Direct seeding of shelterbelts on dairy farms

Shelterbelts Fact Sheet 3

This Fact Sheet has been developed as part of the *Profitable Dairying in a Carbon Constrained Future* project.

It is one in a series of resources developed to profile practices that profitably reduce greenhouse gas emissions from dairy farm systems, embedded in the context of every-day farm management decisions.

The Australian dairy industry has committed to reducing greenhouse gas emissions intensity.

Shelterbelts can enhance productivity on farm by keeping cows comfortable and allowing them to put their energy into milk production. They also provide opportunity for sequestration of carbon on farm and consequently contribute to the efforts of reducing emissions on dairy farms.

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Tips for direct seeding of shelterbelts

- Research the direct seeding method, decide if it's suitable for your site
- Select sites for direct seeded shelterbelts
- Order your seed mix
- Book a machine in to do the job
- Plan and implement weed and pest control programs
- Fence and seed the site.

Why direct seeding?

Direct placement of tree and shrub seeds into the soil can be a cost effective and time efficient method of establishing shelterbelts on dairy farms.

Designed for larger areas, it is an excellent way to revegetate your property using a locally sourced seed mix and often allows a greater variety of species to be planted. The plants that establish are likely to be hardier and will not have the added stress of having interrupted root growth while potted, and root damage during planting.

With direct seeding, success is less dependent on rains in a single season as the seed remains in the soil until conditions are favourable for germination.

Choose direct seeding for your site if:

- You have a large area to plant
- The land is arable and accessible by ute or tractor.

Preparing the seed bed

Select and plan your site twelve months in advance. This will give you plenty of time to carry out the project in a planned way.

Like any tree planting project, weed control is most important. Good weed control will reduce competition for water and nutrients. The site should be weed free for about nine months after sowing to allow the seedlings to establish.

Timing of seeding to ensure adequate soil warmth and moisture is important. Seek local advice on the best time for direct seeding in your area. Your Landcare network or

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seed bank staff will advise you and share local knowledge.

Often a direct seeding machine is available for hire through a local seedbank, Landcare network or conservation agency such as Greening Australia. Find out what machine is available and seek advice on soil preparation prior to use. Many machines scalp off the topsoil allowing for a clean, weed free bed for seed to be sown.

In some cases mounding, ripping or ploughing may be recommended prior to sowing. Site preparation will vary according to soil type, site conditions and the seeding machine available in your area.

Sourcing local seed

Seek local advice on sourcing seed localised to your area. This will maximise your chance of success as the plants will be adapted to local conditions. Nurseries, Seed Banks or Landcare Network staff can help with this.

Ensure you have a variety of seeds to sow and place your order early so you get the seed you want for your project.

Some species will require pre-germination treatment before sowing to break dormancy or achieve higher germination rates. Treatments may include scarifying the seed, soaking it or smoking it.

Direct seeding techniques

- Sow by hand and bulk the seed out with dry sawdust, vermiculite, potting mix or sand
- Sow with a tree seeding machine. There are many available including the Chatfield, Eco, Rippa, Hamilton and Redden machines.

Other tips for success

- Access localised advice for sowing rates, this will vary greatly between locations
- Don't be confined to direct seeding in rows. Seeding in wavy lines will achieve a more natural effect
- Have the seed prepared in a taller species mix and a separate understorey mix. This will allow the taller species to be sown in the middle of the shelterbelt away from fences and the lower species to be placed on the outer edges of the shelterbelt.

Protecting the shelterbelt

Exclude stock from the direct seeded areas with adequate fencing. Ensure weed competition is minimal in the first two years allowing for trees and shrubs to grow up and away from competition. Good weed control will ensure maximum soil moisture is available for the growing trees and shrubs and is not used by nearby weeds.

Costs

The cost of direct seeding will differ from site to site. An example from South Gippsland;

For a 10 metre wide, 1 kilometre long shelterbelt (total 1 hectare), 2 kilograms of tree seed would be required at a cost of $1500. Labour cost would be minimal at around 2 – 3 hours of time required to operate the machine.

For the same area with tubestock, 2000 plants would be required. At $1.20 per plant this would total $2400. Labour would be required for planting at around 40 hours (based on planting 50 per hour). Tree guards, where used would be an extra cost.

The costs of fencing and spraying would be the same whether direct seeding method or tubestock were chosen.

Photo: a 10 year old direct seeded shelterbelt. The density of tall trees and understorey species creates excellent shade and shelter for stock

Photo: Seeding machine in action

For more information

Basalt to Bay (2014) Economic Benefits of Native Shelter Belts

Dairy Climate Toolkit

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