

FARMER CASE STUDY

Establishment on Non-Wetting Sands

Farmer:

Grant Bain

Location:

Walkaway

Soil Type:

Deep, non-wetting sandy soil

Annual Rainfall:

450mm

Main Money

Earner:

Beef cattle

Pastures:

Panic, Rhodes,
Setaria, Lucerne,
Siratro and Blue
Lupins



Establishing perennial pastures on deep, non-wetting sandy soils can be a frustrating business. Just ask any sandplain farmer who has tried.

But when you see the excellent results being achieved by Walkaway farmer Grant Bain, you know he is doing something different.

Converted Culti-trash

Grant has converted an old culti-trash combine to sow sub-tropical perennial pastures.

He has removed the majority of the discs to create very wide row spacings (from 50 to 90 cm wide). The discs are then placed deeper in the soil than normal to scalp out a deep furrow into which the seed is placed. And a set of fairly cheap press wheels follow and push the seed into the moist soil at the bottom of the furrow.

It's that simple.

And the bonus is that old culti-trash combines are plentiful and the cost to purchase and modify them is minimal.

Grant finds he is most successful when the discs create a furrow approximately 8 to 10 cm deep.

When the furrows are only 3 to 5 cm deep the germination is significantly poorer. The soil at 8 to 10 cm is probably a lot less non-wetting than the soil at 3 to 5 cm.

Knife points, one behind each disc, were used in 2003 to lightly cultivate the soil at the bottom of the furrow. This caused some seed to be sown too deep and the germination of Rhodes grass in particular was impaired.

The knife points were removed for the 2004 sowing and the resulting germination from a shallower sowing had a greater proportion of Rhodes grass. The seed was simply pushed into the damp soil at the bottom of the furrow by the following press wheel. Grant believes this is more than adequate to achieve a suitable seed bed.

One negative of the machine is that a slow ground speed (around 5 km/hr) needs to be maintained so that the soil removed from each furrow is not thrown into the adjacent furrow. But by using a twin-pull to connect two combines, Grant is still able to sow approximately 5 hectares per hour.

By using wide row spacings, seed tubes that are not sowing need to be blocked off.

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An example of the excellent germination being achieved by Grant

Companion Legumes

Grant has also used alternate row sowing with lucerne and the perennial grasses. This eliminates competition between the species during the establishment phase. Lucerne is sown through the seed box and the grasses, with a fertiliser carrier, are sown through the fertiliser box.

In a trial area, Grant sowed some serradella at the same time as the perennials (late August to early September). The serradella germinated well and managed to flower and set seed by late December. Given the dry spring conditions, this was an excellent result. This year he will further trial the sowing of perennial grasses and annual legumes at the same time, hopefully eliminating the costly and difficult exercise of adding the annual legume component at a later date.

Weed Control

Weed control is essential to achieving satisfactory perennial establishment. Grant makes sure that paddocks are sprayed twice prior to the planting of perennials. The first spray in 2004 was in mid-July, approximately 6 weeks prior to sowing. This killed the majority of pasture, eliminated trash and stored soil moisture. The second spray was immediately

prior to sowing and mainly controlled weeds that had germinated after the first spray but also some weeds that had survived the first spray.

In 2003 the first spray was only 4 weeks prior to sowing. He believes this was not early enough as a subsequent germination of weeds came up after the second spray and competed with the establishing perennials.

Grant uses Glyphosate as the first spray and then either Glyphosate or Spray.Seed for the second spray. He now thinks that with a bigger gap between the two sprays, the second spray should always be Glyphosate. Glyphosate is likely to give a better kill of the larger weeds that result from spreading the two sprays further apart.

He is considering moving the first spray even earlier to aid weed control. The weeds will be smaller, making them easier to kill, and it will provide more time for the weeds to rot down and an opportunity to store more soil moisture.

Other innovations of Grant's include the sowing of the sub-tropical legume Siratro, although persistence appears to be an issue, and the addition of some forage sorghum to the perennial seed mix which has worked reasonably well.



The Culti-trash Combine Grant uses to establish perennial pastures