

# PROPAGATING RHODODENDRON YAKUSHIMANUM BY CUTTING-GRAFTS

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Some cultivars are particular difficult to root from cuttings and we therefore have to look at alternative methods of propagation. This paper will discuss the "cutting-graft technique" which we have successfully used for rhododendrons.

The species with which we have done most work is *Rhododendron yakusimanum*, which forms a compact, dome-shaped bush up to about 1.2 metre high and the same across. The young growths are silvery, and the mature leaves are dark green above with a brown indumentum underneath. It flowers prolifically in a compact truss, rose-coloured in bud, opening pink, and maturing to white. This species is only found in the wild on the wet and windy mountains of Yakushima Island, Japan. It was introduced to the United Kingdom in 1934 and has become a very desirable plant.

Our first attempts at propagation were from cuttings. Cuttings were prepared in the usual way, wounded, and treated with a hormone rooting powder and then stuck in seed trays containing a peat/sand mixture. It was unusual to find roots being produced, although even after 12 months the cuttings were in good condition. The few cuttings which rooted tended to grow very slowly. This led to the consideration of other methods of propagation, one of which is the cutting-graft technique.

A graft is made when a piece of living tissue (a scion) is transplanted into a slit on another plant (the stock) so that the scion can get sap from the stock and a union is eventually produced.

A cutting-graft is exactly what it says. A scion is grafted onto an unrooted cutting which is then stuck as usual into compost in a tray. This is a different method from that used to graft a scion onto a root.

## METHODS AND MATERIALS

The materials required are understocks, scions, grafting tape, and seed trays filled with compost. In addition a sharp knife is required.

The understocks used can be of any *Rhododendron* which is compatible with *R. yakusimanum* and which is easy to root. Cultivars found to be suitable are 'Cunningham's White', 'Christmas Cheer', and *R. ponticum*. There may be a preference to use *R. ponticum* because it is more readily available and the variety diameter of the stock material makes it easy to match with the scions.

Scion material is in short supply and therefore every piece of the current year's growth is used. The ideal size for understock and

scion is pencil thickness.

A piece of understock material about four in. long is selected and all the leaves, apart from two at the top, are removed. If the top of the shoot is used, the apex (or growing tip) is removed. Any buds on the stem of the cutting below the two leaves are now removed with a sharp knife. This is done by making a small angled cut above and below the bud in a v-shape, with the result that the bud drops away. The base of the cutting is then wounded in the normal way.

The top of the cutting is then prepared to accept the scion. A side veneer graft is normally used and the first step is to make an incision about 1-in. long in the side of the cutting, starting immediately above the lower of the two leaves at a 20° angle. A second cut is then made, starting  $\frac{1}{3}$  to  $\frac{1}{2}$  in. higher up the stem at a 15° angle to meet the first cut at its bottom end. A very thin wedge of the stock is therefore removed, exposing as much cambium as possible and making it easy to insert the scion.

A suitable scion about the same thickness as the understock is then selected. Two cuts are made at the base of the scion of the same length as the cuts on the understock. The cuts are made at slightly greater angles than on the understock so as to form a tapered wedge when compared to the understock.

The scion is then inserted into the understock in such a position that the cambium layers of the stock and the scion are in contact. The graft is then tied to hold the two parts together. Tape is used to wrap around the stem of the understock, care being taken to avoid tying too tightly and leaving small gaps between each wrap around the stem. It is also possible to use the saddle or inverted saddle graft.

To finish the preparation of the cutting-graft, the leaves of either the stock or scion may be reduced in size to decrease transpiration and overcrowding in the seed trays. The cutting-graft is now inserted in a seed tray filled with a mixture made up of three parts sand and one part peat. A rooting hormone is used, made up of equal parts of Seradix No. 3 and Captan; 40 cuttings are inserted in each tray.

The seed trays are placed on the propagation bench with bottom heat at about 18°C. They are only slightly watered-in and then covered with thin gauge polythene making sure the polythene goes down the side of the trays so that high humidity is maintained. The polythene is removed at least every other day when trays are checked for drying-out and any debris is removed. The propagation bench is watered once a week to make sure that high humidity is maintained under the polythene. Care has to be taken to shade the cuttings in sunny weather to avoid scorching. Pests and diseases are controlled by our routine glasshouse spraying programme and no special problems are experienced.

During the last two years propagation has been carried out in

the fog unit, thereby eliminating the need to use polythene. The amount of work involved in looking after the cuttings is then much reduced and results have been very satisfactory.

When the cuttings are rooted they are weaned prior to potting. After emptying the cutting tray, the two leaves and buds which were left at the top of the cutting are removed. The two cuts which were made on the stock are painted with Arbrex, and the tie taken off. Any buds which may have been left when the cutting was made, or which have subsequently formed, are also cut away. The cuttings are then potted using a lime-free compost or they can be planted into beds.

Depending on the season, grafting is done either during September or in early October. Cuttings are rooted by about the end of February, although they are not potted until July, which fits in with our programme on the nursery.

Compared to grafting onto *R. ponricum* seedlings as understocks, the main disadvantages of the cutting-graft method are that it is a little slower to produce a finished plant, and that sometimes the understock does not root for some reason.

The main advantages are that less space is required for propagation, it is a very clean technique, and the cuttings are easy to handle. In addition, there is a larger choice of understock material and timing is not quite so critical when compared to using seedlings as the understock.

## CONCLUSIONS

So long as the graft is executed carefully and the cambium layers are lined-up properly, there are very few problems with this method. Because *Rhododendron ponticum* roots easily, it has proved to be a useful technique, with success rates in excess of 70%.

This method can also be used to propagate other *Rhododendron* cultivars and for *Camellia reticulata* cultivars, which are difficult to root.