

Grafting for Quick Turn – Bigger Can Be Better[©]

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Klyn Nurseries produces a wide range of plant material serving the landscape industry in Ohio and surrounding states. Customers include landscape contractors, municipalities, and rewholesalers with a minimal focus on the garden center market.

To this end we produce a diverse range of plant material both in containers and in the field. We already were doing most of our own propagating by soft and hardwood cuttings, root cuttings, seed, divisions and had developed a successful bed system for developing a sizeable liner as well as finished size boxwood and other plants for B&B or to containerize. We look on the open market to find the unusual plants we are interested in producing as well as sources of liners for plants we find difficult to produce internally.

We did not have a grafting program and had to locate all grafted liners. We had a 30 ft × 100 ft polyhouse with bottom heat we were using for summer propagation of softwood cuttings but were using for minimum heat overwintering in winter. The individual managing our bed production had abilities with budding that we were choosing not to use because he was too busy managing the 15 acres of beds through the growing season but had little to do in the winter months.

In January of 1999 and again in 2000 I sent him to help a conifer grafter to learn how to graft and paid him to work for “free.” He learned quickly grafting small evergreen scions on seedling understock in tree bands using a side veneer graft. He saw how a great number of plants could be produced by this method in a limited amount of space for sale as liners, but that the resulting plants were of a small size adding time to grow a finished product.

What we needed was a grafting program of 7-10 thousand large liners for internal production not mass produced grafts for sale as liners. We evaluated what would be the most important plants for us to produce. This included many plants grown as standards and others that are expensive as liners as well as plants that were difficult to find including some of our own selections. We had good sources for most of our grafted conifers. We also considered that we would need different conditions for most conifers and deciduous plants.

Some of the plants we chose to produce include: forms of *Acer palmatum*, *Asimina triloba*, *Carpinus*, *Cercidiphyllum*, *Cornus*, *Crataegus*, *Fagus*, *Ginkgo*, *Hamamelis*, *Koelreutaria*, *Larix*, *Liquidambar*, *Liriodendron*, *Magnolia*, *Metasequoia*, *Nyssa*, *Quercus*, *Taxodium*, *Sophora*, *Zelkova* and a wide range of standards of many genera and species.

Today we produce most of our own understock. Understock for most standards such as *Viburnum*, *Cotoneaster*, and *Syringa* are grown in 1- and 2-gal containers to produce straight and vigorous plants. *Carpinus*, *Nyssa*, *Metasequoia*, *Taxodium*, and others are produced in 2-gal containers as part of our potted tree-liner program (Figs. 1 and 2).



Fig. 1. Grafting understock fall 2013.



Fig. 2. *Parrotia persica* 'Pendual' (left).

The understock is assembled outside of the grafting house in November and allowed to stay outside through December to chill. From late December through early January plants are brought into the greenhouse and staged on the heated floor at 58-60°F. Most understock needs some root activity before grafting. Some plants such as *Syringa*, *Metasequoia* and *Quercus* can be brought in later and grafted fully dormant. Once plants are staged the bottom heat is turned up to 68-70°F to initiate root activity while air temperature is kept cool to keep the tops dormant. Four horizontal flow fans keep the air moving and the area is kept clean to keep disease from developing. The house is vented when weather is appropriate.

Plants such as *Fagus* and *Hamamelis* are stage on the cooler north side of the house while *Malus*, *Syringa*, and *Viburnum* are situated to take advantage of a warming winter sun.

Juniper *hetzi* is used as understock for *Cupressus nootkatensis* (syns. *Chamaecyparis nootkatensis* and *Xanthsoyparis nootkatensis*) cultivars and can be grafted as early as November and as late as early March as it is easy to get the roots active.

We start grafting shortly after the first of the year ending in February in time to start our outside work. A side veneer graft is used for most plants.

Scions are collected, labeled, and placed in plastic bags. The understock and scions are brought to the grafting area and prepped for grafting. A side veneer graft is used for most plants as it makes a better union and looks more natural as it develops. The graft is secured using rubber bands and given a quick dip in a crock pot of wax heated to 155°F. Each plant is strip tagged with scientific name, graft date, and grafter's name then place back on the bottom heat. Many scions will start to push within 2 weeks depending on the species. Once the graft has knitted rubber bands are removed. Plants are fertilized and suckers removed to keep the scion actively growing. Some standards producing a 15-18-in. head before they are moved out in late spring, many reaching a small saleable size by late summer, while most finish as nice specimens in the 2nd year. Some trees can exceed 6 ft before they are moved out.

If we have a failed graft we check the understock for active roots. Understocks generally do not stop growing and often there are windows of opportunity to re-graft failed grafts.

We want to keep the plant actively growing. When plants are taken out of the graft house they are acclimated in light shade. Plants are graded and the strongest shifted to 5-gal containers as soon as possible producing large whips or well branched plants by the end of the first season. The 2nd year they are well formed specimens ready for the field or for sale in our container program.

