



Have a yarn

talking salt with **Richard Walker**

“Intensive surface drainage equals increased production”

The undulating valleys that make up Richard Walker's Boyup Brook property make for a picturesque site.

But over the years the sloping land, combined with the 600mm of annual rainfall and the natural salt springs of the Wellington catchment flowing through the property has contributed to an environmental challenge.

Water was gathering in a particular part of the 202ha property and was not able to drain away due to the loam over clay soil profile, causing it to flood, which when it eventually evaporated left a concentration of salt and little else.

That land, which was some of the worst on the farm, has now been turned into some of the best with the implementation of an intensive surface drainage trial complimented with the planting of perennial pastures.

Mr Walker is hosting a Sustainable Grazing on Saline Lands trial, a Land, Water and Wool sub-program funded by Land and Water Australia and Australian Wool Innovation which looks at productive and sustainable ways to use saltland.

The 14ha site, separated into three cells by the creek system, is managed by employees from the Department of Agriculture and Food (DAFWA), who decided the best way to combat the problem was by using shallow spinner drains which feed into a spoon drain, dug to a depth of about 20cm.

DAFWA research officer Derk Bakker worked on the drainage system, and said the spoon drain or shallow





contour bank was installed on the break of the slope to channel the water away.

Dr Bakker said the spinner drains on the flat, dug with a three-point linkage drain spinner to a depth of about 10cm, were put in in a herring-bone pattern spaced at intervals of about 10 metres.

The idea is for the drains to stop a lot of water coming down from the hills and into the creekline.

Dr Bakker said the fact Mr Walker was running cattle had to be considered, because many drainage systems trialled previously on other sites were too fragile and if cattle grazed over them, they would collapse.

So the system they came up with was more robust.

DAFWA Development Officer, Justin Hardy said by getting the water off the site more quickly it would shorten the period of inundation, and leave 20-30cm of unsaturated topsoil so the roots of any plants sown on the site could breathe.

And while there haven't been enough wet years since the trial was started in 2004 to really prove their effectiveness, Mr Hardy said the impact the spinner and spoon drains had was underated.

"It is very difficult to have a treated and untreated site to compare and monitor, but we did put in dip wells to see how long the water stayed at the surface on untreated areas when compared with the drains." he said.

The results indicated the drainage was working, but we really need another couple of wet years to demonstrate that.

A variety of perennial pasture species had been sown on the fenced-off site and some established themselves very well, such as plantain, tall fescue, phalaris and perennial ryes, as well as strawberry and white clovers.

Reduced rainfall on the site this year, 2007 has had an impact on the regeneration leaving phalaris as the most visible species among the annual grasses, together with small patches of strawberry clover.

But it has still been an invaluable feed source for Mr Walker, who runs more than 300 Angus breeders and has about 120 head of cattle on this property at any one time.

He was able to graze which freed up hay that could be taken to cattle on his other blocks.

"It really has turned some of my worst land into some of my best" he said.

Prior to becoming involved in the trial Mr Walker was already doing some work to try and combat the waterlogging and salinity problems as part of the local East Woop-Woop Farm Improvement Group.

As part of that he was trialling different perennials on problematic sites around the property, including hilltops, valley floors and slopes.

He had good success with the plantain, which regenerated well this year on a hilltop.

"You just need fencing, drainage, water coming in from off-site, and more suitable species such as temperate perennials to grow on them."

Mr Walker said while the perennials didn't compete as well in their early-stage growth as annuals, they were bound to provide more of a long-term benefit.

Justin Hardy said there was a lot of unrealised potential for improving



more land around Boyup Brook, where there was so much country similar to Mr Walkers' - wet, inundated flats.

He said the trial has demonstrated that those areas could be lifted back into farming systems.

"You just need fencing, drainage, water coming in from off-site, and more suitable species such as temperate perennials to grow on them," he said.

DAFWA has received a further two years of funding from the South West Catchments Council for use in the high rainfall area, and Mr Hardy expected to use Mr Walker's site as a benchmark.

