



# Farmnote

## Direct seeding native trees and shrubs Farmer to farmer - landcare case studies

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*Figure 1. Ric and Nicki Wallis check the trees and shrubs they direct seeded at their Dumbleyung farm.*



*Figure 2. Clive Trott in an area direct sown with a Kimseed twin niche seeder.*



*Figure 3. Clive has been impressed by the growth of these two year old direct seeded trees at his East Pingelly property.*

### Case study 1. Ric & Nicki Wallis, Dumbleyung.

Ric and Nicki Wallis now think twice about the time consuming and back breaking job of tree planting. This is because they have had some terrific success with direct seeding. "The direct seeding we did looks great," Ric says. "Lots of trees and shrubs came up and the revegetation looks natural. It also cost less, took about a sixth of the time to put in when compared to seedlings and we used our normal farm machinery."

Ric and Nicki Wallis farm 10 kilometres east of Dumbleyung, where the average rainfall is about 375mm. The farm was established nearly 100 years ago, with cropping and sheep now being the main enterprises.

#### ***The problem***

The main concern of the Wallis' was the rising, salty water table, which they felt would eventually affect the whole area. They revegetated 9 hectares, made up of three sandy dunes located among sandfire flats. Rehabilitating the dunes was also needed because the area was too exposed to the wind. In fact on the day of seeding the site, the wind was at least 30 knots and the soil surface was blowing away.

The soil on the dunes was slightly salt affected but not enough to affect the growth of recent wheat, barley and oat crops.

Revegetating the area also formed part of their overall farm plan to link the remnant bush stands remaining on their property.

#### ***The direct seeding technique***

"Planting nine hectares with seedlings was a bit daunting, so we

thought we would give direct seeding a go" says Nicki. "We also thought direct seeding would make a better corridor linking our bush stands."

The first thing the Wallis' did was remove the stock from the whole area. The scalds between the raised dunes are now covered with a healthy mat of samphire.

Seed was brought from a seed supplier who had collected the seed from similar sites and all the species, except one, was local to the area. Nineteen species were selected for their hardiness and salt tolerance.

They prepared one of the dunes in a slightly different way to compare methods.

### ***Dune 1***

Conventionally tilled twice and sprayed weeds with a Roundup® (600 ml/ha) and Simazine® (1.4 L/ha) mix. With weeds controlled they sowed the seed through the small seeds box on the combine, set at a rate of 25 kg/ha. They bulked the seed with vermiculite to help spread the seed more evenly. The tines were left out of the ground, with harrows dragged behind.

### ***Dunes 2 and 3***

Ploughed the dunes with a disc plough and then sprayed with the same herbicide mix as Dune 1. The bulked seed was again put out through the combine. This time however, they used the normal seed box (set at 5 kg/ha) as they felt that the seed was not feeding through the small seeds box well enough. On these sites harrows were not used.

All areas were sprayed in the early stages of germination to control RLEM.

### ***Seeding rate***

The seeding rate was difficult to measure but the 12.85 kilograms of native seed were spread fairly evenly over the 9 hectares (average about 1.4 kg/ha).

### ***Results***

"We were very disappointed in the first two years" says Ric "only a few species came up and numbers were very low. But since then more and more species have germinated and the area looks great."

Dunes 2 and 3 have around 1000 natives per hectare. They consists of plants that have germinated each year since sowing, with at least 12 of the 19 species present. Other species have also come up, probably colonisers from the nearby bush.

Dune 1 has not been as good as the other sites. Ric and Nicki put this down to too many weeds. After sowing, a lot of weeds came up, mainly wild radish. This site had slightly better soil and perhaps the conventional tillage promoted increased weed growth. They didn't try overspraying to control these extra weeds as they were worried about damaging the germinated natives. Even so this site has around 400 plants per hectare.

The good germination and survival has also been helped by the good season in the year of sowing, and pretty good seasons since. The direct seeding plants are now as big and healthy as the nearby seedlings the Wallis' planted 2 years before.

The Wallis' are keen bird watchers and they have seen a large increase in bird numbers and species in the area.

### ***Do anything differently?***

The results have encouraged the Wallis to keep on direct seeding.

"I prepared the sites as part of our normal cropping practices," says Ric "and then only spent two hours sowing the seed. Planting seedlings to the same density would have taken two people, two days. I reckon I have to be ahead."

Ric and Nicki say they would follow the steps they took at the more successful sites. Except they would do a better job of controlling weeds before they put the seed in. Ric thought increasing herbicides rates would be the best way to go.

