

CUTTING PROPAGATION OF RHODODENDRONS

WALTER P. MILLER

Fleming Road
Ngongotaha

There are several different methods used in the production of rhododendrons, but each propagator has his own particular method. Ted Van Veen in Oregon, U.S.A. is right when he says "rhododendron propagation conceals many mysteries — most successful one year and poor performance the next. The mysterious something has yet to be discovered in order to produce dependably successful rooting."

This genus is one of the most complex of plant life, with literally hundreds of different species and thousands of hybrids available today. The range of plant material is still increasing as hybridisers continue their work for superior quality in flower colour, leaf texture, and hardiness.

The rooting ability of the cultivar is of paramount importance to nursery management and many hard-to-root cultivars have been completely dropped from production lines in favour of those more easily rooted. This has resulted in many excellent ones being unavailable to the general public through local garden centres, and possibly available only through specialist retail growers.

Before considering whether or not to take cuttings of an individual clone, it is sometimes wise to have a knowledge of its parentage. This information can be valuable in assessing if the cultivar should root easily, or if any difficulty in rooting can be expected, e.g. *Rhododendron* × *loderi* 'Fairylend'. The parents of *R. loderi* are *R. griffithianum* × *R. fortunei*. Both of the parents are difficult to root from cuttings so, therefore, it stands to reason that the offspring could also prove difficult to root. There are always exceptions to this rule, but it does give a reasonable guide.

With modern equipment and rooting aids, it is now possible to root many more cultivars than was thought possible a few years ago.

A great deal of work at the present time is being done in tissue culture of rhododendrons and many kinds are now being propagated by this method. There are however, many that have not been tried and some which have been tried but without success.

I feel there will always be demand for conventional methods of cutting propagation as the cost of establishing a good tissue culture laboratory is high and a great deal more work

still remains to be done in this field.

Propagation House. Our propagation houses consist of two Durolite tunnel houses 10 m × 5 m. The interior of the houses is designed with various bench pits and cuttings are set straight into the medium. Our propagation pits have Pyrotenax heating cables in them and an overhead mist system is provided.

Rooting Medium. Over the years different rooting media have been tested, with varying degrees of success. The medium we use at the present time consists of 50% peat and 50% recycled polystyrene beads (coarse grade). The medium must have adequate aeration and be retentive of water. The peat/polystyrene mix very adequately fulfils these two essential requirements. Poor aeration and water-logged media will result in a total crop failure. These two points cannot be more strongly emphasized.

Coarse sawdust is another excellent medium that gives very good results.

Environmental Factors. There are definite relationships among moisture, light, and temperature; failure to provide a balance on these points will ultimately affect the rooting percentage of the cuttings.

We have found that far better results will be achieved if a minimum of moisture is applied to the foliage. Misting to the point of "run-off" should be avoided. In our experience we have had more crop failures by over watering than by any other reason. Likewise, insufficient moisture can cause stress. Leaves will curl, stems may shrivel, and ultimate death of the crop will occur.

Maximum light intensity (without causing burn) is also essential for good results and, in association with high humidity, rooting of most cultivars occurs within two or three months.

Timing, Collecting and Selection of Cutting Material. Cuttings are taken at a half-ripe stage. Here in Rotorua we commence in mid-November (late spring) and continue through until March or April (autumn). The large-leaf and some of the dwarf cultivars usually start growth early in the season and therefore cutting material is ready in early summer (November/December). Never take cuttings too soft. It is better to err on the hard side rather on the soft. If taken too soft, cuttings are susceptible to hormone burn or fungus infection.

We collect cutting material early in the morning when they are turgid and still have a coating of dew on them. Only enough cuttings are collected for the day's activities. These are

immediately placed into polythene bags to prevent dehydration (particularly during the warmer months). Care should be taken in the handling of the cuttings — too much material placed into one bag should be avoided as this can cause bruising of the foliage.

Thin to medium thickness cuttings, 4 to 6mm diameter are ideal. These cuttings usually root readily as opposed to the thicker and much harder material. Juvenile cuttings are much superior to older material and where possible these should be used. Cuttings taken from young, one to two year old plants make ideal material but care should be taken not to destroy the balance and shape of the plant.

Cutting Preparation. Cuttings are made to 4 in. long, the basal leaves removed, and the remaining leaves shortened back where necessary. The terminal bud is also removed. As soon as the cuttings have been trimmed they are immediately dipped in a Captan/Benlate solution, allowed to drain for a few minutes and then commencement and preparation of the base is carried out.

The base of the cutting receives a straight, clean cut immediately below the selected node. A double heavy wound is also given. Wounding should just expose the cambium and care must be taken not to cut too deeply into the heart wood. Wounding too deeply can sometimes lead to basal rot and ultimate death of the cutting.

Rooting Hormones. For most rhododendron hybrids we now use a standard 2% indolebutyric acid (IBA) concentrate in talc. This is suitable for 90% of the cultivars propagated. For small-leaved cultivars, e. g. 'Mary Fleming', or soft-leaved cultivars we use Seradix 3 (or 0.08 IBA).

Care should be taken when rooting some of the yellow-flowered cultivars, as these seem to be more susceptible to hormone burn.

Cutting Insertion and After Care. As soon as the cuttings have been wounded they are immediately dipped into the appropriate rooting hormone. Any surplus hormone is tapped off. Then the cuttings are then ready to set.

Cuttings are inserted directly into the medium to a depth of about ½ in., each cutting being gently firmed in. They can be placed reasonably close together but it is advisable to allow some air movement to occur among cuttings. If this is not allowed, then risk of disease may increase. After the cuttings have been set they are watered in with a solution of Benlate/Previcur. During the rooting process the medium is kept at a temperature of approximately 23° C. The cuttings should be checked regularly for dry spots, blocked nozzles, or disease.

Any dropped leaves should be removed immediately and a regular spraying programme should be adopted.

Spray Programme. An effective spray programme is necessary for good management and cleanliness within the propagation house is essential.

We spray at 2 to 3 week intervals alternating Benlate, Previcur, and Captan. Occasionally we will apply an insecticide to guard against leaf roller or thrips.

Potting Of Rooted Cuttings. Cuttings should be lifted from the medium when a sufficient root ball has developed. Care in the lifting procedure is essential; insufficient care can result in the whole root ball dropping off. The rooted cuttings are potted into 7 cm square propagation tubes and then placed back in the mist house on open benches for weaning. Young plants remain in the weaning house for 2 to 3 weeks until new roots develop. They are then transferred to the shade house for hardening off.

Black Vine Weevil. Because of our extremely light soil the number one enemy of rhododendron production in Rotorua is the black vine weevil and great care should be taken to avoid getting the pest into the propagation medium or potting mix. The grubs, (similar to grass grub) are root feeders and will devour practically all of the roots of the young plants. The eggs are deposited in the soil during late summer (January/February), hatch into larvae which feed on the roots, but they also chew off the bark just above the below soil level. The result is ring barking which, as everyone knows, is fatal for any plant. Black vine weevil is very difficult to eradicate and requires the use of a potent chemical for good control of the pest. An application of Dieldrin as a soil drench to the young plants is given after they have been transferred into the shade house for hardening off (January - April).

CONCLUSION

Every propagator has his own method. The information given above is only one of these methods. I trust this may be of assistance to someone who may be experiencing difficulty in this field. There still remains a vast amount of knowledge to be learned. Many rhododendrons are still very difficult to root, e. g. R. 'Lems Cameo', but with time and effort, an acceptable rooting percentage of these difficult-to-root rhododendrons can be achieved.