

factor is more than equalled by time taken to strip the cuttings. It depends on composts; I used peat blocks which hold cuttings well, but there is possibly a problem with peat/perlite composts.

I concluded that one need not strip small leaves, but big leaves must be stripped if there is a problem of insertion.

(3) "Wounding aids rooting."

Most cuttings root quite well from the base. Others will root from nodes either when the leaves are still present, e.g. *Viburnum tinus*, or when the leaves have decayed, e.g. *Pernettya mucronata*. Maybe wounds will allow pathogens to enter and accelerate decay. I found *Elaeagnus pungens* 'Maculata' rooted better when not stripped. An exception was *Hebe rakaiensis*, which rooted mostly from leafless nodes.

My reasons for not stripping:

Time saved — it is possible to miss out an operation. Cuttings of the required length can be removed from the stock plant and dipped in a hormone and inserted. Time in the preparation shed is avoided.

Discomfort avoided — prickly species such as *Berberis* and *Pyracantha* are painful to handle, so the less handling the better. Less time is wasted examining wounds.

Better aeration around the stem — a bigger hole is made when cuttings are inserted with leaves, and the compost is propped open allowing more oxygen at the base for rooting. Examples are spring struck *Ceanothus*, heather, *Pernettya*, *Berberis*, and *Viburnum tinus*.

Conclusions. Do a pilot test before embarking on anything, because nature is so variable.

Consider the characteristics of the plant; i.e. susceptibility to decay, size of leaves, rooting habits, thorniness, ease of stripping with a knife or fingers.

STUDIES IN THE PROPAGATION OF CERTAIN DECIDUOUS ORNAMENTALS BY HARDWOOD CUTTINGS

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The object of my project was to compare the effects of different rooting composts and rooting hormone treatments for *Acer palmatum* 'Osakazuki', *Hibiscus syriacus* 'Woodbridge', and *Magnolia* × *soulangiana*.

MATERIALS AND METHODS

Preparation of cuttings. The first batch of cuttings was collected in January and a second in February. All the cuttings were collected from stock plants grown in the outside border soil. The cuttings were cut into 150 mm lengths of pencil thickness and the base of the cutting cut to a node of the previous year's wood. They were divided into basal and non-basal groups and wounded by splitting the base of the cutting to a depth of approximately 2.5 cm. Hormone treatments were applied.

Because of the length of the cuttings and the small number of individual treatments, I used 125 mm 'Long Tom' plastic pots as these hold a reasonable depth of compost to support the cuttings. I inserted 10 cuttings per pot around the edge and in the centre. After insertion, pots were placed on a heated bench with a constant basal temperature of 18°C.

Compost. Peat and perlite 2:1 }
 Perlite and grit 2:1 } by volume

Drainage of the compost is very important and the media should feel almost dry to the touch; at no time during the trial did I water the compost. The porosity of the compost materials was chosen deliberately as they are free draining; this allows for a better supply of oxygen to the base of the cutting which aids in the production of callus.

After insertion, cuttings were not watered-in as compost was prepared to the right moisture levels. The basal substrate on the heated bench was kept well watered, but there was no mist.

Hormones.

- 1) Indolebutyric acid (IBA) at 2500 ppm 5-second, quick-dip. The dip is to the top of the wound and then the cutting is placed on blotting paper for 15 to 30 minutes to remove excess liquid.
- 2) Acetone and Seradix No. 3 (0.8% IBA). To obtain maximum response from the powder preparation the cutting bases were wetted with 50% acetone and the excess shaken off before coating with powder.

RESULTS

Acer palmatum 'Osakazuki'

The trial looked to be fairly promising in the early stages after insertion, but because of over-caution on my part (not watering the media from above), the cuttings that had callused and rooted died from the dryness of the compost.

When knocking out the cuttings on the 21st April, the compost of the first batch was very dry and all the cuttings were dead. Most of the cuttings of the second batch inserted on 4 February had broken into leaf in the first week of April. All of the cuttings that had rooted later died due to lack of water. The best medium, as indicated by results, was perlite and grit, using the 50% acetone/Seradix No 3 rooting hormone.

Hibiscus syriacus

Although some cuttings had rooted in the control it was observed that the delicate balance between shoot growth and root development indicated that the majority of the unrooted cuttings may well have run out of stored food, as the shoot growth was rapid. It would, therefore, seem that the use of rooting hormones on hardwood cuttings of *Hibiscus syriacus* cvs. is very beneficial if roots are to be produced well before shoot development.

The 2500 ppm IBA five-second dip treatment was found quick and easy to use and generally produced a good rooting response in both composts. It was observed that Seradix No 3 talc formulation seemed to attract too much moisture at the base of the cuttings. It was thought that this may have been one of the contributing reasons why so many cuttings in this treatment showed basal decay.

Magnolia × soulangiana

The trial has shown that the rooting of *Magnolia × soulangiana* by hardwood cuttings is not impossible but, unexpectedly, the two cuttings which rooted were of non-basal material.

Most of the cuttings were found to be dead when they were removed for potting off. The peat and perlite compost was dry to the touch in most cases, contrasting with the perlite and grit compost which remained moist, probably because of the compatible capillary action between the compost and the basal substrate.

Conclusions. Because of the poor rooting results, it is difficult to come to any definite conclusions regarding treatments for *Magnolia × soulangiana* and *Acer palmatum* 'Osakazuki'. Rooting of *Hibiscus syriacus* was improved with the use of rooting hormones, regardless of compost used.