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The Hamel nursery

K.S. Cole

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A LITTLE known, but highly productive use of irrigation water occurs at the Forestry Department Nursery, Hamel. Seedlings of trees and shrubs are raised during the summer for sale the following winter. Sales are made to the farming community and many trees are used by the Forest Department in its reafforestation programmes.

Trees and shrubs are not available to residents of the metropolitan area and they may not be resold.

By September each year, some 12 lb. or so of seed of assorted eucalypt and other native trees and perhaps 100 lb. of pine seed has been collected at the nursery. Much of the seed is collected locally; some varieties are brought in by professional collectors and some from other States.

Seed size varies considerably, though most eucalypt species have very small seeds. *Eucalyptus deglupta* grows into a magnificent tree from seeds which number about 200,000 to the ounce and *E. cerbria* has 100,000 per ounce while some varieties have only a few dozen seeds per ounce particularly some native trees which are not eucalypts. Pine seed varies from 6,000 to 16,000 seeds per pound weight, according to species.

A special soil mix of six parts Hamel loam and four parts coarse tuart sand is used to grow the young trees. The soil mix is sterilised with methyl bromide, which kills weed seeds as well as insects,
fungi and bacteria. A layer of straw is first placed in the seed boxes to help drainage, then they are filled with this mixture. Seed is progressively planted from October to December. Slower growing types and difficult germinators are planted first. The trays are kept moist and under partial shade in frames, and germination takes from 10 days to several weeks.

About 21 days after germination, the tiny seedlings have grown large enough to be handled and are then transplanted into 3½ in bottomless pots. This allows root pruning and prevents root coiling inside the pot. The same soil mixture is used to fill the pots, with the addition of 2 lb. of blood and bone fertiliser added to each cubic yard of soil mix, which is then rammed into the pots to make it stay in place.

The newly-transplanted seedlings are placed in the shadehouse or under Sarlon blinds to harden. Water is applied at least twice a day. Losses are few and the seedlings grow rapidly. Once they are able to stand full sun the seedlings are placed outside in gravelled holding areas. The pots are placed on the gravel and very close together.

Seedlings for Departmental use are mostly raised in “jiffy” pots. The pots are filled with the potting mixture and seed is planted in each pot. A pepper shaker is often used and this applies three to five seeds per pot. After the seedlings are established all but two are removed. Young trees cannot be transplanted into jiffy pots because of the difficulty of handling these pots when wet. Also jiffy pots do not travel well and therefore are not suited to public sales.

Some pine seedlings are raised in pots but most are planted direct into the soil. These direct-planted pines are sold as open rooted trees and also are widely used by the Department for reforestation. The young seedlings are watered by knocker type sprinklers on moveable aluminum pipe-lines. Water is obtained from the P.W.D., irrigation supply and is pumped to the pine areas by an electric motor and centrifugal pump.

Watering of the eucalypt seedlings is by drag hose irrigation. The hoses, each supplying several spray-type sprinklers, are connected to the mains, which operate from an over-head tank. The tank is filled from the irrigation channel and the use of fine nozzles and low pressure gives a fine, even watering to the tiny seedlings and young growing plants. In addition some hand watering is carried out during hot weather where plants appear to be
under stress. Fine rose-type nozzles under low pressure are used for hand watering and prevents damage to the seedlings. While fumigation of potting soils reduces the weed problem almost to zero such is not the case in the direct-planted pine seedlings and other open rooted stock. Weeds such as paspalum, crab grass, water plantain and sorrel, have caused considerable trouble in the past. Unless these weeds are controlled they overwhelm the young pine trees. Hand weeding has been necessary for weed control but this is slow and costly. Several weedicings per year were needed and usually weeds grew at a much greater rate than the trees and weeding became very difficult as summer progressed.

With the advice and help of the Department of Agriculture, this past season has seen a move to chemical weed control between the rows with some hand weeding in the row. A small expando-type boom spray was used between the rows with a mixture of equal parts paraquat and diquat in water. The spray was applied at 1 lb. active ingredient per acre in 100 gallons of water. Some areas received only one such spray while several others received two sprays and some small areas three sprays. In addition a spray of Banex was used to control the sorrel, which was not affected by the paraquat-diquat mixture. The saving in labour cost was estimated at more than $450 for the 1.25 acres of pine seedlings grown.

As fungus diseases are an ever-present hazard it has been found necessary to use a copper-based spray at least twice during the growing of the eucalypt seedlings. Grubs and other insect pests are controlled by weekly sprayings of malathion or D.D.T.

Twice during the young tree's life it is root pruned. The pots are individually lifted and the protruding roots are cut off. This causes some wilting on hot days but an early application of water prevents serious setback to the young plant. Within 48 hours there is no indication of the effects of root pruning. Unless trees are obviously backward no fertiliser is added during the growing period. Backward trees may be given an application of soluble fertiliser solution to boost growth rate. Generally, reliance is placed on the soil mix plus pest and disease-free growing conditions, allied with adequate soil moisture at all times. Great care is taken to see the plants never dry out and the irrigation system is in constant use.

The aim is to grow a vigorous seedling about 15 inches high. These seedlings are available from May till September only. Seedlings are knocked out of the pots, the earth ball is wrapped in newspaper and the young trees are placed in boxes for dispatch. Seed trays holding 24 trees are used for certain eucalypt varieties as well as the open-rooted pines and certain ornamentals. Nearly all stock for sale is only six to eight months old. Very few older trees are ever sold.

The head nurseryman and his five assistants grow some 68 varieties of trees in pots. Of these 23 are eucalypts and 30 others are Australian natives. The rest are either pines or exotics. In addition a further 26 varieties of eucalypts are available from the Forestry Department nurseries at Narrogin or Hamel, by ordering several weeks in advance.

Farmers requiring trees may mail order direct from the nursery or visit the nursery and pick out the plants they need. At 30 cents each the trees are surprisingly cheap when the time and effort involved in raising is considered. Larger quantities are somewhat cheaper and trays of 24 trees are $4 each. Where very large quantities of trees or special varieties are required orders should be placed in September of the year before they are required. Open rooted exotic trees at 30 cents each or $3 per dozen and open-rooted pines at 8 cents or $3.50 per hundred or $17.50 per thousand packed are also excellent buying. Last year about 280,000 seedlings were raised and about 77,000 of these were eucalypts sold to the public. In addition 82,000 eucalypt seedlings were used by the Department. The remainder were pine seedlings used by the Department and the public. In this coming season the Department hopes to sell 86,000 eucalypts to farmers. The total number of seedlings raised this year should be about 300,000, of which 100,000 are various species of pines. Lists of trees for sale are available from the Forestry Department, as is considerable information on planting and care of
young trees, and the characteristics of the
trees raised at the nurseries.
At the Hamel nursery the visitor can see magnificent specimens of cork oak,
Morton Bay chestnut, Norfolk Island pines,
red cedars, plane trees, Cocos palms and
date palms, spotted gum, camellia trees 60
years old, and tree ferns which have
naturalised. An arboretum containing
some 50 varieties of eucalypts is also on
the property.
Hamel nursery is a good example of high
productivity and the benefits of attention
to detail in the highly efficient use of
irrigation water. Without adequate irriga­
tion it would not be possible to raise
seedlings of the quality and quantity
needed.
In addition, the nursery provides a
much-appreciated service to the farming community in the supply of high quality
tree seedlings at a low price for shade and
reafforestation.
The help of officers of the Forestry
Department in supplying information for
for this article is gratefully acknowledged.
Further details on the sale and cultiva­
tion of trees for farmland should be
obtained from the Forestry Department.
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