

INTRODUCTION

Seedlings and planting represent the most costly stage of establishing a mallee planting, often representing up to 40% of the total establishment cost. Every seedling which dies represents money spent and lost as replacement seedlings are required to be purchased and re-planted. It is crucial seedlings are of good quality, planted correctly and protected from pests

This fact sheet will detail the following aspects of Best Practice Management:

- Seedling Supply
- Planting including stocking, methods and standards
- Pest control

SEEDLING SUPPLY

Seedlings may be purchased directly from credited suppliers or the Oil Mallee Association's Seedling Pipeline. It is important growers assess their seedlings when taking delivery. Seedlings should be of the following standard at the time of delivery:

- Be between 150mm and 300mm in height for 'Hand Plant seedlings' or between 200mm and 300mm in height for 'Machine seedlings'
- Basal stem diameter be greater than 2mm
- Be weed and disease free
- Have sufficient root development to permit ready extraction from the container but no tap root binding or curling. Roots should have a healthy white appearance
- Be fully hardened
- Potting medium must be adequately moist to a level to ensure survival within the cell at the time of delivery.
- Be of the species ordered unless otherwise notified and consulted

Always transport and store seedlings in a sheltered, preferably covered location to avoid drying out and damage to foliage. It is essential if not planting the trees immediately, they be regularly watered and not allowed to dry out, as wetting the potting medium up from a dry state is very difficult and time consuming.

PLANTING

Stocking

The stocking (or planting density) of a mallee planting depends on the species selected, the site characteristics and its carrying capacity and the proposed uses and desired land management objectives. As mallees are intended for renewable coppicing (regrowth from the stump) after harvest, the option to thin out trees over the lifespan of the planting is not required. Therefore it is essential stocking be considered prior to planting.

The following table provides an indication of some possible stocking combinations:

Stems per ha	Av row space (m)	Within row space (m)	Species	Purpose
2500	2.5	1.6	All	Oil, carbon, biomass, windbreak
2500	2.33	1.6	All	Oil, carbon, biomass, windbreak
4000	2.5	1	<i>E. horistes</i> , <i>E. kochii</i> ssp. <i>plenissima</i> , <i>E. angustissima</i>	Oil, windbreak



Stems per ha	Av row space (m)	Within row space (m)	Species	Purpose
3576	2.33	1.2	<i>E. horistes</i> , <i>E. kochii</i> ssp. <i>plenissima</i> ,	Oil, windbreak
2000	2.5	2	<i>E. Loxophleba</i> ssp. <i>lissophloia</i> , <i>E. polybractea</i> Biomass,	windbreak, shelter
2100	2.33	2.04	All	Oil, biomass, carbon, windbreak

Planting methods

Seedlings can be planted using either a machine or by hand. Machine planters are towed behind a tractor and operate as a stand alone system incorporating all aspects of the site establishment including ripping, scalping and planting. Most planting machines are kept by and administered through local Landcare District offices. In addition there are a number of independent planting contractors who also utilize this method and may hire them or do the job for a fee.

Hand planters, usually Potti Putkis or planting tubes, are also a common method of planting trees. This planting method requires all site establishment to be complete prior to planting being undertaken. Hand planting may be undertaken by the grower or by independent contractors.

Planting standards

It is essential trees are properly planted to achieve high survival levels and ensure young seedlings become established quickly. To plant a seedling, the following instructions should be carried out:

- When removing seedlings from containers, there will be no damage to stems or roots
- Seedlings should be removed from containers no sooner than one (1) hour prior to planting to prevent drying of the roots and potting medium.
- Seedlings should be planted at approximately 5cm depth or deeper if soil conditions allow ie. sandy sites where drying of the upper soil profile occurs faster than in heavier soils. It is essential the root ball is covered with soil.
- Seedlings should be planted firmly, having been heeled or press wheeled into place. Air pockets around the root ball must be eliminated. If seedlings can be pulled from the ground by pulling lightly on the top sets of leaves, then this is unacceptable as drying will occur in such cases and this may result in seedling death.
- In firming trees into place, trees must not be stepped on, damaged or have the outer layer of their stem damaged. Damaged trees may survive, however their form and vigour are likely to be affected and the likelihood of disease entering and affecting the tree is increased.
- Trees should be planted as close to vertical (within 20o) as possible.
- Trees should be planted as close to the correct spacing as possible. Irregular spaced trees will effect the efficiency of harvest operations. This should be specified to all planters prior to commencing any planting operation and should be regularly checked.

PEST CONTROL

Rabbits

Rabbits can be a problem for young, newly established seedlings. Rabbits will not eat trees but will dig them out of the soft ground as they forage for food and the green pick of newly germinated weeds and grasses. Once a tree has been removed from the soil, its chances of survival are minimal. Rabbits will also commonly nip the seedlings off close to ground level. Rabbit control MUST be carried out prior to site establishment works being carried out. Such methods include poisoning with 1080 or pindone, fumigation, warren ripping, habitat destruction and shooting. In all cases, a co-operative approach with neighbours, land management agencies achieves best results.

Insects

Currently, insects are not a significant threat to mallees however landowners are encouraged to monitor any insect damage, its effect on mallee growth and survival and to seek advice prior to chemical application.

In all cases, the use and recommendation of chemicals for rabbit and control is strictly controlled by law. It is illegal to use chemicals for purposes other than those on the label at the rates specified. When using chemical it is essential to read and follow instructions as per the label, particularly in regard to Health and Safety issues, prescribed rates and uses.

For more information contact the Oil Mallee Association on 1800 625 511 or email info@oilmallee.com.au