



# Have a yarn

*talking salt with Bernie Driscoll*

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## ***"How sheep can benefit from saltland"***

***B**allidu farmer Bernie Driscoll has always had sheep and in the past 20 years he has had salt-affected land.*

But it was a trip to Michael Lloyd's Lake Grace property that left him with a lasting impression of how sheep could benefit from saltland.

Bernie farms Tarana Farms, 2200ha in total, with wife Sheryl and son Richard.

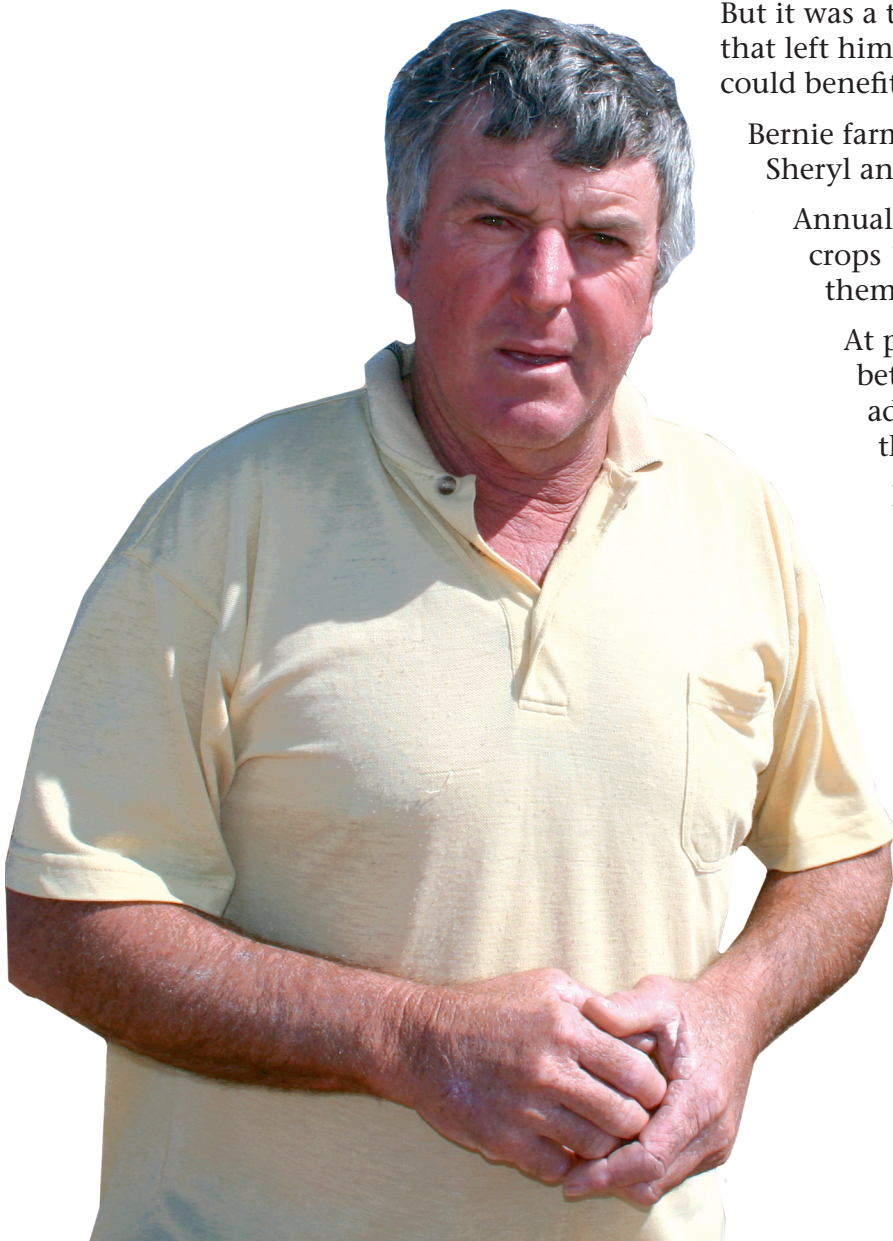
Annual rainfall is about 325mm and the family crops 1200ha and runs 2500 breeding ewes, 750 of them mated to terminal sires.

