

Methods, Systems, and Techniques of Hard- and Softwood Cuttings from the Perspective of a Hands-on Propagator

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The intent of this discussion is to explain my perspective of successful results as a hands-on plant propagator. People often ask me what my secrets and tricks are. There are no secrets or tricks. Successful propagation is the result of the following four factors:

- 1) Good cutting wood and cutting stock.
- 2) The experience of the person taking the wood.
- 3) Soils, hormones, and timing.
- 4) Methods and techniques.

GOOD CUTTING WOOD AND CUTTING STOCK

Good cutting wood comes from healthy plant material, whether from stock plants, field-grown material, or containerized plants. A propagator's success comes from experience and trial and error. The willingness to experiment with the hardness of wood, various lengths of cuttings, and first- or second-growth cuttings will result in improved success.

Fifteen years ago, when I started, everything I did was experimentation. My first priority was to make all cuttings the same size. I envisioned the cutting turning into a full-grown plant. It was important to me that as they grew they were a uniform size and they progressed at the same rate. During my time as a propagator, I have always watched the plants as they root. I constantly take notes to determine which wood hardness is most successful. Also, I watch where the roots emerge from the stem. It is best if the roots emerge from the entire stem, not restricted to one point.

THE EXPERIENCE OF THE PERSON TAKING THE WOOD

The person taking the cuttings must have the same perspective as the head propagator. He must know the different types of wood to take depending on the variety. They must agree on whether to take new growth or second growth. Some varieties will root easily with new or second growth, others require only new growth. Communication is key to provide size and quality in cutting wood.

SOILS, HORMONES, AND TIMING

Over the years, after much trial and error, I've narrowed down my soil media from six or more mixtures to two. I use a grade 6 pumice and peat/pumice mixture that is pumice and peat (17 : 3, v/v). I use the pumice for conifers and broadleaves that have a thick, heavy root system. The peat and pumice mixture is used for thin, fibrous roots, acid-loving plants, and very softwood cuttings.

A powdered hormone, called Hormodin 3, is used only on conifers. Ninety percent of the time I use a product called Woods, which is a liquid hormone. I've been able to cut down my hormone rates: for conifers I use 1 : 6 ratio, for broadleaves I use

1 : 8 or 1 : 10. Broadleaves done in the fall that are beginning to harden-off do best using a 1 : 8 rate. Summer cutting broadleaves, which are a medium-soft, more vigorous cutting, seem to thrive using a 1 : 10.

When it comes to timing, I believe you can propagate any plant at any time of the year, with three exceptions:

- I like to do conifers in late fall/winter because the wood needs to harden off. I don't do them in the summer because they stay growing and soft too long. They don't handle the constant mist and heat of a greenhouse well.
- I've never been able to do deciduous broadleaves once they've lost their leaves. I prefer to do them in early spring/early summer.
- Some other broadleaves, like conifers, stay too soft and don't handle the mist and heat well. I prefer to do them in early fall. Examples: *Buxus*, *Ilex*, *Pieris*, and *Arctostaphylos* taxa.

METHODS AND TECHNIQUES

When I teach my crew to propagate, I encourage a uniform size for every cutting. To teach them, I use a "hand-size" system. I either make my cuttings three- or four-fingers tall, while holding the cutting across the palm of my hand. The crew is told to strip leaves off 1 inch of the bottom of the stem, leaving leaves on the top 3 inches. Stripping leaves off only one inch of the stem insures that the cuttings will not get planted too deep. Prior to dipping the cutting into the hormone, workers make a fresh cut on the bottom of the cutting. This approach allows for uniform workmanship that all crew members can follow.