woods & forests

No. 8
in a series

Broadacre establishment techniques

These are the optimum considerations for establishing tree seedlings on the broadacre in a dryland environment. While you may have had some success with lesser measures, we recommend these to you, to greatly improve your establishment results.

Planning

Like any on-farm activity, you will need to budget your time and resources over a year to make the best use of your investment.

Working to our checklist will help you to schedule the tasks required. At the rear is a copy of a checklist which we encourage you to use. If you cannot complete it from this fact sheet and those we mention as additional reading, any of our nursery staff will willingly assist you.

- Species selection and layout.

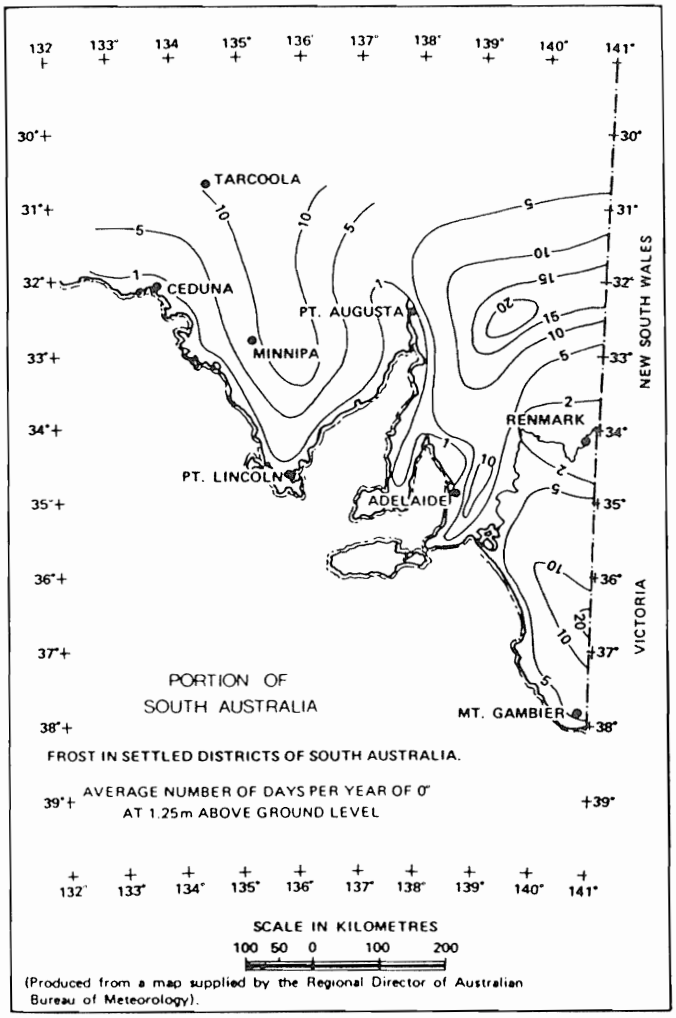
  The most exhaustive information is given in our publication "More than a Catalogue", and for only $3.00, it represents the best value for money available to assist you in your species selection. We have over 600 species detailed for height and spread, soil pH preference, soil type, minimum rainfall requirement, frost tolerance and up to 15 other characteristics as well as a silhouette of the plant shape. A simple farm plan will assist you to work out numbers required. We generally use two-thirds the height as a reasonable spread and so that makes a good distance between plants.

  It is imperative to select species suited to your natural rainfall or from a rainfall up to a third lower. That is, if you live at Port Broughton, with an annual rainfall of 354 mm, you should select species in the range 250-350 mm, plus of course, those tolerant of coastal conditions and alkaline soils.

  The use of very low rainfall species in high rainfall regions generally does not result in fine robust specimens, but in soft weak growth, prone to fungal and insect attack.

* If planting salt-affected areas, select only those salt-tolerant species recommended in our Fact Sheet No. 10.

Frost frequency map ›



- Ordering Plants

By ordering six months in advance of planting, you will attract the maximum discount. Our Rural Tree Scheme accepts advance orders each year from July to the first week in September, so watch the press for details or enquire at any of our outlets. We prefer to use only botanical names to remove confusion, since many plants have the same common name.

- Plant Protection

All broadacre plantings need protection from livestock grazing them. For small plantings of roadsides, light tree guards should suffice as protection from rabbits and hares, but more sturdy guards will be needed in sheep paddocks. For areas where cattle or horses graze, substantial fencing will be required.

- Ripping

The extra effort to plant into a rip line, which need not be deeper than 200-300 mm, will greatly enhance the ease with which you will plant them.

- Vermin Control

Rip and fumigate, to eradicate rabbits as well as bait, if activity is high, because they'll decimate your plantings if you don't.

