



Jerry Faulring

# Propagation by Rooted Stem Cuttings

In 2015 Waverly Farm stuck 35,000 cuttings with the goal of supplying our own needs for all plants we grow from cuttings that we are legally allowed to reproduce. We grow many plants that are patented which we buy from quality, authorized propagators. In the world of plant propagation our scale is very small; we may be near the low end of making it an economical endeavor.

So, why do we do it? A brief summary includes:

1. It makes me feel complete in terms of producing plants from start to finish. No greater satisfaction can be achieved than seeing a 5' Viburnum that we started as a cutting loaded to a truck.
2. There has always been a concern related to importing pest problems which I believe are an increasing threat to our enterprise, particularly with Buxus. We have bought root diseases in hollies and weeds that overtook parts of the farm (see photo).
3. Control over availability. It is not uncommon to have problems sourcing plants consistently from one year to the next. Market buying trends change every

year with changes sometimes being realized after liners are ordered for the current year. I can respond to increasing needs as late as August for many deciduous plants and November for conifers. We tend to over produce and then ultimately plant numbers that are projected to be correct.

4. I think we save a little money, maybe break even, but that is not the real driver. On a current year basis we probably save about \$1.00 per plant but that does not include the facility capital cost. At a larger scale saving money would be a factor.
5. With our staff size there is always the labor force elasticity that allows us to propagate without dedicated staff.

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A perfect stand of purple mustard came to us from a liner supplier.

There are some really good reasons to not propagate which include:

1. Stress levels increase due to the minute by minute management required to be successful. Constant worry over loss of power, misting systems; "is this the right week to take cuttings", "what if I lose the crop to disease", and so on are always on my mind. Good backup systems, extreme diligence, and experience can help relieve these concerns but they still exist.
2. When buying from others, the plants tend to arrive alive – just unload the truck and plant or shift to a larger container.
3. Initial capital investment plus the ongoing maintenance and operating costs of facilities are an important consideration.
4. Success is not assured but with many years of experience our efforts generally result in about 95% success overall and 0% with some plants in a given year. After a few years of failure for a given plant we buy it. My goal is reproduce the plants that are not problematic.

Successful propagation relies on a strong commitment to the process. Our work is 100% with woody plants that are forgiving in many respects. Deciduous plants are generally stuck after the spring flush has hardened off through the end of summer, with best results for

us occurring earlier than later. Hollies and boxwood can be stuck just about anytime they are not flushing but work best for us in late August through the end of September. Indeterminate conifers such as Cryptomeria and Thuja, along with Ilex opaca, are stuck in November.

## Summer Propagation.

Collection of cuttings is best early in the morning when it is cool and leaves are turgid. We collect into white plastic bags and dampen the cuttings while in storage. We cut only what we can stick the same day. Refrigeration or icing of the cuttings is necessary if stored for the next day's use.

Observation of the stuck plants, every hour during daylight, is required to manage mist during the summer season. Too little moisture can stress the cuttings in a matter of minutes. Stressed cuttings will struggle to produce roots. We use Dip 'N Grow rooting hormone exclusively; if timed perfectly many plants don't need a hormone but we don't risk it. Concentrations will vary from 1000 ppm to 8000 ppm but most plants work well at 3000 ppm. Some plants will also be treated with a fungicide. Most plants are wounded by cutting a very slight sliver of wood on one side; this is always not required but we standardize on procedure. Plants will root in 10 days to 4 weeks.

Water quality for misting is important to prevent disease or mineral scale build up from water high in mineral content. Our well water from the limestone aquifer is off the charts for calcium. I have seen mineral scale accumulation on boxwood so severe so as to prevent the buds from breaking. To remedy this we run all mist water through a 1000 gallon per day reverse osmosis system. The water is stored in three 1000 gallon tanks to buffer the variable usage and to keep a reserve for loss of supply.



Winter propagation using mist – same set up in summer.



## Winter Propagation.

This is still stressful but different from summer. Bottom heat is required using hot water so we have to be constantly vigilant regarding the heating system and potential for frozen pipes. I have read numerous propagation books and know there are a several ways to implement winter production. We are VERY old school in that we eliminate mist by tenting the cutting beds; we used to mist several years ago. This recycles all the soil moisture by condensing it on the plastic and dripping back to the plants. It also requires less energy for heating water. The humidity under the tents is always near 100%. There is increased potential for foliar disease but we have not had much trouble in the past. The tents are removed monthly; cuttings are watered, checked for progress and the tents are replaced. These plants tend to take from 6 to 16 weeks to root.

Grafting. Back in the nineties we grafted large numbers of conifers and Japanese maples. This was good winter work but success can be so variable our effort declined over a period of years. Grafting is a lot of fun but requires a vast increase in skill and knowledge as compared to rooted cuttings. Now, with the current decline in specialty conifer and maple sales it makes economic sense for us to buy in these plants in small numbers. 🌱

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Winter propagation under a tent. Note the thermometer to monitor soil temperature.

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