At present, the enterprise is a fairly even balance between livestock and cropping but Bernie admitted that the future emphasis between these enterprises was unknown.

Located 30km east of Ballidu, the undulating property sits on the Yilgarn Craton.

Involved with a local Woolpro Group and a member of the Buntine-based Liebe group, Bernie was keen to host a Sustainable Grazing on Saline Lands site to explore options on the 300ha of salt-affected country.

*"We have some deep drains elsewhere on the farm, but I didn't think that drains would benefit this site," Bernie explained.*







*"Saltbush is productive and regenerates and we wanted to set up saltland pasture sites across the farm that would allow us to defer grazing our annual pastures at the break of the season."*

Three treatments, each of 4ha and a control site were set up on the 20ha SGS site which varied in condition and ran down to a salty creek.

*"We chose the sandy loam site because it ranged from good to bad to terrible," Bernie said. "The idea was to test run a range of saltland pasture options for different areas and then apply this example elsewhere on the farm."*

The SGS site is low in the landscape and the soil depth is limited to 1 metre because of a hardpan. Consequently, the site can fill up and inundate after a big rain.

Cleared in 1960, the original vegetation was salmon gum, York gum and tea-tree.

According to Bernie, the site has been salt-affected since 1963, which was a particularly wet year.

While part of the site was bare or covered in bluebush, elsewhere the Driscolls are growing 3-tonne cereal crops

adjacent to the salt-affected area.

The SGS site was treated with a knockdown herbicide and split into three different treatments, each 4ha in area.

Bernie believes that fencing off bluebush is an important first step and he is all for 'realistic' fencing subsidies.

***"The saltbush has been really useful, particularly in autumn and summer."***

One plot was planted to saltbush in July 2003 – a small proportion from seedlings and the balance direct-seeded using a niche seeder.

The following month, the remaining two plots were planted to Safeguard annual ryegrass and balansa clover, and lucerne and Evergreen saltland mix – a blend of perennial grasses.

*"We had good rains that August and the saltbush germinated well particularly on the loam country as opposed to the heavier country," Bernie said. "Where it was too saline, we had mixed success with the lucerne and grasses."*

Bernie said few of the subtropical perennial grasses sown in the 5-metre wide alleys between the saltbush survived and plant density remains low.

There is still evidence of some lucerne plants and Bernie was encouraged by this result to sow a further 20ha of lucerne on better country in 2004.

*"That lucerne was 30cm high with the summer rain earlier this year and it was good quality and productive, but summer rainfall is so unreliable," he said.*

The plot of ARG-resistant Safeguard ryegrass hybridised with the Wimmera and low bacterial gall counts, taken subsequently, have confirmed this.

Given the success of the direct-sown saltbush, Bernie has since had contractor Ashley Lewis sow a further 120km of saltbush and other seed on Tarana Farms.

The old man, creeping and Rivermor saltbush was sown with a mix of *Acacia saligna*, puccinellia and tall wheat grass.

Bernie says that of the mix, the saltbush is the surviving species.

***"The sheep prefer Rivermor saltbush but I tend to think that old man saltbush has good persistence."***







*"The sheep prefer Rivermor saltbush but I tend to think that old man saltbush has good persistence," Bernie says.*

*"The germination was not so uniform this time, which has to be a good thing in a dry year.*

*"The problem though, is when to graze it."*

Having had three seasons to assess his SGSL site, Bernie says that the 6ha of saltbush on the 15ha site is not enough.

*"The saltbush has been really useful, particularly in autumn and summer, but we need more of it," he says.*

*"This autumn we had 400 weaners on the site for two weeks and they also*

*had access to an adjoining stubble."*

Ultimately the Driscolls would like to follow the Michael Lloyd example and increase the planting of saltbush in order to drop the watertable to the point that they can get quality pasture such as Safeguard ryegrass growing in the inter-row.