- Moisture conservation in the drier areas is essential to preserve the soil moisture at planting time and beyond. This could be achieved by mechanical means (plough), but it is preferable to use chemical herbicides even in low erosion-prone soils, because of the subsequent stimulation in the germination of weeds when ploughed. Moisture conservation is seldom necessary in wetter areas.

- Weed Control

  Every weed grows at the expense of soil-water and nutrients that would otherwise be available to your seedlings. With weed control over an area of 1.5 metres diameter, with 400 mm rainfall, up to 900 litres of water will be available to the developing seedling. Without weed control it is likely that more than three quarters of this water will be lost by transpiration from the weeds. This results in lower survivals and growth rates, or forces you to indulge in ineffective summer watering. A number of approaches will all end with the same result - healthy seedlings with good weed control. Choose the approach best suited to your circumstances.

  - Manual weed control/plant/manual weed control.
    To be effective, control is often needed to be frequently repeated. A hoe is effective, but restricted to smaller scale plantings, whereas a plough can be used on larger scale plantings, but weed control close to the seedlings is difficult and there can be some root disturbance and erosion problems.

  - Knockdown herbicide, like Roundup® plus residual herbicide like Kerb® - then plant.

    This is a very efficient approach; the only drawbacks being site disturbance at time of planting can result in some weed 'getaway' and with some residual herbicides, the contaminated soil needs to be scraped away from the planting area before planting.

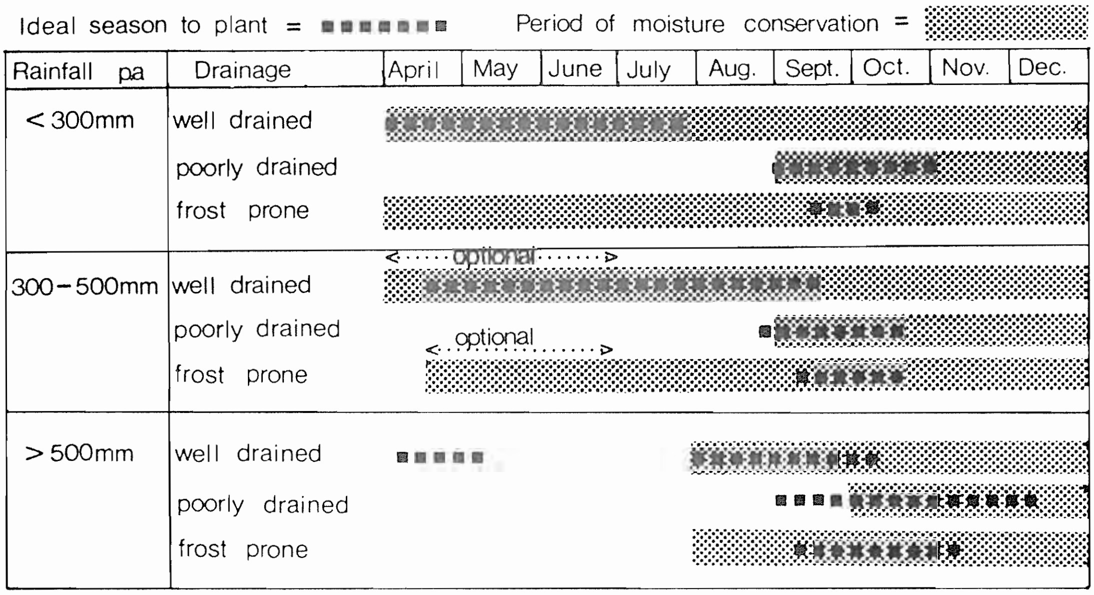
  - Knockdown herbicide/plant/residual herbicide without plant protection.
    This is also very effective so long as the time between the initial knockdown spray and the post-planting residual spray has not been long enough to allow some weed seed germination. In that case the residual spray will not be effective.

  - Plant/knockdown plus residual herbicide <u>with</u> plant protection.
    This is very safe and effective, the only drawback being the need for plant protection.

* For more details on herbicide recommendations, refer to our Research Note No. 101.

