

## Propagation of *Clematis* by Cuttings

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### INTRODUCTION

Happy Hollow is a very small nursery, located in the southwestern corner of British Columbia. We have about 1.2 ha (3 acres) of production and specialize in growing some of the harder-to-grow plants — in as economical manner as possible. We are located near the U.S. border and about 64 km (40 mi.) inland from the Pacific Coast. Our climate is typically mild and wet — a West Coast rain forest. Our winter is mostly gray skies and cold rain, interrupted by possibly 2 weeks of freezing weather with or without snow. We can occasionally expect temperatures to drop as low as  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) for several days to several weeks. These cold spells can happen more than once, and can happen anytime from early November until late February. Spring and fall often have extended periods of sunshine (2 weeks), interrupted by several days or so of rain. Our summers can get hot — up to  $32^{\circ}\text{C}$  ( $90^{\circ}\text{F}$ ) for several weeks at a time. If we go for 3 weeks without rain, we are having a drought! Annual rainfall is about 2032 mm (80 inches) per year. In the U.S. Hardiness Map, we are rated Zone 7.

*Clematis* are among the most beautiful vines in the world, but are known also to be some of the most difficult plants to propagate and grow. *Clematis* is not a plant for beginners to propagate. There are literally hundreds of species and cultivars of *Clematis* available for the gardening public. At Happy Hollow Nursery we propagate only 30 or so cultivars such as 'Jackmanii', 'Nelly Moser', 'The President', 'Lord Nevill', and 'Rouge Cardinal', as well as some small flowered species: *tangutica*, *montana*, *macropetala* cultivars, and *armandii* — the most sought after evergreen *Clematis*.

### PROPAGATION

**Stock Plants and Cutting Wood.** Cuttings are taken from vigorous container-grown plants, not from a stock block. When we can avoid it, we do not use stock blocks. We prefer to take cuttings from vigorously growing 1-gal plants, ready for the retail trade. Good clean cutting wood is probably the single most important contributor to successful propagation. We do not use any fungicide or pesticide treatment of cuttings at sticking. Hence, it is very important that our container-grown plants are kept clean at all times. Cutting wood is taken in small batches, early in the day, preferably on cool days, and moved immediately to our cutting bench in the greenhouse, where the cuttings are made. We do small batches at a time, so that unstuck cuttings are not allowed to wilt.

We like semihardwood growth, not too soft, with a green or purple color, but not brown or with flower buds. So long as the wood is in the right stage, we take cuttings from February until frost in October. However, the early cuttings always seem to do the best.

**Cuttings.** The cuttings are made from long pieces of vine cut from the 3.8-liter (1-gal) plants. Using very sharp pruners, the cuttings are trimmed into 5-cm (2-inch)

long internodal cuttings. On varieties with large leaves we remove one leaf. We also use up to 10,000 ppm liquid IBA. We stick directly into 73-plug trays with a peat, perlite, bark, and sawdust propagation mix. The cuttings are well watered in and placed on the floor of a hot water, bottom-heated, plastic house. A high-pressure [5516 kPa (800 psi)] fog system is used to keep the humidity above 90%. We use a wet bulb/dry bulb humidistat to control the fogging intervals, rather than a time clock. Weather can change rapidly and often, making it important for the humidistat to automatically alter the fogging intervals with the weather. At one time we had time clocks and mist lines and could not root any of the hard-to-root summer cuttings with any reliability. We would either desiccate the cuttings when the sun suddenly appeared, or we would drown them on a rainy day. The humidistat has changed our life, particularly on weekends — and definitely enhanced our success rate.

**Care During Rooting.** Care of the rooted cuttings is the second most significant factor in successfully producing *Clematis*. Slugs, botrytis, and mites are our major pest problems in containers. We use Ornalin alternated with Benlate throughout rooting. During the peak of summer mites can become a problem, and it is with mites that the gallon plants must be kept clean. Slugs can be a major problem in newly breaking growth in spring, as can mice which love to visit us from the cold during winter. Mice enjoy the bottom heat. We use a lot of liquid slug and snail killer containing metaldehyde throughout the year. In Canada Measuro<sup>®</sup> is not available. For mice we use peanut butter set in traps — it sticks to the roof of their mouths! If they prove not to be the “peanut butter type”, then on occasion we resort to poison. We prefer not to use poison, since it can also kill the cats which are an important control of the mice population.

It takes from 4 to 8 weeks to produce a well rooted plug liner, depending on the weather and variety stuck. Our rooting percentages vary from 50% to almost 100%, again depending on type and weather during rooting. *Clematis* like to have cool cloudy days during the first period of rooting, then sunshine to break buds after rooting. Some cultivars are definitely easier to root than others.

**Growing On.** Once rooting has taken place we use a liquid fertilizer such as 10N-20P-20K to encourage root proliferation and bud break. When growth has begun and the roots fill the plugs, the plants are either sold as a liner to other growers or potted directly to gallon pots for our own production for sale to garden centres. We grow all our *Clematis* in a soilless media using fir bark as the substrate and Osmocote as the slow-release fertilizer source. We like to stake the vines with cedar stakes and staple them from the outside of the pot. The stakes remain firm if they are stapled. Our *Clematis* are all grown inside a plastic-covered unheated greenhouse. The plastic houses are double skinned inflated houses. Pruning, tying, and taping vines are very labour-intensive activities. We probably go through all the individual plants once every 2 weeks to retie the tips to the stakes, and make sure they are climbing their OWN stake not their neighbors. We try to have at least two stems to the top of the 3-ft stake before selling the plants.

In summary, *Clematis* is not the easiest of plants to propagate and grow. They take a lot of “tender loving care” to produce a clean, healthy, and thriving plant ready for the “real world” in the garden.