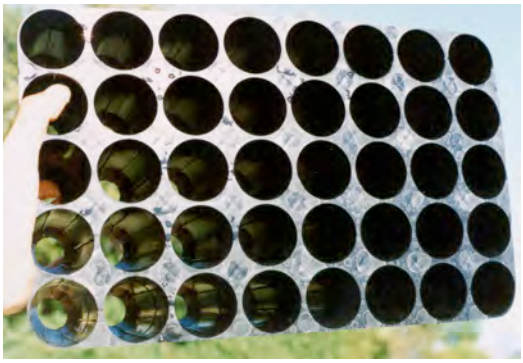
A Small Growers Guide to Nursery Establishment

This document has been written to give advice on the establishment of an inexpensive and low maintenance small-scale nursery. It is aimed at the small-scale farm forester who wishes to progressively establish a commercial hardwood plantation (eg: 500 to 4000 trees at a time). The photographs displayed in this fact sheet show one design option, however, the basic principles can be applied to a number of nursery layouts.

Step 1. Obtain suitable pots and growing media (Fig 1).



The potting mix should consists of 1 : 1 peat moss : river sand with 25g of NPK fertiliser added to every 10L of mix. Pot design allows for efficient handling and storage of seedlings, and will produce a seedling that is vigorous on planting. Pots of this style are available in a range of sizes. All pots should possess root-training ridges. These ridges, running down the inside of the pot., reduce the incidence of root binding.

Figure 1. A 40 cell seedling tray, note the root training ridges inside each cell.

Step 2: Lay out the pots so that the potting media can be shovelled onto them as a single unit (Fig 2). Smooth out the media so that it is flat and evenly applied. Proceed to lift each tray of pots and tap each firmly on a hard surface. This will act to compact and settle the media in the pots. Arrange the pots together again and top them up until the media is level with the lip of the pot once more.

Figure 2. Direct seeding eucalypt seeds into each cell using a salt shaker.

Step 3: Construct a bench that will elevate the pots off the ground. Ideally the bench will be of such a height that allows ease of access to, and maintenance of, the seedling. The bench also needs to provide open ventilation for the seedling roots. This will ensure a healthy and vigorous root system by promoting air pruning of any roots that protrude from the bottom of the pot. The bench show in Figure 3 is constructed from two parallel lines of steel posts. Along the top of these posts have been strung parallel high tensile wires. The wires are spaced at a distance from each other that allows them to be straddled by the seedling trays.

Figure 3. The final product- a simple, low maintenance, cost effective nursery system capable of producing medium level seedling numbers.

Step 4: Place the media filled pots onto the wire bench (Fig 5). The wires will slide up between the first and the second rows of cells at either end of the seedling trays. This will hold the trays firmly in place while still allowing easy relocation should the need arise.

Step 5: Small seeds, such as those from eucalypts, can be sown using a salt shaker (Fig 6). Simply shake small numbers of the seed into each cell. The size of the hole in the shaker should be determined by the size of the seed and the number of seeds required for each pot. In order to determine the number of seeds needed for each cell ensure there is at least one germination, it may be necessary to test germination rates for the seed. Larger seeds can be sown individually into the pots by hand. Once the seed has been sown, use a sieve to shake fine sand over the trays. Aim to cover each seed with approximately 1 mm of sand. A removable shade cloth with a 50% light reduction rating may be erected over the seedling bench if shade requiring seedlings are being grown. However, most eucalypt species can be successfully germinated and grown in full sun.

Step 6: One of the most time consuming aspects of growing seedlings is the regular watering they require. Most failures in the propagation process arise from this issue. Water timers capable of automating this entire process can be obtained quite cheaply from a number of good hardware retailers. These can be programmed to turn the watering system on and off several times per day over a weekly cycle. As a general rule, actively growing seedling require watering once to three times per day, seven days per week. A simple irrigation system using micro sprinklers (Fig 7) is all that is needed to ensure the entire nursery is supplied with an even application of water.

Step 7: By this stage (Fig 8), the nursery can be left to look after itself to a large extent. The main inputs still required will be maintenance of the watering system and weeding. Thinning of the seedlings after germination in order to leave one seedling per cell may be necessary. Also, it may be useful to sort the seedlings to ensure that the seedlings in any given tray are at the same stage of development.

Further reading:

Dept. of Natural Resources (1997). *DNR Tree Facts # 04: Setting up a small nursery*. Dept. of Natural Resources , Brisbane.

Dept. of Natural Resources (1997). *DNR Tree Facts # 17: Propagation trees and shrubs from seed.* Dept. of Natural Resources , Brisbane.

Dept. of Natural Resources (1997). *DNR Tree Facts # 19: Seed collection and viability testing*. Dept. of Natural Resources , Brisbane.