"We would also pick our days to do the seeding" says Nicki "we wouldn't do it when the wind was blowing so hard. We would also seed in the rain or when rain was on it's way."

### **Case study 2. Clive Trott, Pingelly**

"I never thought it would be so successful and the trees would grow so quickly". Clive Trott commenting about a 20 hectare area that he direct seeded in 1996.

Clive's property, 'Morling', is located about 30 kilometres east of Pingelly and receives an average 425mm of rainfall each year. The property has mainly been a wool enterprise, but in recent times cropping has increased.

## ***The problem***

Bad waterlogging was affecting the valley floor and bare salt scalds were developing. Crop and pasture growth was to the point of being non productive and vehicle access in winter was a hazard.

According to Clive "the valley is very exposed to bad weather and cold winds. In 1990, when Cyclone Sam came through, I had a mob of 280 freshly shorn ewes in this paddock. The next morning I had 1 left alive. Other mobs, which had access to bush, fared much better. Sheep losses like that, and lost pasture and crop production made me realise that this paddock needed vegetation."

## **The direct seeding method**

"I chose direct seeding because it seemed to be the cheapest and easiest way for such a large area. I know what it's like to plant seedlings, and to plant the number that was needed for this area would have been costly and very time consuming," says Clive "So with advice from Agriculture Western Australia, I decided to give direct seeding a go."

Because the site is waterlogged, with parts salt affected, Clive decided that it should be mounded with the native seeds laid onto the mound. Clive used a local contractor with a 'Kimseed Twin Niche Seeder'. This machine makes two rows of mounds and places the seed on the mounds in the one operation.

To prepare the site Clive sprayed the area with 1.5 L/ha of Roundup® for weed control. He also used 90 ml/hectare of Supracide® to control Red Legged Earth Mite and other insects that could damage emerging seedlings. This spraying was completed on the 26 June 1996.

Two months later on the 28 August 1996, most of the area was scarified to control the new generation of weeds and to help prepare the area for the niche seeder. Some parts could not be ripped up because the tractor kept getting bogged.

The direct seeding was done the next day on the 29 August 1996. About 4 kilometres was mounded on the bad salt scalds and seeded with a number of saltbush species. The rest of the area was sown with 16 species of native tree and shrub species. 40 kilometres of mounds were sown with native seeds at a rate of 450 - 500 gm/kilometre. This equates to about 950 grams of native seed per hectare.

The native seed was purchased from a seed merchant who had collected the seed from all over Western Australia. *Acacia saligna* and *Atriplex amnicola* seeds were scarified to help break seed dormancy.

### **The results**

The whole area is now covered with vegetation. Even the bare scalds have some saltbush. The better areas have had terrific germination and growth with some plants now over 3 metres high. The site is dominated by the Golden Wreath Wattle (*Acacia saligna*), probably the result of the large amount of *A. saligna* seed used and this plant's high germination and survival rates. There are still however many Eucalypts, Melaleucas and Casuarinas present, some which appear to have germinated in the next season (1997). Total plant density is well over 1000 plants per hectare.

"The most noticeable thing about the trees is that they have grown so rapidly," says Clive "most of the plants are at least twice as high as some seedlings we planted nearby in the same year."

The whole area is now a great shelter belt. The pasture between the double rows of trees is now flush with clover and even the really boggy areas are much drier. The valley is now an ideal place to keep lambing ewes or freshly shorn sheep. "I could put sheep in here now" says Clive "But I will probably leave it another year to protect any of the smaller trees or ones that may germinate this year."

### **Why such a good result?**

Direct seeding late in the season was possible on this site because it was waterlogged and moisture was available late into the year. Seed germination was increased during the spring flush, when soil temperatures began to rise. Tree survival was helped by follow up October rains, helping the trees and shrubs get through that critical first summer. Mounding the site helped the young tree roots establish above the saturated layer, and as the site dried the roots were able to grow deeper, chasing moisture.

"I now think of this area as an asset to the farm. Instead of a wet, low productive area, I now have a great shelter area, with better feed. And even after just two years the water used by the vegetation has to be helping the areas further down the valley"

### **Further reading**

- Farmnote no. 40/98 '[Direct seeding of native plants for revegetation](#)'
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**Prime Notes  
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Figure 1. Ric and Nicki Wallis check the trees and shrubs they direct seeded at their Dumblyung farm.





Figure 2. Clive Trott in an area direct sown with a Kimseed twin niche seeder





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