

T-Budding and Chip Budding at Kankakee Nursery[©]

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Kankakee Nursery is a family owned and operated wholesale nursery located in Aroma Park Illinois, 60 miles south of Chicago. I am honored to share our production methods with the IPSS here today. My uncle, Phil Worth started budding trees around 1975. In 2013, 34,500 shade and ornamental trees were budded.

Seedlings are purchased from various vendors and shipped to us in February and March. The seedlings are typically 1 year old and are ¼ caliper. The tops and roots are trimmed to prepare the seedlings for planting. Tops and roots are trimmed so that they will fit into the planter. Then they are bundled and palletized until planting.

We typically plow the ground that the understock is planted on in the fall of the previous year. If the soil is lighter a field cultivator can be used. Before planting in the spring, Treflan™ herbicide, a grass preemergent herbicide, is applied at a low rate. No other herbicides are used until fall.

Understock seedlings are the first things planted so they have enough time to get up to size. As always, the weather determines when we can start. Starting dates vary from year to year. For example, in 2012 we started on 9 April and finished 12 April. This year, 2013, we started on 8 May and finished 11 May. The 2-row planter is a mechanical transplanter and is pulled by a 50-hp tractor. The rows are 48 in. apart and plants are spaced either 11 in. or 22 in. within the row depending on whether they will be dug as 1-year whips or 2-year branched trees.

During the growing season the understock field is irrigated and weeded as needed. It is important to keep the seedlings growing so that they are in a vigorous condition when it's time to bud them. The seedlings are prepared for budding by trimming them up from the bottom and scraping the soil away from the base so that the bud is placed low enough.

Budding begins typically on 7 or 8 Aug. and is finished at the end of the month. Depending on the size of the seedling we use either ¼ in. or ⅜-in. rubber strips for T-budding. For chip budding, an elastic plastic tape is used. We use a product called Buddy Tape, made in Japan. Budwood is collected from our stock block as well as from production fields. It is critical that the bud wood is hardened off sufficiently.

In addition to their hourly wage the 3 budders and tiers get 2½ ¢ for each seedling budded as well as another 2½ ¢ for those buds that take. Each budding team will do 900 or 1000 seedlings each day.

In 10 to 14 days the buds knit themselves to the understock. The smaller rubber strips fall off on their own. The larger strips and the tape are removed manually after 3 or 4 weeks.

The trees that we chip bud include *Crateagus*, *Pyrus*, *Quercus*, *Taxodium* and *Ulmus*. Those that are T-budded are *Gleditsia*, *Prunus*, *Malus* and *Tilia*. The determining factor as to what method is used is the size (caliper) of the seedling and how easily the bark separates from the seedling.

After the buds have taken and the strips and tape are off, nothing is done until the following late February and March. At this time the tops are cut off by a tractor mounted stalk chopper. This piece of equipment is used in cattle operations for cutting and chopping silage. The seedling tops are cut at about 6 in. and the wood is chopped and flung through the chute onto the field. A few plants such as elm are too big to be done this way and have to be hauled away. The final cut is made by hand at the proper height and angle.

The next step is to put the Grow Straights down. Grow Straight[®] stakes were introduced by J. Frank Schmidt and Son nursery in Oregon. It is a metal device designed to eliminate "dog legs". In addition, they also protect the shoots against wind, storms, animals, and other dangers. Also around this time, we fertilize with a granular blend that has urea,

diammonium phosphate, and potash. We apply this material over the top with a spreader at 80 to 100 lbs./acre N.

As the bud grows, it is critical that branching from the understock (suckers) is removed in a timely fashion. These suckers can take energy from the bud and not allow it to reach the proper size. Starting last year we bud the *Malus* on Sproutfree[®] rootstock. This eliminates the time consuming labor of removing the suckers.

The next step is staking. We use various types of stakes; ½-in. fiberglass, ¼-in. galvanized metal, and bamboo. We are gradually transitioning to all galvanized because of the ease of pushing them into the ground and their flexibility. We use the Max[®] Tapener tying machine, common throughout the industry.

Insecticide application is done with a John Deere 2955 Hi Boy. The major pests on these trees are leafhoppers. Japanese beetle can occasionally be a problem as well. Increasingly, deer have been a big problem with browsing on *Celtis*, *Ulmus*, and *Crataegus*.

Harvest begins in mid November when the plants have sufficiently hardened off. We have learned through the years that certain types of trees do not keep well for an extended period of cold storage. These trees are dug in late winter or early spring and include *Quercus*, *Ulmus*, and *Pyrus*. Trees are dug with a GK digger.