

# AN UNORTHODOX METHOD OF ROOTING RIPE CUTTINGS OF PROTEACEOUS PLANTS IN THE OPEN

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As my nursery is basically all open ground production, I like to be able to produce — even at the propagating stage — material which will virtually look after itself, at least for reasonable periods. After having watched successive crops of proteas suffer under glass I have come to realise it is not heat they require so much as cool foliage conditions. Winter is the time when rooting occurs — not summer or early autumn.

Consequently, planting in my nursery takes place in early winter (from April to July), although if the cutting is still ripe and not showing any signs of movement, rooting can still take place very satisfactorily and very quickly as late as August and early spring. In fact it has been found that rooting generally occurs better at either end of the season than in mid-winter.

We make up open ground beds of volcanic clay loam sub-soil which contains a fair amount of sand and has a low pH. The beds are 3' wide and the sub-soil is compacted somewhat before being covered with black polythene. In my opinion, compacting the medium leads to the formation of roots rather than callus.

Cuttings are made from firm wood with both tip and stem cuttings appearing to root equally well. I prefer the tip cutting because it gives a better shaped plant. Protea cuttings are dipped in Seradix (2 or 3) hormone but on *Leucadendrons* spp. Seradix 2 is sufficient as they burn very easily, particularly the finer leaved species such as *L. adscendens*. *L. decorum* is an exception to this appearing to require a stronger hormone, Seradix 3 giving good results. *Leucospermum bolusii* types require a strong hormone — Seradix 3 — but with other types it depends on the firmness of the wood.

Cuttings are inserted through the polythene using a dibble board to make the holes. Spacing is not critical and a large number can be grown in a very small area. We have 2" spacing between rows, with a wider space after every third row for ease in lifting. Under our climatic conditions no watering or shading is necessary but this would not be suitable in frosty areas when some means of overcoming the frost would need to be evolved. The cuttings are left virtually untended for 12 months and I feel this aging process is essential for safe transplanting and subsequent growth, particularly with proteas. Protea rooting percentages vary from 90 to 100% for the smaller leaved species, such as *P. neriifolia* and *P. longiflora*, but some of the more difficult ones,

e.g. *P. barbiger*, seldom exceed 70%. Most types of leucadendron root 90 to 100% and leucospermum approximately 70%.

For the future I feel that if a suitable soil type could be found these plants could be grown from cuttings placed directly into the nursery row through polythene. The obvious advantages of this would be the time and labour saved plus the bonus of having saleable plants in 12-18 months.

## **A POSSIBLE MEANS OF ATTAINING AND MAINTAINING VIRUS-FREE DAPHNE ODORA CULTIVARS WITHIN SIMPLE NURSERY PRACTICE**

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We have grown daphne for many years but it wasn't until fairly recently that Dr. Ken Milne from Massey University pointed out that our plants were virtually virus-free. Dr. Milne has been working on the incidence of viruses on daphne in New Zealand and has collected samples from a wide source.

I knew our stock looked quite clean but thought the presence of viruses, e.g. cucumber mosaic were masked. We have no leaf drop in the propagation pit at all; leaf drop is quite apparent in virus-infected plants. Similarly, saleable infected plants tend to drop leaves shortly after being balled-up — here again we have no problems. How we achieved such clean stock is a bit of a puzzle but I have a few thoughts on the matter which I would like to expound.

Rogueing and burning of any plants immediately any visible signs of virus occur is important and we have been quite meticulous about this over the last ten years, now finding only 20 to 30 infected plants in a batch of 5,000. Control of aphids is of utmost importance and this also means weed control.

Propagation of daphne cuttings at high temperatures is reputed to kill the virus. We achieve this by propagating in the pit, closed down under polythene. The fact that viruses are eliminated seems to be borne out; how else could we have started originally with virus infected stock and ended up with relatively clean material?

I feel that our fertiliser programme assists in keeping the stock clean so we commence fertilization immediately the cuttings are rooted and tubed up. The phosphate and Uramite added at this stage produce healthy dark green plants which are planted out in