

## PROPAGATION OF GREVILLEA HYBRIDS

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We grow about ten kinds of *Grevillea* in our nursery, and they include 'Robyn Gordon', 'Sandra Gordon', × *gaudichaudii*, and 'Royal Mantle'.

The methods used to grow these plants in our nursery have resulted from many trials focusing on different aspects of their propagation. These include stock plants, types of cuttings, hygiene, hormones, rooting media, potting up procedures, environmental conditions, and nutrition of the cuttings.

We are constantly looking to improve the growing conditions for the cuttings, and to fine tune the whole propagation process.

The propagation factors to be considered are:—

**Stockplants.** Stockplant gardens were established at the nursery to ensure good quality cutting material, free from disease and insects. These gardens supply about 80% of our cutting material, and the remaining 20% is gained from private gardens and nursery container stock. Cutting material can be taken from the stock garden throughout the year, although there is little growth during the winter as there are many frosts. Because of the frosts we like to have all the cutting material taken off the plants in autumn. Any cutting material needed during winter comes from container stock or garden plants which are not affected by frosts.

It is most important to have all stock plants free from disease, especially fungal disease and insect pests.

**Cuttings.** Cuttings taken from the stockplants are immediately taken into the propagation shed, where they are thoroughly washed in a sodium hypochlorite solution. They are then rinsed in running water and placed on the propagation bench.

Cuttings are made up in two ways. The first is with a node at the bottom, scarred, and a node with one bud and one leaf at the top. The second is with one node at the bottom, and two nodes, two buds and two leaves at the top. Half the leaf blade is removed as the leaves can be quite large.

Once the cuttings have been made, they are kept moist by covering with wet paper while they are on the bench. At no time should they be put under any excess stress from drying out or heat. On very hot or windy days we take smaller batches of cutting material throughout the day to ensure they can be processed and put under the mist quickly to avoid stress damage. If any cuttings are left at the end of the day they are held over night in the cold room or refrigerator.

**Hygiene.** We cannot stress too highly the importance of good hygiene practices and comfortable conditions in the propagation

area. The entire propagation shed is washed with sodium hypochlorite and the benches are washed and the rubbish from making the cuttings and general work is removed each day. The propagation shed is fully lined to help protect the cuttings on hot and cold days, also for staff comfort. The floor is concrete and fully drained to the outside of the building. Soil used for striking cuttings and for tubing is kept separate from the benches used for making cuttings.

**Hormones.** Hormone powder is applied to the base of the cuttings, and the strength varies from 3g of IBA per kg to 20g of IBA per kg, but more work has to be done to determine the optimum strength.

**Media.** The cuttings are dibbled into single cell containers. There are 48 cells in a large sheet which fits into a standard 30 cm × 26 cm seedling tray. The medium used is a mixture of three parts clean coarse sand and one part peatmoss.

**Environmental conditions.** Glasshouse conditions for striking the cuttings are tuned to those which avoid stressing the cuttings. Misting is kept quite high until callusing has occurred, and then they are gradually weaned off the mist. This process can be quite tricky as too much moisture causes the cuttings to decay, and not enough causes growth to stop and can even cause death.

The propagation benches have bottom heat, using hot water circulating in pipes in the sand on the benches. This is the only form of heating in the houses and works quite satisfactorily even when the outside temperatures drop as low as  $-2$  to  $-3^{\circ}\text{C}$  on some nights. Using this method, high bottom heat can be applied to achieve speedy root growth.

Ventilation and air circulation are essential aspects of our growing house management. Because the air in the house is not heated we can afford to have a higher roof and this helps greatly in cooling and ventilation.

To avoid fungal infection in the house we have a preventative spraying program, using a combination of two fungicides to give a broad spectrum control. All water used in the nursery is chlorinated using chlorine gas.

**Fertilizing.** After the cuttings have callused well and the misting is off a program of liquid feeding is commenced. The cuttings are fertilized while still on the bottom heat until they have produced roots. They are then moved to a shadehouse with 50% shade until they have developed enough to be potted-on. The liquid fertilizing is continued during this time as well.

In the summer months the cuttings take approximately 4 to 8 weeks to get to the potting-on stage. The strike rate for most of the grevilleas is between 70% and 80%, depending on the cultivar being grown. In the cooler months the cuttings take longer—from 8 to 12 weeks depending on the season.