

Vegetative propagation

Bill Claybaugh

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In the vegetative propagation of begonias there are several elements at work; some good, some bad. The good news is that selected parts of begonia plants really want to root and make new plantlets. The bad news is there are lots of fungi that want to destroy the newly formed plantlets before they develop to maturity. Antoon Hoefnagle recently covered the subject of Powdery Mildew fungus attack on begonias, *The Begonian*, page 9, Jan/Feb 2005. The presence and attack by other fungi has also been well covered in past *Begonian* articles. For now, we will only deal with techniques to minimize this "rotting" and instead promote the "rooting". Below are a four of the techniques that I have evolved over the past few years which are both effective and efficient.

Stem cuttings. The easiest way to propagate begonias is to use stem cuttings. Nature has given us a group of plants whose stems will fairly easily root and form a new plant. We just need to supply the right growing conditions. For most begonias the stems can be prepared for rooting by trimming off excess leaves to lessen the nutrient and water demand of the cutting. I usually leave only one small leaf, or possibly only one-half of a large leaf, or sometimes none at all. For canes, shrubs, thick-stem, semi-tuberous or trailers, it is best to make the stem cuttings three to five "nodes" long; usually about four to six inches in length. Once the stem is prepared, it is placed in potting medium vertically, with just one node in the medium. The big advantage in this arrangement is that it minimizes the amount of stem exposed to wet medium, so minimizes fungal attack. I usually place three or four stem cuttings in a pot and expect two or three to successfully root and make a new plant. I use 4-inch plastic pots for rooting almost all stem cuttings. This size pot can mechanically support the cuttings, and still have plenty of room for the stems lowest node to be immersed in potting medium.

Rhizomes. For plants with rhizomes, which include *rex cultorum*, one can use a piece of rhizome two to four inches in length that may or may not contain a small leaf. I use two or three pieces in a six-inch pot, just loosely laying the rhizome on the surface of the medium. The rhizomes will root in a few weeks on their lower surface, to give a large, attractive planting. With time, the shallow potting medium will fill with roots and more is needed. The best technique is to just to (1) remove the rooted stems, medium and all, (2) put more medium in the container, then (3) place the root ball back on top. For the canes etc. described above, you can either repot, or just add more medium to the container.

Leaf stems. A third successful propagation method uses the leaves of rhizomatous begonias. These plants are unique among the begonia genus in that the leaves will root and form plantlets using either the leaf stem or the blade veins. (There are a few of the non-rhizomatous begonias whose leaves will root, and an even fewer number that will then go on to form plantlets, but this is rare.) For this propagation method I again use 4-inch plastic pots, placing ½ inch of potting medium in the bottom and using the pot sides to support the leaf or wedge during the rooting

process. One special note: you should always select strong healthy leaves for propagation. Using an old, tired, wilting leaf is a recipe for disappointment or failure. I usually cut the leaf stem about three to four inches in length, long enough to reach the shallow medium and still allow the leaf blade to be properly supported by the pot.

Leaf wedge cuttings. Rhizomatous leaves used for wedge cuttings are best cut near the umbo, the petiole and blade attachment point. The blade material on the main vein is then trimmed away, up to the first vein division. This gives a vein for rooting, while removing much of the blade material that more easily rots. When I first started using leaf wedges for propagation I cut the leaf just below the first major division of the veins. Then the wedge was inserted in the medium for rooting. This works fairly well, but I think cutting nearer to the umbo and then removing most of the blade material from the vein is superior and works well, especially for larger leaves.

The methods outlined above are simple, conserve materials and space, and works. I usually experience 50 to 75 per cent rooting and subsequent plants using these techniques. There are, however, numerous ways to supplement the above procedures and increase the success rate, if one desires. Among these are:

- dip the cutting in a dilute-bleach (5-10%) solution then rinse before planting,
- use rooting hormone/fungicide on cutting tips before planting.
- always use new potting medium.
- sterilize new or used potting medium at 140 to 160 degrees F.
- maintain the cuttings at a uniform temperature, near 70 degrees F, during rooting.
- place the rooting cuttings under florescence lighting,
- use only distilled water.
- and many, many more.

Most of these help, but I find that shallow, very porous medium which does not get soggy and suffocate the roots, to be the most beneficial tool in vegetative propagation.

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