

and 30% peat. At the time I was there they were doing experiments with different grades of bark chips. For potting they use a potting machine doing 10,000 rooted cutting per day with three people. Liners were potted into 12 cm round pots. The main types of plants which they grew were *Cotoneaster* species, conifers, *Pyracantha* species, and a lot of *Thuja plicata* 'Atrovirens,' which were 18 months old when sold.

Cuttings of *Thuja plicata* 'Atrovirens' were taken in May, making a 4 in. long cutting. These were placed under mist, with no bottom heat in a tunnel house. In October, 5 months later, the rooted cuttings were potted in 12 cm round tubes using a bark growing medium. The potted liners were staged tightly in trays and placed under shade in cold frames. In March/April, the liners were then placed in moulded polystyrene trays that would hold approximately 30 tubes, each plant having equal spacing. These plants were grown outside in beds until October, by which time they had reached a height of 18 to 20 inches; they were then ready to be sold.

PROPAGATION — GETTING STARTED

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When I joined our nursery venture in late 1976, it consisted of a modest retail and an expanding wholesale division. At this time the propagation was confined to budding and grafting of assorted fruits and deciduous ornamentals in both open ground and containers.

With my interest in the broad area of plant propagation, we decided to gradually supplement our bought-in liner requirements with our own stock.

Initially we began with quick seed lines plus autumn-set cuttings but in 1979 we set up a primitive yet effective mist facility at the end of one of our polythene growing houses. A partition wall was built and covered with plastic and access to the mist room was through this.

The existing base of drainage metal was overlaid with pumice sand to a depth of about 5 cm. Mains water was ducted along an outside fence by 12 mm alkathene pipe and connected to a 12 mm solenoid valve, on the inside wall, above the mist line level.

The mist lines are 12 mm rigid PVC and the mist nozzles (Aquatron brass MK II 1/8" base) tapped directly into the pipes

and spaced 750 mm apart. The lines were suspended approximately 1 m above the beds by flexible wire formed into large adjustable hooks and then levelled. Brace wires were fitted horizontally from the line to prevent lateral shift.

Power was connected up for the mist control and heat bed. The mist control is a simple vane balance, with mercury switch and the heat facility is a Camplex resistance cable (HD 5034 24 m, 300 watts, 240 volt), laid approximately 2.5 m under the sand. We have it set permanently on approximately 20°C by an external thermostat. The heat bed area comprises about 1/5 of the total bed areas (approx. 27 m² total).

The polythene roof was whited with watered down acrylic paint, to reduce excessive heat build-up in sunny weather. This is permanent. Ventilation was provided by small frames covered with synthetic polymesh fabric at the top half of the three walls and door. The three wall vents have adjustable hinged doors which can be closed during storms. Initial adjustments to the mist frequency were difficult with excessive wetness being our first problem. However, we seem to have struck a reasonable compromise now.

At first we experimented with different proportions of sand and peat and, in some cases, sawdust but the basic 50/50 peat/pumice mix proved best. We were talked into cheaper polystyrene trays but after testing these we have decided their drainage characteristics leave a lot to be desired. We now use only the green hygiene trays for cuttings.

For hormones, we have used principally Seradix No. 3 rooting powder although quick-dip IBA at 2000 ppm in alcohol has been used experimentally.

Examples of genera propagated to date, include cuttings of *Metrosideros*, *Grevillea*, *Pittosporum*, *Juniperus*, *Coprosma*, *Hypericum*, *Acer*, *Lantana*, *Michelia*, × *Cupressocyparis*, *Genista*, *Pyracantha*, and *Choisya*.

Liquidambar, *Eucalyptus*, *Arbutus*, *Pittosporum*, *Agathis*, *Casuarina*, *Araucaria* and *Sophora* have been produced from seed.

Seedlings and cuttings are normally tubed direct into a standard UC mix and either set directly outside or kept in shade for the first month or so to adjust to their new environment depending on plant type and weather conditions.