

you want minimal disease in containers have, as part of the medium, well-matured compost.

These are just a few highlights about the book. I would like to present a copy to the President of the Eastern Region, Len Stoltz, and wish you the best of luck with your 1984 program. I would also like to invite you to come down to Australia and share with us.

## **BENCH GRAFTING OF TREES UNDER POLYTHENE**

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Bench grafting of trees under polythene offers the propagator a number of advantages. These include:

- 1) Fills the labour trough during the winter period.
- 2) Reduces the time span from the rootstock phase to obtaining a saleable tree (one year faster than budding),
- 3) Allows the grafting operation to be done under cover without the need for working outside.

### **METHODS AND MATERIALS**

A whip-and-tongue graft, using dormant wood, from January to the end of April is used. The graft is held together with a 200 × 25 × 2 mm biodegradable, natural-rubber tie, except on some fast-swelling, slow to callus types, such as *Acer platanoides* 'Drummondii' or 'Crimson King'. In the latter case, a clear polyethylene tape is used.

Rootstocks are generally bareroot and of the appropriate thickness to match the scion material. After grafting, the finished graft is potted into a 2 litre container and placed on a capillary sand bed in an unheated polyethylene structure. Grafts are initially well watered then only watered sparingly thereafter. Callusing of the union commences in 2 to 3 weeks but is dependent upon the weather and the difficulty of the subject.

The longer and stronger the sunlight before permanent callusing of the graft union, the quicker the tie degrades. It may become necessary to retie a small percentage of grafts. Obviously, this may be a much more important consideration under the higher intensity sunlight areas of the USA.

Well-graded, good quality rootstocks are essential and, where possible, virus-free vegetatively-propagated rootstocks are used. Vegetatively propagated understocks used include: *Malus* 'Malling Merton 106' for *Malus* cultivars; 'Colt', a *Prunus pseudocerasus* hybrid, for Japanese flowering cherries; and 'St. Julian A' for *Prunus* 'Trailblazer' and *P. cerasifera* 'Nigra'. For other ornamental trees well-grown seedling rootstocks are used. These include: *Acer platanoides* for *A. platanoides* 'Crimson King'; *A. pseudoplatanus* for *A. pseudoplatanus* 'Brilliantissium'; *Robinia pseudoacacia* for *R. pseudoacacia* 'Frisia'; *Crataegus monogyna* for *C. monogyna* 'Paul's Scarlet'; *Tilia cordata* for *T. euchlora*, and so on.

## RESULTS

By the end of May, the trees are over one metre in height and are tied to a 1.3 metre cane. The trees are then moved from June onwards outside onto a capillary sand bed. This system produces a graded container-grown whip which can then be potted directly into a 10 litre container, or left until winter when it can be potted as a dormant tree. A 2.2 metre high *Prunus* 'Cheals Weeping' can be obtained by this method with a reasonable stem caliper in 6 months. Potting-on is easy and straight forward and I am sure this method is more economical than field-grown tree production in the United Kingdom.

Economics of bench grafting trees within the United Kingdom:

<i>Material Costs</i>			
Rootstock	30p		
Rigid pot	5p		
Compost	5p		
Cane	2p		
Scion	5p		
	<hr/>		47p
<i>Labour Costs</i>			
Grafting	6p		
Potting	6p		
Aftercare	18p		
	<hr/>		30p
<i>Other Costs</i>			
Water	2p		
Management	20p		
Overhead contribution	10p		
	<hr/>		32p
<i>Subtotal Cost</i>			£1 09
<i>Allow for 15% failure</i>			16p
<i>Total Cost</i>			<hr/> £1 25

These figures are only approximate and may vary from year to year and from species to species and certainly from nursery to nursery.