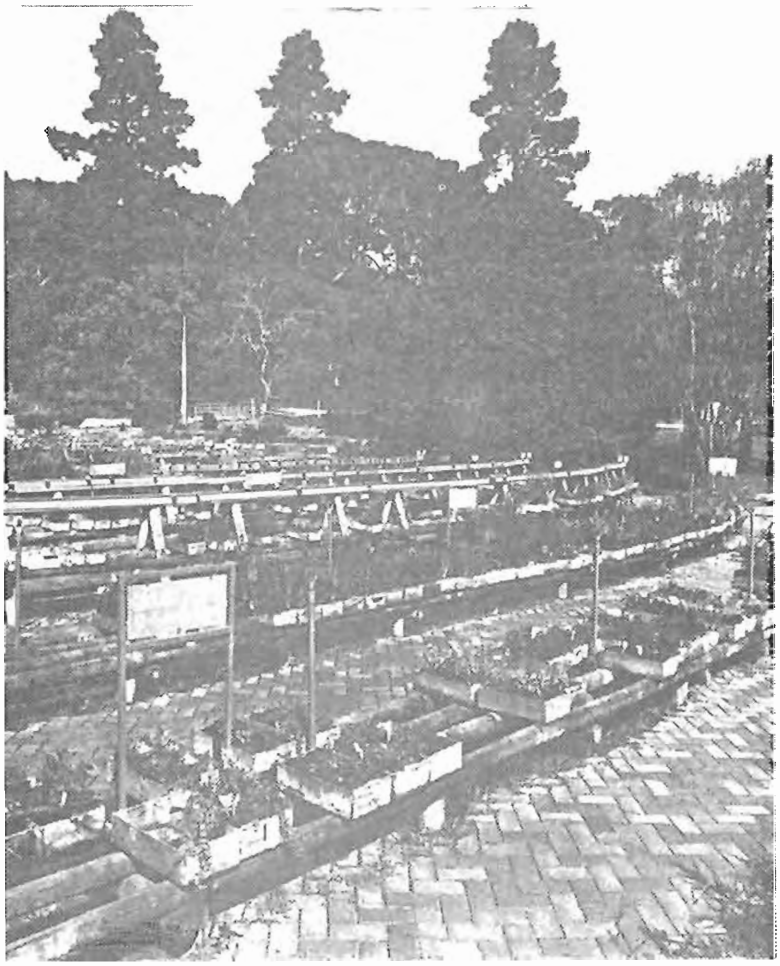
● Planting Time

The following chart will prove useful to determine the ideal months in which to plant, according to soil type, rainfall and frost frequency. While planting in spring may seem risky, we have had excellent results when good weed control has been achieved.

