

3. Brickell, C. D. and B. Matthew, 1976. *Daphne: the Genus in Wild and in Cultivation*. Alpine Garden Society.
4. Harrison-Murray, R. S. 1981. Etiolation of stock plants for improved rooting of cuttings, I. Opportunities suggested by work with apple. *Proc. Inter. Plant. Soc.* 31:386-391
5. Kawase, M. and H. Matsui. 1980. The role of auxin in root primordia formation in etiolated red kidney bean stems. *Jour. Am. Soc. Hort. Sci.* 105:898-902
6. Lloyd, G. and B. McCown. 1981. Commercially feasible micropropagation of Mountain Laurel *Kalmia latifolia* by use of shoot tip culture. *Proc. Inter. Plant. Prop. Soc.* 31:421
7. Norton, M. E. and A. A. Boe. 1982. In vitro propagation of ornamental roseaceous plants. *HortScience* 106:127-130
8. Rowell, D. J. 1981. Etiolation of stockplants for the improved rooting of cuttings. II. Initial experience with hardy ornamental nursery stock. *Proc. Inter. Plant. Prop. Soc.* 31:391-396
9. Welander, M. 1983. In vitro rooting of the apple rootstock M26 in adult and juvenile growth phases and acclimatization of the plantlets. *Physiol. Plant.* 58:231-238
10. Zimmerman, R. H. and I. Fordham. 1985. A simplified method for rooting apple cultivars. *Jour. Am. Soc. Hort. Sci.* 110:34-38

CONTAINER COMPOST pH AND ITS EFFECT ON PLANT GROWTH

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An experimental trial was set up using seven cultivars, each in a different genus. One was an Ericaceous plant. Each of the cultivars was potted into four composts which had varying amounts of dolomitic limestone added to them, except the Ericaceous plants which were potted into only three composts, and with the addition of dolomitic limestone not being at such great extremes.

From the six cultivars used in the trial, quite remarkable differences in growth rates appeared due to varying the amount of dolomitic limestone added to the compost. With this indicating that the compost's pH is critical in obtaining maximum plant growth, pH control can also be used for restricting growth.

With the one Ericaceous cultivar, no difference in growth rates were noticeable, as the addition of dolomitic limestone to the three trial composts was not at great enough extremes to appreciably alter the pH.

The seven cultivars that were used were:

Viburnum tinus 'Eve Price'

Berberis thunbergii 'Atropurpurea Nana'

Ilex aquifolium 'Argenteo-marginata'

Cytisus × *praecox* 'Allgold'

Cistus 'Silver Pink'

Euonymus fortunei 'Emerald Gaiety'

Rhododendron 'Scarlet Wonder' (Ericaceous plant)

Two hundred plants of each cultivar were used except for *Berberis thunbergii* 'Atropurpurea Nana' where 400 were used, as half were grown under protection of a polytunnel. Only 150 *Rhododendron* 'Scarlet Wonder' plants were used as these were potted into only three trial composts.

The plants were potted on 30 and 31 March, 1985 into 3 litre pots, each of which was colour coded with a coloured dot to relate to the rate of dolomitic limestone in each compost. The compost mix consisted of:

300 litres of Vapo peat

20% of 5mm grit

3 lb of Ficote 140-day 16:10:10

3 oz Fritted trace elements

1 lb Aldrin dust

Dolomitic limestone at 225g (8 oz); 450g (1 lb); 675g (1 lb 8 oz); 900g (2 lb); and for the rhododendron 6 oz, 8 oz, and 10 oz.

Fifty plants of each cultivar were potted into each compost mix. The potting was followed by the standing down where the plants were placed in such a pattern as to give all plants a fair trial and prevent one compost from being in a drier or more exposed position than the others.

Once the plants had all been potted and placed in position, they were left to grow as in a typical situation, except that they were not treated with herbicides, as these would affect the pH of the compost.

The plants were left to grow on in their situation and were monitored at monthly intervals from potting. Recording of pH readings of the compost and also visual differences in growth were taken. The plants growing outside were monitored for a twelve month period as were those under protection but for 7 months (from March, 1985 to October, 1985).

The results of the monthly monitored pH levels are shown in Table 1. The results of the plants' performance are:

Viburnum tinus 'Eve Price'. The best plants were achieved from the liners growing in the 1 lb, 8 oz (675g) of dolomitic limestone compost mix, forming evenly dense plants with good flower bud initiation.

Berberis thunbergii 'Atropurpurea Nana'. The best plants were

Table 1. Results of monthly monitored pH

Rate of added dolomitic lime	1985					1986						
	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
8 oz	3.8	4.3	4.2	4.0	4.2	4.2	4.6	4.8	4.6	4.8	5.0	4.9
1 lb	4.3	5.0	5.0	4.4	5.0	5.2	4.8	5.0	5.0	5.4	5.8	5.6
1 lb 8 oz	5.0	5.5	5.5	5.1	5.4	6.2	5.4	6.2	5.4	5.9	6.4	6.2
2 lb	5.5	6.1	6.0	5.5	5.8	6.6	6.4	6.1	6.5	6.0	6.6	6.7
							Outside					
8 oz	3.8	4.3	4.1	3.9	4.2	4.6	4.6	4.7	—	—	—	—
1 lb	4.3	5.0	5.0	5.0	5.1	5.6	5.2	6.0	—	—	—	—
1 lb 8 oz	5.0	5.6	5.4	5.4	5.5	6.4	5.7	5.8	—	—	—	—
2 lb	5.5	6.5	6.2	5.8	6.0	6.6	6.5	5.9	—	—	—	—
							Under Protection					
6 oz	3.9	4.1	4.0	4.2	4.2	4.2	4.1	4.1	4.6	4.5	4.7	4.8
8 oz	4.1	4.2	3.9	4.4	4.5	4.5	4.4	4.1	4.8	4.6	4.9	4.8
10 oz	3.9	4.3	4.2	4.5	4.7	4.8	4.6	4.1	4.9	4.9	5.0	4.9
							Ericaceous Plant					

achieved from the liners growing in the 1 lb (450g) dolomitic limestone compost mix and also the same for those under protection, but better plants developed all round.

Ilex aquifolium 'Argenteo-marginata'. The best plants were achieved from the liners growing in the 1 lb (450g) dolomitic lime compost mix, producing an extra flush of growth.

Cytisus × *praecox* 'Allgold'. Maximum plant growth was achieved with the 1 lb (450g), but the 8 oz (225g) compost produced compact plants with better flower bud development and early flowering.

Cistus 'Silver Pink'. The amount of lime in the compost did not seem to make any dramatic differences with the 1 lb (450g) compost, producing a slightly larger plant.

Euonymus fortunei 'Emerald Gaiety'. Poor growth was obtained from the 8 oz (225g) compost, with the 1 lb (450g), 1 lb 8 oz (675g), and 2 lb (900g) producing acceptable plants showing no differences.

Rhododendron 'Scarlet Wonder'. The variations in the amount of lime added to the three composts for the rhododendrons, were not at great enough extremes to show any variation in plant growth.

From the experimental trials it is indicated that plant growth can be promoted or reduced according to the amount of lime used. The pH of the compost can be maintained to an optimum for the required plant growth by nitric acid injection into irrigation water.