

shoot balance. The method is commonly used in France and Italy and has been found to be extremely good in wind-prone areas, since the growth of the barbatelle *in situ* allows it to adapt to wind without the danger of wind throw.

Poplars for timber production are usually planted as 0/1 rooted cuttings, and equivalent specimens can be produced using the technique described here, provided a full season is available for growth prior to planting out. Production can be regulated so that rooted plantlets are potted up at the beginning of the growing season to ensure a supply of trees by the next winter.

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THE PROPAGATION OF DECIDUOUS AZALEAS

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One of the most important aspects of propagating deciduous azaleas is the preparation of the mother stock. As time is the overriding factor, it is advisable to have stock plants containerized to ease handling.

During October, we move the stock plants into a glasshouse which has a day temperature of 18°C and a minimum of 15°C night temperature. Fluorescent lights are used to extend the day length to 11 hours. The stock can be re-potted just before being moved into the glasshouse but we have found that care should be taken not to damage the fibrous root system as this can cause collapse of the young shoots as they are forced into growth. Possibly the safest way to topdress the container is with a nitrogenous fertilizer, such as Uramite, 4 to 5 weeks before bringing them into the glasshouse. To further stimulate growth all flower buds should be removed without damaging the vegetative buds immediately below them.

The stock plants, held under the conditions described, show signs of vegetative growth in approximately one week.

Once the buds have burst, growth is extremely rapid with sufficient material for cuttings being available in less than two weeks. If this sudden transformation from dormant to vegetative stage does not happen, look carefully at the day-length and temperature, as these both are critical.

At this early stage it is important that the root systems are healthy as the plants are being pushed hard to supply maximum growth. If the root systems are damaged through poor potting or soluble salts they will not be capable of supporting this growth. We have found that a mixture of 50% peat and 50% polystyrene is virtually impossible to overwater. The water is put on with a flooding nozzle until it is passing through the pot. It should also be remembered that the soluble salt concentration will be fairly high if the plants have been repotted or topdressed and even a small amount of drying will cause severe damage to the roots.

Growth on most cultivars quickly reaches 6 to 8 inches; it is at this stage that the shoots firm sufficiently to enable cuttings to be taken. Perhaps a better description of the growth would be "butter soft". If the wood is allowed to become too firm and reach a stage where it cracks when bent between thumb and forefinger the best stage has been passed and the cutting will take considerably longer to produce roots, if at all. I think that this judging of the correct time to take cuttings is the essence of the art of propagation.

When removing cuttings from stock plants we have found it advisable to retain at least two lateral buds, or new leaves, on the new growth, as it is from these buds that new shoots quickly develop. Once removed from the stock the cutting should be prepared and placed under mist without delay as desiccation is rapid.

We prepare the cuttings by leaving as much foliage as possible intact, removing only enough to give an adequate setting depth; the tip is not removed or the leaves reduced. A nodal cut is made and the cutting is wounded with a very sharp knife. The rooting substances usually used is Seradex 2. The cuttings are then set in a 50/50 peat, polystyrene mixture under mist with a base temperature of 20°C. The mist line should be checked to ensure that it is working correctly.

Rooting usually takes 3 to 4 weeks. The importance of correct wounding is obvious at this stage as without a wound the large fibrous root ball is often attached to the base of the cutting by a slender thread which is easily broken in the process of potting or lifting. Perhaps one way of overcoming this would be to root the cutting in a small peat pot or Jiffy container.

Once rooted we then tray up the young plants in a peat, polystyrene mix with nutrients added. The trays are then

placed under a weaning mist in a glasshouse to encourage the development of new growth. Anything that can be done to reduce handling of stock at this stage is advantageous, because if the young plants do not produce new growth before the onset of longer nights they usually fail to break the following spring. Once daylight hours drop below 11 hours per day young plants which have not developed new growth must be placed under lights. The temperature must also be carefully monitored at this stage, bearing in mind the maximum, minimums given earlier.

When new top growth and root systems have been developed, the trays can be moved out into shade houses for overwintering. Theoretically, it is possible to keep the plants in active growth through the winter months, thus producing cuttings throughout the year. This does work, but thought has to be given to supplying daylight extension to the propagating area.

If the plants are kept in full growth throughout the winter months, we have found that it's better not to move them out until November, to ensure that they stay in vegetative growth. If they are moved out earlier than this they can go into a dormant stage and stay this way until next spring. This poses another interesting question. Once dormancy has started can it only be broken after a pre-determined period of cool temperatures?

An alternative method of propagation is by seed. Seed capsules can be harvested during August or September and the seeds sown on a medium of peat and sieved sphagnum moss. We add a small amount of fertilizer to our seed mix to encourage maximum growth before pricking out. The trays are covered with a sheet of glass and placed in a heated frame which has a base temperature of 20°C. Seeds of most cultivars germinate readily, although the orange and yellow types are, by far the most prolific. Seeds of reds tend to be shy in germinating.

The glass is removed immediately after seed germination but heat can still be applied to encourage growth. Once a fibrous root system has been formed, the young seedlings can be pricked out into pots or trays. As much growth as possible should be encouraged over the summer months to help the young plants survive the winter months. Light extension could be used to promote growth throughout the first winter if good growth has not been made over the summer.