

## **Propagation by Root Cuttings**

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**In the age of high technology it is sometimes refreshing to remind ourselves that old propagation techniques may still have commercial if not experimental application to today's nursery production. It was with this in mind that we decided to try root cuttings for the more difficult to propagate rootstocks and cultivars we grow on our nursery. We produce fruit and ornamental trees and clonal rootstocks by traditional field production. The various subjects chosen were: M.9 apple rootstock, pixy plum rootstock, and own-root apple cultivars.**

### **SOURCE OF PARENT MATERIAL**

The age of the plant from which root cuttings should be taken is very critical. Too young and thin and the material does not hold enough reserves to survive the early growth phase, too old and they will not produce shoot initials readily. Our experiments showed that cuttings 10 to 15 cm long and at least 10 to 15 mm top diameter at the proximal end were most suitable and in sufficient number. One-year trees (2- to 3-year root system) provided the most successful results and were readily available.

### **COLLECTION**

The timing of collection has to coincide with tree lifting in the early autumn. Roots also have at that time their highest concentration of photosynthates. As the trees are pulled from the ground ready for bundling, roots are selectively removed making sure no more than two are taken per tree. They are then kept moist, dipped in fungicide, boxed, drained to being damp rather than wet, and cold stored at 0°C until March.

### **PREPARATION**

Whole roots are bundled with elastic bands, cut to size with a band saw, checked for freshness and any fungal infection, and prepared for planting.

### **PLANTING**

It is important to prepare a suitable compost medium of 70% peat, 20% bark, and 10% grit, with additional slow-release fertiliser, etc. A raised bed is ideal, preferably in a polythene tunnel, outside if possible, but later planting would be necessary with some short-term laid-on protection at night or during cold weather.

Roots are planted upright (care must be taken here!), with the tops of the roots at ground level. Spacing will depend on the plant size requirement after one season's growth. We experimented with spacing from 6 × 2 cm to 10 × 4 cm. The close spacing was adequate to produce straight growth and enough competition for only one shoot per root to become reasonably dominant. The wider the spacing the larger the eventual plant but often with 2 to 4 shoots per root. This may well be desirable in shrubby plants, so spacings can be varied by experience.

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Timing of planting is critical. Too early, when ambient temperatures and compost are cool, can cause some rotting of cuttings. Direct planting out of cold storage in late March is ideal with rapid root initiation from callus tissue nodules. A deep compost bed provides even moisture levels which are important during early growth.

Other subjects, all of which have produced variable results in the past, are likely candidates for this propagation technique. They are as follows: *Acer*, *Betula*, *Aesculus*, *Syringa*, *Prunus*, and *Corylus*.