PROPAGATION AND PRODUCTION OF SELECTED PLANTS FOR AMENITY HORTICULTURE

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For discussion purposes herbaceous plants will be separated from woody plants, with herbaceous plant material treated first. These plants are used for planting on traffic islands, median strips, road verges, etc. and are produced in large quantities. The propagation and production methods have been developed over a period of years with the objective of producing a large quantity of plants in the shortest possible time at minimum costs.

Seed of *Agapanthus praecox* ssp. *orientalis* [syn. *A. orientalis*] is collected in April (autumn) as soon as the pods start opening. After some drying the seed is roughly cleaned by rubbing and sieving, then sown as soon as possible into trays in a normal seed raising medium. The sown trays are stacked on top of each other, about 15 trays high, with an empty tray on top, on the floor of a house heated to 20° ± 2°C. After 15 days the stack is reversed and any moisture loss corrected. The stack is inspected every second day thereafter with germination occurring usually 19 to 21 days from sowing. When germination is obvious the stack is opened out onto a bench or floor in the same house and the seedlings grown on until they are 50 to 60mm high. The first production runs are potted into 6cm square peat pots which will be bagged on into PB5's before Christmas, while the later runs will be potted into 8 cm square peat pots for direct planting into the field the following winter. A normal potting medium is used and any weed control necessary is achieved by using Roundup® at half normal spray strength. The selected clone is usually 100% blue with the shade always constant but up to 5% can be white-flowered. The percentage of white-flowered plants appears to vary from year to year without reason.

Agapanthus 'Peter Pan' is a small growing, sterile cultivar that has proved to be very useful because of the lack of unsightly seed heads and its dwarf habit. Because of the plant's sterility large quantities of stock plants have to be available when it is to be produced in bulk. It has been found that single plants grown in PB3's can be divided three times a year, more than doubling stock numbers at each division. They will usually flower within three months regardless of the time of year. The quickest method of division, particularly with bags containing large clumps of plant material, is to lay the plant on its side on the bench, cut off the lower half of the root system and discard it. The remaining medium can

easily be shaken off and the plantlets separated by hand. This method automatically prunes the root system ready for rebagging.

Hedera canariensis has some major advantages over most other plant material used for these types of plantings. When planted at nine plants to the square metre, after 12 months it suppresses all weed growth, does not harbour paper litter, deters dogs, and, if desired, can be pruned by traffic. The cheapest production method to date is to direct stick 15 to 20cm long stem cuttings of current season's growth into 6cm square peat pots prefilled with a moist, free-draining fertilised medium loaded into trays. The cuttings are made with a basal cut 10 to 15mm below a node with the bottom leaf removed. These are dibbled into the peat pots and firmed in without enough pressure to fracture the peat pots. They are then watered in and placed on a bench or floor of a fog house which is heated to 21° ± 1° C.

Because of the transpiration of the large leaf area, the fog is on all daylight hours at the rate of 4 min. "on", 3 min. "off". Depending on the time of the year, the rooting medium will need checking for moisture level every two or three days. The cuttings will be rooted in 18 to 24 days and then they are transferred to a drier atmosphere and cooler house for 5 to 7 days. From there they go to a shade house where they are held until required for planting. Liquid feed is applied as required. With the exception of the first 2 or 3 weeks of spring, when the growth is very soft, a crop can be produced easily every month. However, with cutting selection and fine tuning this time can be reduced to every three weeks. A rooting hormone or bottom heat are not required.

Arctotis acaulis, *Eriophyllum lanatum*, *Gazania* 'Tesco' and, to a lesser degree, *Thymus* species and cultivars comprise a group of plants that are all propagated and produced by the same method. Tip cuttings are taken 8 to 10cm long (4 to 6cm for *Thymus* spp.) approximately 6 weeks before they are required for planting. Any foliage that will be buried in the rooting medium is removed and the basal cut made with sharp scissors at the appropriate length. The resultant cuttings are processed in the same way as for *Hedera* but are placed on a bench in a Novaroof house that has a token amount of heating in cold weather. (The house gets quite cold, down to 7° C in winter; and quite hot, up to 28° C in summer). The trays of cuttings are given two waterings, one to compensate for the absorption of the peat pots and then covered with a light weight clear polythene sheet. The sheet is laid directly on top of the foliage and hangs approximately 20cm over the edge of the outside trays. After 5 days the sheet is removed for one hour each morning and moisture levels checked before being replaced. After 15 days the sheet is removed and after a further 7 days the trays are moved

to a hardening-off facility with a high light factor. Fourteen days later they should be exposed to the vagaries of the weather, ready to be planted out in one week's time.

The deciduous trees that are used for Parks and Reserves plantings that will be discussed fit into three groups for propagation and production methods. The first group consists of *Acer*, *Aesculus*, *Fraxinus*, *Ginkgo*, and *Quercus* species. Seed of these trees is harvested as soon as it is mature but not dry, then sown immediately. Individual seeds are sown into 5 or 7cm Rootrainer tubes and placed in a house heated to 24° ± 2° C. Germination is usually immediate from those seeds that are going to germinate without other treatment. Seedlings continue to grow through the winter and, in spring when the danger of frost is reduced, they are between 20 and 30 cm high. They are then hardened off and lined out into open ground. Any distorted roots are removed at planting, taking care not to bare root the plant. With adequate fertilisation and irrigation, rods or feathered rods up to 2m high can be obtained by winter.

The second group consists of *Metasequoia*, *Platanus*, *Populus*, *Prunus*, *Salix*, and *Taxodium*. These trees are grown from hardwood cuttings taken late in autumn and before total leaf drop. The cuttings are approximately 1cm thick and 25cm long of current season's growth with any remaining foliage removed. A clean square cut is made 5mm below a node and a sloping cut 5mm above the node nearest to the 25cm length.

The nursery soil is a free-draining, sandy loam that is fertilised and cultivated earlier in the autumn, then lightly compacted and raked smooth. Thin black polythene 1m wide is laid with sides and ends buried to a depth of 10cm and heeled to keep the sheet smooth and tight. Further sheets are laid parallel with a 40cm wide path between them. Holes are punched through the sheet 15cm in from each side of the sheet and, as the cuttings are made, they are inserted into the holes and firmed in. It is essential that as the first leaves appear they are kept watered, as stress at this time is fatal. A side dressing of fertiliser is applied mid-summer on the paths and watered in. No rooting hormone is used. Good plantable grades can be expected of most of the species by winter with care and attention.

The third group consists of *Almus*, *Betula*, and *Carpinus* species. Seed is again harvested as soon as it is mature and sown immediately. It is sown on the top of a normal medium in a very free draining tray (hygiene plastic trays), not covered, and placed on a bottom-heated (22° ± 1° C) intermittent mist bench running at 20 sec. "on", 20 min. "off" day and night. Seed germination takes place 12 to 15 days from sowing. Seven to ten days after germination the seed trays are removed from the mist bench and

grown on in a house heated to 24° ± 2° C for two to four weeks. During this time liquid fertiliser is applied each week. The required number of seedlings are then tubed into 5cm Rootrainer tubes and grown on through the winter in the same house. When the risk of frost has diminished they are hardened-off and lined-out in open ground 25cm apart with the rows at 40 cm spacing. Treatment from then on is the same as for the second group of trees (above) and the same grades can be expected. Normally these trees are transplanted during the winter for another season to improve the grades and to produce a more fibrous root system that will transplant better.

The evergreen trees used for these plantings, i.e. *Cryptomeria, Casuarina, Acacia* species, plus various endemic species are produced, at this stage, by the usual conventional methods.