HARDY ORNAMENTAL STOCK BEDS

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In 1962 Darby Nursery Stock Limited, started to establish a wholesale production unit specializing in container grown shrubs and conifers. Before this date, the company was concerned with the production of certified soft fruit stocks, mainly strawberry plants, blackcurrant bushes and raspberry canes for commercial fruitgrowers.

It soon became apparent that large quantities of propagation material were needed and, at that time, unrooted cuttings of deciduous shrubs were not easy to obtain from trade sources although rooted conifer cuttings and, to a limited extent, unrooted cuttings could be obtained mainly from the continent.

It was decided to plant up stock beds to ensure a good supply of cutting material. It should be pointed out that no ornamental field-grown stock was produced, which might have yielded suitable material.

We already had some 20 years experience in the establishment and maintenance of blackcurrant stoolbeds, for the production of hardwood cuttings.

In this particular case, stock beds are essential for the following reasons:

(1) Maintenance of health standards laid down by the certifying authority.

(2) Ease of inspection.

(3) Production from the right type of propagation material.

(4) Ease of management; e.g. pest and weed control; cutting collection.

(5) Makes the indexing of stock plants possible and, by carrying index number of parent with the cuttings, it is possible to rogue out young bushes should the parent prove unsatisfactory, or vice versa.

The first ornamental stock bed of 1½ acres was planted in spring, 1967. Approximately 50 plants of every shrub and conifer we listed at that time was planted out 6′ apart and 2′ between the plants, the object being to form hedgerows in the field. The planting distance, in the rows, on reflection, proved to be too narrow and in 1972, a further 3½ acres were planted at 6′ × 3′.

The rate of growth varies tremendously from cultivar to

cultivar and, as time passes the rows of plants must be tailored to meet requirements. Some cultivars may need to be increased, some decreased, depending on the yields of cuttings. The maintenance of the stock beds is fairly straightforward. The important points to bear in mind are as follows:

(1) *Irrigation.* The provision for irrigation facilities to supply water, particularly in spring and early summer is essential. The production of cuttings can be delayed if water is short.

(2) *Weed Control.* On most soils, Simazine @ 2 lbs per acre or Casoron, 110 lbs per acre, will deal with most weeds. However, care must be taken to avoid the build up of resistant species. Failure to adequately control weeds can lead to expensive hand-weeding operations. It is most important to plant on clean land.

(3) *Pest and Disease Control.* If good quality disease-free material is to be produced, susceptible species must be sprayed, as regularly as possible. The main pests encountered are aphids, red spider, and mildew.

(4) *Feeding.* A general fertilizer is applied (14:6:20) by hand along the rows in early spring just before growth starts, at approximately 2 oz/yard run; i.e. 3 to 4 cwts per acre. This is important, as it is necessary to maintain the stock plants in vigorous growth. However, care should be taken to avoid excessive nitrogen as this can lead to the production of the wrong type of cutting material.

(5) *Pruning.* Stock plants of deciduous plants and some of shrubby evergreens are pruned fairly hard, to a basic framework during the dormant season. Some plants only require a light trim, as not all plants respond to severe pruning. The less vigorous and low growing plants usually receive sufficient pruning as cuttings are removed. Pruning is important to encourage the production of vigorous growth and to try to promote juvenility in shoots, which seems to be so important in the successful rooting of cuttings.

(6) *Siting.* Whilst nurserymen do not usually have much choice regarding the site for a stock bed, obviously the nearer to the propagation department the better. It is important that the propagator can keep a close watch over the stock, and that cutting material does not have to be carried long distances in hot weather.

The following are some of the advantages we have found from having stock beds:

(1) Large batches of cuttings can be made available at one time, thus avoiding the inconvenience of having to root several batches at different times.

(2) Cuttings can be gathered at the optimum time and, if necessary, by unskilled labour. If cuttings are collected from young stock or saleable plants, it is necessary to use a skilled staff member who can be trusted to remove cuttings carefully. This is also time consuming and it is difficult to supply sufficient material to a team of people on this basis.

(3) With plenty of material available, grading can be rigorous.

(4) The stock bed can be managed to produce the right sort of material and trials and experiments and indexing of parent plants are easier to carry out.

(5) It is possible to eliminate rogues, or plants with undesirable characters, e.g. poor shape or colour, poor rooting qualities.

(6) If improved forms of certain plants become available, a comparison can be made with existing stock and replacements made if necessary.

(7) Protection can be provided for plants subject to winter damage. e.g. straw covering.

(8) Plants requiring forcing techniques to produce etiolated material can be covered with polythene structure.

Whilst appreciating all the advantages of having a stock-bed, there is, as always a price to pay. Firstly, the land must be available, as the stock bed will be permanently occupied. Secondly, there are costs involved in its establishment and maintenance.

It is always difficult to compare costs with other nurserymen in any meaningful way, as the costs incurred not only vary considerably from season to season, but also it depends on the system of management on each individual nursery.

However, the following figures will perhaps give an appropriate indication of the cost of maintaining a stock bed:

Hardwood Cutting Stock Bed (Blackcurrant bushes)

Planted: Spring, 1972
Area: Approximately 3½ acres
Number of stock plants: 5,250
Cutting yield per annum (8" cuttings): 250,000
Labour input in 1975/76 season: £604.00
Assuming labour to be 40% of Total Cost, then Total Cost is £1509.00
Therefore, cost of cuttings = 1509/250 = £6.00/1,000

If selling price of one-year-old bushes = £99.00/1,000, then cutting cost is 6% of selling price. Please note, in this season, the majority of costs were incurred in spraying and cutting down. No account has been taken of the preparation of cuttings

or establishment costs.

Softwood cuttings (Ornamental shrubs and conifers)

Planted: 1½ acres 1967, 3½ acres 1972.
Number of stock plants: Approximately 15,000
Yield of cuttings: Minimum 5,000,000 — many more available, if required.
Labour input in 1975/76 season: £1988.00 (say £2,000.00).
Assuming labour to be 40% of Total Cost, then Total Cost = £5,000.00.
Therefore, cost of cuttings = £5,000.00/500 = £10.00 per 1,000.
If average selling price is 0.65p per plant (container grown) i.e. £650.00 per 1,000.

Then cutting cost = approximately 1½% of selling price. *Please note, in this particular season, just over 50% of costs* were incurred in hand weeding, due to the failure of residual weedkillers to act in dry soil conditions.

No account has been taken of cost of collecting cutting material or establishment costs. The above cost would be greatly reduced if we could make use of all the cuttings that are now being produced.

Whilst these costs may be of some interest to you, we did not decide to plant our stock beds on the basis of figures. The decision was made because we could see no other way to produce good quality material in quantity that was easy to collect. *We are still at the beginning of our understanding of stock* plant management and, in time, I am sure the treatment given to stock plants will become much more important in ensuring that the material produced will propagate more easily.

PRODUCTION OF PLANTS FROM SEED

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The subject of raising trees from seed is rather a lengthy one, I therefore, intend to talk about production generally rather than about one particular crop or plant with reference to the methods being used at Oakover, producing seedlings in raised seed beds covered with grit.

Before raising plants from seed one might ask oneself, what are we trying to achieve? This is the key question, the answer to this is to produce plants that will fulfill the market's requirements, *i.e. large one-year plants suitable for stocks or wide* lining, for containerization, or for close lining to produce a 1 +