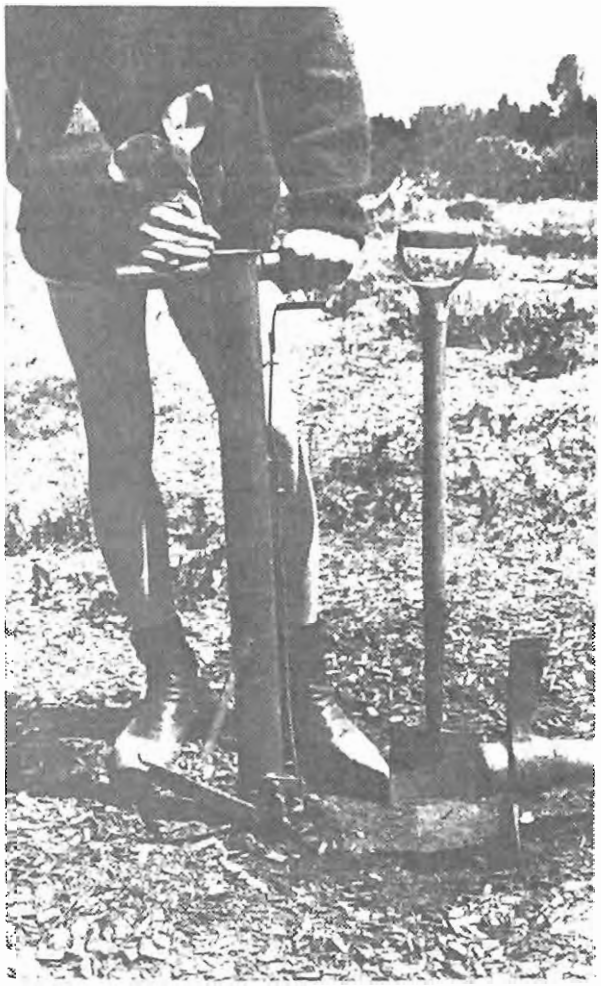


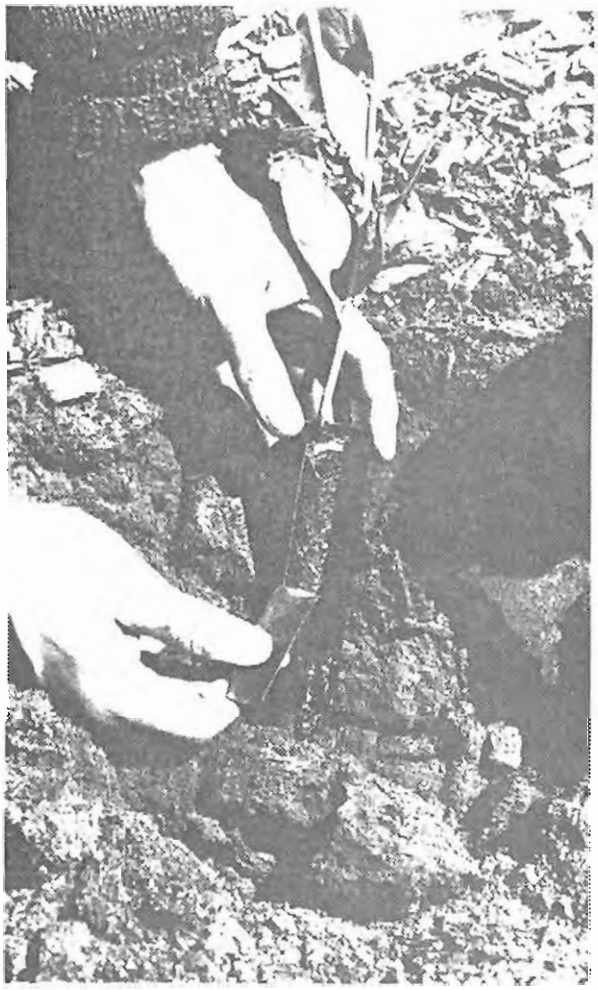
● Collect Plants

If despatched by road or rail, open the boxes upon arrival and, since they are despatched sun-hardened, they should be stored in full-sun and watered regularly.



- The tools to use can vary from tree planting machines (the pick of which is one made in Western Australia for less than $1,500) to simple hand tools. The tree planting machines are at their best on light friable soil and when there are 'long runs', but on heavier soils there are too many air spaces left when the clods are compacted and this generally results in a poor root run.





- The Technique

  Our hardy tubestock, with the conveniently removed zip-seal tab makes for easy transplanting. Remove tabs at planting but do not disturb the root ball. By putting the whole seedling with the tube still on it (tab removed), back filling the planting hole, then with thumb in the gap left by the tab, remove the tube over the seedling. This gives minimum root disturbance.

Plant the seedling entirely within the soil, no deeper and no higher than the soil in the tube.

- Watering

If soil-moisture is inadequate, water in with about a litre of water. Subsequent summer watering should not be necessary in spite of the long held belief, providing good weed control is practised.

A basin is not generally required around the seedling except for arid areas. Planting onto a mound has proven useful on wet and water-logged sites. Even leaving some weed-competition on water-logged sites, is useful to reduce the soil moisture level.

On heavy clay or clay-loam, puddle the soil around the seedling by adding water until you have the consistency of mud pies. This removes the air cavities and makes for rapid root development.

- Fertilizer

  This is not necessary on most fertile farming soils, however good early growth can be encouraged on infertile sandy soils, by using a balanced N:P:K mix, such as "Top Complete Mineral Mixture", which is 10.4% N: 1.6% P: 5% K.

  Slow release fertilizers of 19% N: 2.6% P: 8.3% K + Iron with a 3-4 month release, applied in early spring are beneficial.

  Broadcasting of fertilizer is not recommended because it encourages strong weed growth. Alternatively, blood and bone at 50 grams per seedling, mixed in the backfill is especially suited to saline soils. It does however attract dogs, and can result in your plants being dug up immediately after planting, but on the other hand it can keep the hares away.

- Insect Protection

  Young seedlings can be ravaged by attacks from sapsuckers, scale, defoliators and borers. Severe infestations can be controlled by judicious hand work or by spraying with a non-residual insecticide such as Malathion® or the systemic insecticide such as 'Rogor'®. If using the systemic insecticide, bear in mind that they work best when the plant is in active growth. While you might be concerned about insect attack on young seedlings, they grow to withstand most insect attacks.

* Our Fact Sheet No. 13 may assist in your identification and control of these predators.

- Inform your Tax Consultant of the deductability under item 75D(1) of planting and preparation for planting trees on your primary producing property.

Conclusion

By fencing your trees, planting at the right time to coincide with soil moisture, with the right species at our recommended spacings and with efficient weed control, we believe you will enjoy a great deal of success at establishing trees in this dry State of South Australia.

TREE PLANTING CHECK LIST

Site Location: _____

Soil Type: _____ Soil pH: _____

Average Annual Rainfall: _____ mm p.a. Frost Frequency: _____ days p.a.

	✓	Time to perform (e.g. spring or July)	Details
Species Selection and Layout			
Ordering Plants			
Rural Tree Scheme			
Plant Protection			
Fencing			
Tree Guards			
Ripping			
Vermin Control			
Pre-planting Moisture Conservation			
Weed Control Options			
Mechanical/Plant/Manual			
Knockdown + Residual/Plant			
Knockdown/Plant/Residual			
Plant/Knockdown + Residual			
Planting Time			
Collect Plants			
The Planting Tools			
Manual			
Mechanical			
The Technique Flat			
Bowl			
Mound			
Watering Initial			
Summer			
Fertilizer Yes / No			
Insect Protection Yes / No			
Tax Deductability Yes / No			