

PROPAGATION: OLD, NEW, UNUSUAL: WITHOUT HORMONES, HEAT, OR MIST

EDWARD S. CARMAN

*Carman's Nursery
16201 E. Mozart Avenue
Los Gatos, California 95032*

Our nursery was started by my father in 1937 as I entered high school. We grew bedding plants in wood flats using a sandy loam, leaf mold, and manure as a soil mix. After World War II, I became a partner with my father and a small general nursery evolved. In addition to annuals and perennials we grew ground covers and many of the common shrubs. Clay pots were still in general use for 6 in. and smaller material. Many trees were still field-grown and dug balled and burlapped (B & B) for sales to nurseries. This was about the time that nurseries began using discarded gallon cans from the canneries in the area as containers for nursery plants. Also about this time redwood sawdust came into general use for soil mixes. We were one of the first in the area to grow an assortment of perennial herbs in 3 in. clay pots which were sold with 5 or 6 cultivars to a flat.

In the late 1960's I became sole owner and in 1970 we moved our house and nursery 1½ miles to our present location on one acre. Here we specialize in perennials, rock garden plants, bonsai material, herbs, and other unusual items not seen in most garden centers. My wife does all of the bookkeeping. Our daughter works for us three days a week making most of the cuttings, potting-up, and much of the watering. We generally have a high school student after school to weed and clean up.

We have a 15 x 30 ft. glass propagation house, a 20 x 40 ft. plastic house, and saran cover for the small pot material and shade plants. Most plants are sold in 2, 3, and 4 in. pots and in #1 containers. The #1's are in the open and watered by Rainbird sprinklers on a timer. We also have overhead sprinklers on the benches of small pots that are hand operated. Our basic soil mix is 60% redwood sawdust, 20% sand, and 20% loam, mixed in a small concrete mixer. All containers 4 in. and up are top-dressed with Osmocote and the small pots liquid fed (30-10-10) during the year.

The basic rooting mix for our cuttings is ⅔ perlite and ⅓ sand by volume with the addition of peat for a few items. Most cuttings are stuck in wood flats 13 x 17 x 2½ in. that are placed on wooden benches in the glasshouse that has a Resnor heater to maintain a 50°F night temperature during the winter. The heater is not used from May to October. All cuttings and seedlings are hand-watered and generally kept on the dry side. Also we usually transplant as soon as the cutting is rooted. Since we grow many different kinds

of plants (Table 1) but in relatively few numbers we may have five or six items in one cutting flat.

In the seedling flats there may be as many as 20 kinds of seeds. If germination is going to take extra time we sow seeds in 5 in. pots. Most of our cuttings are softwood so can be taken any time of the year that the growth is at the right stage.

We have a small demonstration garden as well as the #1's that can be used for cutting. All of our softwood cuttings are stuck without hormone treatment, although we do use various rooting compounds for some of those plants we grow that are difficult to root, such as *Actinidia*, *Clematis*, conifers, *Daphne*, *Gypsophylla*, *Hydrangea*, and junipers. We seldom use any fungicides or insecticides.

Table 1. Some plants for which we use no heat, must, or hormones in rooting cuttings

Plant	Family	Origin
* <i>Aquilegia formosa</i> 'Nana'	Ranunculaceae	n.w.N.America
* <i>Asimina triloba</i>	Annonaceae	U.S.A
<i>Bergenia</i> 'Rosy Red'		temp Asia
<i>Bergenia</i> , white form	Saxifragaceae	temp Asia
<i>Calocephalus brownii</i>	Compositae	s Australia
<i>Campanula</i> 'Dickson's Gold'	Campanulaceae	
<i>Campanula isophylla</i>	Campanulaceae	Italy
<i>Campanula isophylla</i> 'Mavi'	Campanulaceae	Italy
<i>Chamaemelum nobile</i> 'Plenum'		Compositae w Europe
<i>Clianthus formosus</i>	Leguminosae	Australia
<i>Cosmos atrosanguineus</i>	Compositae	Mexico
<i>Dymondia margaretae</i>	Compositae	South Africa
<i>Fragaria vesca</i> 'Semperflorens'	Rosaceae	Eurasia
<i>Geranium maderense</i>	Geraniaceae	Madeira
<i>Helichrysum petiolatum</i>	Compositae	South Africa
<i>Helichrysum petiolatum</i> 'Limelight'	Compositae	South Africa
* <i>Helleborous lividus</i> subsp. <i>corsicus</i>	Ranunculaceae	Corsica & Sardinia
* <i>Lapageria rosea</i>	Liliaceae	Chile
* <i>Lapageria rosea</i> 'White Cloud'	Liliaceae	Chile
<i>Origanum</i> 'Kent Beauty'	Labiatae	
<i>Origanum libanoticum</i>	Labiatae	Lebanon
<i>Origanum rotundifolium</i>	Labiatae	Mediterranean
<i>Pelargonium tricolor</i>	Geraniaceae	South Africa
<i>Phlox paniculata</i> 'Norah Leigh'	Polemoniaceae	U S.A.
<i>Rehmannia elata</i>	Scrophulariaceae	China
<i>Rosmarinus officinalis</i> 'Tuscan Blue'	Labiatae	Mediterranean
<i>Russelia equisetiformis</i>	Scrophulariaceae	Mexico
<i>Sedum sieboldii</i>	Crassulaceae	Japan
<i>Senecio confusus</i>	Compositae	Mexico
<i>Thymus broussonetii</i>	Labiatae	Morocco
<i>Thymus membranaceus</i>	Labiatae	Spain
<i>Zauschneria</i> 'Bowman Hybrid'	Onagraceae	w. U.S.A.

* These are seed-grown.

ALBERT NEWCOMB: I would like to ask Fritz Bieth how he measures ethylene sensitivity of his orchids.

FRITZ BIETH: Many plants are intolerant of ethylene, which will greatly shorten their life. For instance, ethylene-intolerant flowers, when exposed to 10 ppm ethylene for 12 hours will not be marketable after about 3 days. Ethylene-tolerant plants will be marketable for 30 days after the same exposure.

VOICE: This is for Edsal Wood. We use Wood's Rooting Compound on every cutting we make. Is there any new information on the EPA registration of IBA we are hearing so much about now?

EDSAL WOOD: Governmentese. I cannot understand what all the fuss is about. IBA has been in use for about 50 years, with no problems. It is going through an EPA registration, but there is nothing definite to report on just now.