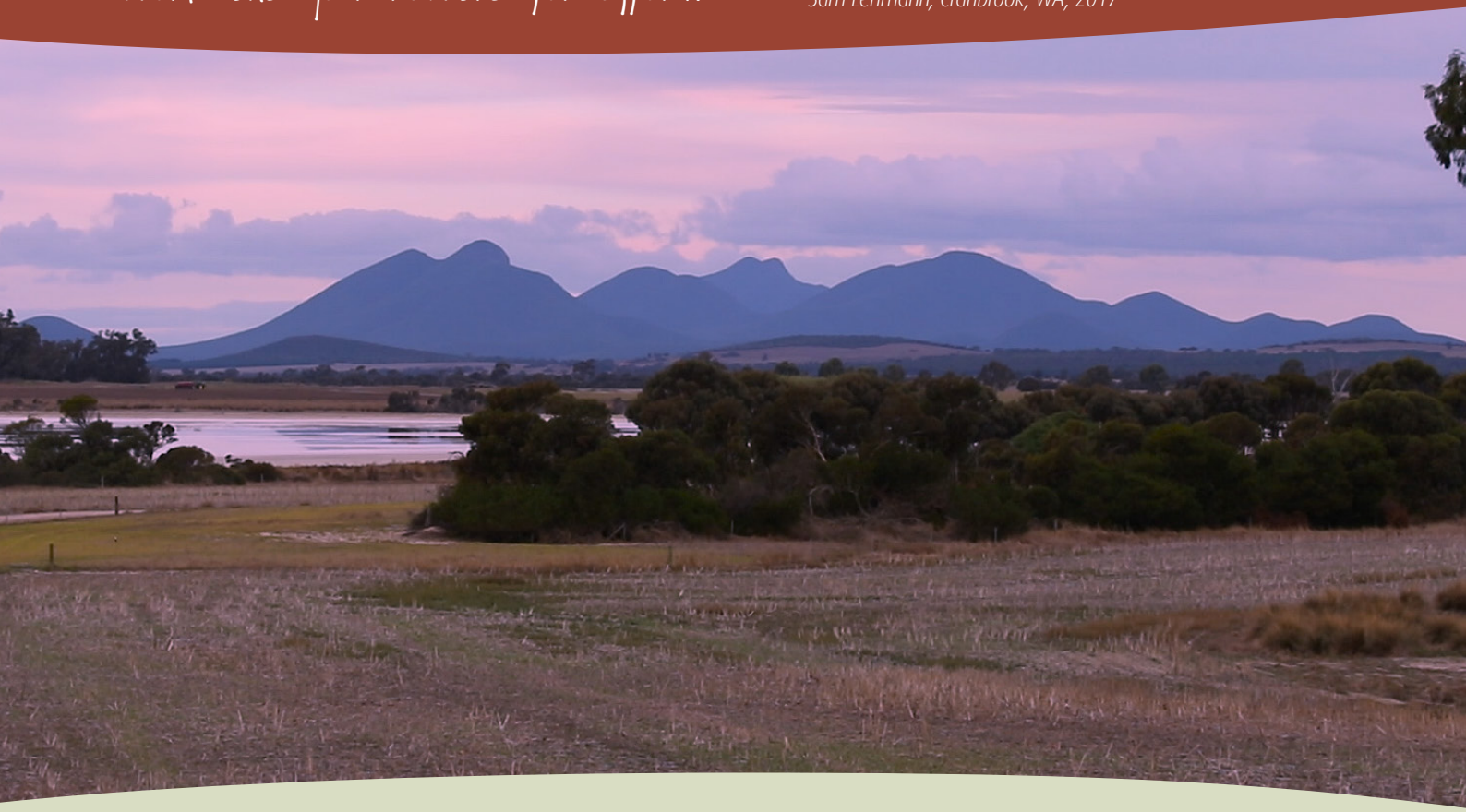
Kikuyu has brought a big change to his farming structure. Not only has it stabilised the country, it has provided a good profit both in winter and summer. In recent times, Sam has planted millet with kikuyu and found it has been very useful for providing some early feed.

Millet is a summer fodder crop which can be grown for various reasons. In Sam's case, it helps to control water issues including excess moisture and ground water rise. The Millet also provides some green feed filling a summer feed gap until the kikuyu is fully established.

Although establishing kikuyu is the main goal, Sam is pleased with a good feed of millet off the paddock. With millet into kikuyu along with saltbush, he can graze sheep into lush pastures at the time when feed is tight elsewhere. Sam is keen to continue establishing millet with kikuyu but also want to explore what options for companion species with kikuyu to improve feed quality including cropping options in the winter when kikuyu is dormant.

Millet growing in kikuyu paddock provides good early feed

"Bringing land that was eyesore to something that is productive and aesthetically pleasing, somewhere where you want to be, you see your work and your reward for effort." - Sam Lehmann, Cranbrook, WA, 2017



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Produced by Kanako Tomita (South Coast NRM)

A series of marginal land farming short films can be viewed on the South Coast NRM YouTube channel.

"Foraging for the Future"
www.youtube.com/watch?v=O5FTxmNSsLc

"Resilience through Perennials"
www.youtube.com/watch?v=moEUCBG3Z0Q

Acknowledgement

The information provided in this document would not have been possible without the support of a number of individuals.

A special thankyou goes to the Lehmann family for supporting the Climate Action Farming project, CSIRO researcher Gonzalo Mata and Dr Hayley Norman for providing data of saltbush.

This project is delivered by South Coast NRM, through funding form the Australian Government Department of Agriculture and Water Resources, Action on the Ground and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

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