All up, the site cost around \$980/ha to rehabilitate – including the costs of new subdivisional fencing.

This sounds expensive but to place it in context, the average price to purchase similar grazing land in the Boyup Brook Shire is around \$3,000/ha.

And there has been a significant increase in production and carrying capacity once the waterlogging was alleviated and the new pasture species were introduced.

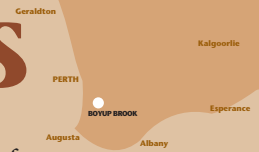
If the 14ha site carries the equivalent of a single additional cow for a year,

then the investment is recovered after eight years.

Judging by stocking rates on the rest of the farm, an extra cow appears very conservative.

"It is very difficult to have a treated and untreated site to compare and monitor, but we did put in dip wells to see how long the water stayed at the surface on untreated areas when compared with where the drains were."

QUICK FACTS



Location: 20km north of Boyup Brook on the Donnybrook Rd

Rainfall average: 650mm

Enterprise mix: cattle

Trial size: 14ha

Trial aim: Perennial pastures with intensive surface drainage – to reduce waterlogging, improve pasture establishment and productivity.

Saltland pasture mix: large pasture mix including tall fescue; phalaris; white clover; subclover; plantain and chicory

Original vegetation: teatree, flooded gum flats

Paddock cover before trial started: Guildford grass, silver and barley grass

Soil type: sandy loamy duplex soils

Watertable: - 0.35m

Water salinity: Good quality for stock

Water pH: 6.0



A word from the gate...

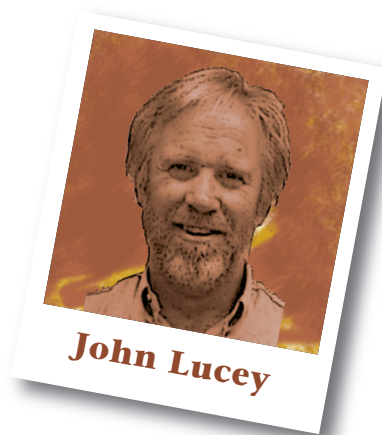
Richard's successful reclamation of previously low productivity land into some of his best is highly relevant to all graziers as their land values continue to climb, making it cost effective to manage current land more effectively rather than buying more land.

Nowhere is this more obvious than in our WA dairy industry farming on \$10,000+/ha land, so perhaps there are some dairy pasture management lessons that beef and sheep graziers can adopt to their enterprises.

While the key to Richard's SGSL trial success has been the incorporation of an effective drainage strategy to provide an unsaturated topsoil profile that can support productive pasture, the real potential of this reclaimed area will now depend on basic good pasture management and grazing principles.

When it comes to productive pastures there is no "silver bullet" (like most aspects of agriculture), rather it is a combination of timely practices done well.

Providing appropriate soil nutrition based on soil and plant tissue testing is critical to optimising pasture production allowing increased pasture



utilisation which drives stocking rate and hence profitability.

In summer-moist areas most perennials in this area will extend the growing season and once established give good long-term benefits. In hindsight it may have been best to have sown a suitable temperate perennial grass such as tall fescue or tall wheat grass separately. Annuals and aerial seeding legumes such as balansa or Persian clover could be then sown in subsequent seasons.

The opportunity now is for beef graziers to manage their cattle grazing to provide optimal conditions for production and persistence of these improved pastures. Fortunately the four factors involved in pasture management productivity, quality, utilisation and persistence are linked, and similar management can maximise all four factors.

Cattle should be rotated around paddocks a coinciding with regrowth of 2 to 3 leaves/ryegrass tiller. Once pasture management is optimised, feed budgets can be used to make strategic decisions regarding stocking rate, calving date and strategic seasonal feeding to meet market specifications.

John Lucey is Dairy Extension Leader, DAFWA Manjimup. John has many years experience with pastures in high rainfall cattle country.

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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