

Hardwood Cuttings Revisited®

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Good afternoon. It's a true honor and privilege to address the IPPS Eastern Region today. My name is Chuck Davis and I am the propagation manager at the Kankakee Nursery Company. We are located 60 miles south of Chicago, Illinois. I'd like to begin by referencing the title of my talk "Hardwood Cutting Revisited." The "revisited" part relates to a previous talk given to this society in Cleveland, Ohio at the 8th annual meeting in December of 1958 by one of the founding members of the Kankakee Nursery, Philip Worth. In reviewing his discussion of fall stuck hardwoods it was evident that the techniques have not significantly changed in the last 50 years. However, with the advent of increased softwood production and tissue culture the popularity certainly has. Let's take another look at this old method and hopefully give you some ideas for your own propagation needs.

Our hardwood production process is a two-phase process, that is, $\frac{1}{2}$ the cuttings are fall stuck and $\frac{1}{2}$ are spring stuck. The idea behind fall sticking is that we have a window of opportunity in early October when we have available labor prior to our fall harvest season. This significantly reduces our spring work load. Also, storage problems are eliminated, since the fall stuck cuttings basically remain dormant in the ground until the following spring. The one negative is that the cuttings usually will frost heave once or twice during the winter months. This requires a light re-tamping of the cuttings prior to spring. Even so, we still feel that this fall production phase is beneficial because of the reduced spring work load.

We start our fall production in early October. We would prefer a couple of frosts prior to cutting however it does not really seem that significant. Even if there is foliage on the plants there is minimal chlorophyll in the leaves. Biologically, the plants are entering a dormant state. Typically, we select 1 year growth from 3- and 4-year-old field stock. Many of the taxa that we work with freely sucker. This wood is very desirable due to its straightness and inherent vigor. We cut these canes close to the ground. The average length is 24–30 inches long. We bundle in the field and hold in cold storage until these canes can be cut to length. Our spring collection of cutting wood is very similar. We collect as soon as possible in early spring around March 15 to early April.

The final processing of these bundles involves light trimming of lateral branching when necessary, followed by cutting the plants into 7-inch segments. Typically, we can get 3 cuttings per cane based on caliper. We are looking for $\frac{1}{4}$ inch and no less than $\frac{1}{8}$ inch in order to have enough vigor to root next spring. The polarity of the cuttings must be maintained. They absolutely will not root upside down. So during the final cut on the band saw one person cuts to length while another collects and bundle ties the cutting. The individual then dips the top of the bundle into a shallow pan of white latex paint and the basal end of the bundle into a liquid rooting hormone. Cuttings are then stored in the cooler on a light bed a sphagnum moss and kept moist until we are ready to field stick.

Our soil type is a sandy loam which allows for excellent drainage and porosity which is necessary for rooting. It's really the key to our success. Over the years we have seen extremely wet conditions and it is only because of our light soil that we

have maintained consistent results. Ground prep starts initially with fumigation in order to reduce weed population. Our production area is 2.5 acres in which we stick 200,000 cuttings annually. When soil conditions are right in mid October we till the ground and mark out 48-inch beds. The cuttings are then stuck 2.5 inches apart using spacing boards. A crew of 8 men can stick 100,000 cuttings in 2–3 days. Once stuck we do take the time to “walk in” the cuttings in order to firm up the ground. Our spring program pretty much mirrors the fall. We do feel that certain types do better in spring than fall. *Cornus* selections definitely yield higher rooting percentages in the spring. Once the shrub-type cuttings are stuck at close spacing we move on to several tree selections. These are stuck in rows 4 ft apart, 10–12 inches within the row. Once we complete this process in late March or early April we lay out irrigation pipes and irrigate when necessary. Rooting relates to soil temperature and by mid May we have a good impression of our take. Once rooted, we fertilize with a 32–2–10 (50% sulfur-coated urea). We harvest in mid November when the plants are fully dormant. Shrubs are harvested with a 5-ft bed lifter while trees are dug with a high clearance tree digger.

The final product is then stored and graded to size. These hardwood liners are significantly larger than our softwoods. This allows us to go directly to field spacing when we re-line out. Our softwood production, however, must be bedded for an additional 2 years prior to field spacing due to their diminished size.

In conclusion, I hope that you might be encouraged to try this old propagation method. Honestly, from a propagator’s perspective, while initially labor intensive, once the cuttings are stuck it really is a low maintenance process which results in superior liners as compared to alternative propagation methods. This system has worked very well for our company for the past 50 plus years.