*"This will provide the sheep with fibre to complement the protein from the saltbush," Bernie says.*

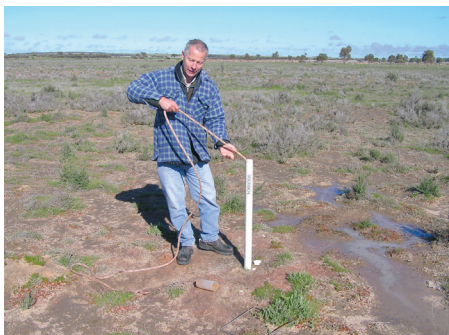
*"Water quality for watering sheep is not a problem - there is a windmill on the edge of the salt-affected country that produces relatively fresh water."*

Bernie says the trial work to now has convinced him of the future potential of saltland pastures.

*"Although it is a matter of balancing the cost and benefit of the work," he adds.*

*"And livestock will probably remain an important part of our farming mix."*

*"The idea was to test run a range of saltland pasture options for different areas and then apply this example elsewhere on the farm."*



## QUICK FACTS



**Location:** 30km east of Ballidu, central wheatbelt.

**Rainfall average:** 325mm

**Trial size:** 24ha

**Trial aim:** Establishment and plant persistence in a saline affected area.

**Enterprise mix:** Wheat and sheep

**Saltland pasture mix:** Seedlings of oldman, wavyleaf, Rivermor, saltbush and direct seeding of oldman, Rivermor, wavyleaf, creeping saltbush, lucerne, puccinellia and tropical grass mix.

**Original vegetation:** Tea tree, salmon gum and some gimlet.

**Paddock clover before trial started:** Some bluebush and samphire.

**Soil type:** Loam

**Watertable:** -1.42 to -0.91m (from five bores)

**Water salinity:** 3920 to 4760 mS/m (half to 2/3 seawater)

**Water pH:** 3.70 to 3.29

**Clearing date:** late 1950s





## A word from the gate...

**B**ernie Driscoll has managed to achieve a very successful establishment of saltbushes – particularly the wavy leaf and old man varieties, using direct seeding.

This is partly due to the site characteristics fulfilling the criteria for success. The conditions under which direct seeding will provide the minimum risk of failure are very exact.

### They are as follows:

- Sandy-loam textured surface soil overlying a clay subsoil (need to be able to insert a spade with minimum pressure to 15cm)
- Depth of clay needs to be 10-15cm below the surface so the mounding discs can incorporate it into the mound
- Require 50% or greater ground cover (mixture of barley grass and some ryegrass and clover)
- No samphire or capeweed
- Weed control is essential (see site preparation)
- Follow up rain is essential.

The soil types across Bernie's site are a yellow/brown shallow loamy duplex and a section of shallow gravel on the north-west corner of the site. This soil type definitely fulfills the criteria



of a having a shallow sand loam topsoil (ideally 10-15cm) over a clay horizon.

The saltbush strike has been less successful on the samphire areas and these should be managed to maintain cover and prevent further encroachment of salinity. The straw bales that Bernie has spread over these areas should help to decrease evaporation and further salt accumulation.

Direct-seeding is a viable option when the required site conditions are met and a large area is to be sown (over 10ha). Bernie's site is 41ha which would make planting nursery-raised seedlings prohibitively expensive. Direct seeding is a cheaper option than using seedlings and will generally cost around \$200-\$300/ha.

There were also favourable rainfall conditions to aid early germination. After the site was sown in July 2003 there was 30mm of rainfall on 11 August and 28mm on 22 August. An additional 22mm on 17 November provided a good supply of moisture for early growth during the first summer.

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*John Paul Collins is a Research Officer with DAFWA. He has spent 5 years working on saltland pastures.*

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"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](http://www.landwaterwool.gov.au)

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