

## The Propagation System Used at Wilson Nurseries®

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Wilson Nurseries is a 1200-acre wholesale nursery located in northern Illinois about 40 miles west of Chicago. We propagate and produce a majority of the liners we plant out each year. Whether we're planting into a 3- or 5-gal container or a 4- or 8-ft B&B row, we like to have a heavy, well-branched liner that can make up in the least amount of time. Over the past 12 years, we have devised a system that allows us to do just that.

Although we do some winter propagation, the majority of the plants we propagate start as softwoods taken in June. We have five 30 ft × 200 ft quonset-style greenhouses which we devote to summer softwoods. All these houses have 12-inch-deep ground sand beds, roll up side vents, and a traveling irrigator.

The process starts in late April when we clean, level, and fumigate the sand beds. Depending on the weather, we start taking cuttings anywhere from late May to early June. The cutting crew is also the sticking crew, so on the first day out, we spend all day taking cuttings. The same crew sticks these cuttings bright and early the next morning. We make and bundle all our cuttings in the field. We do not maintain any stock blocks so all our cuttings come from plants in production.

Prior to sticking, the cuttings are stored on tables with expanded metal tops in a cooler set at 50°F. Throughout the day, cuttings are picked up from the crew and taken to the cooler where they are spread out on the tables and watered thoroughly.

The following morning the cuttings are quick-dipped in a liquid K-IBA solution and stuck in the sand beds in the greenhouses. Most cuttings are stuck on a 2-inch square spacing using a dibble board. After the cuttings are stuck they are watered in thoroughly with a hose. The houses are covered with 50% shade cloth and the cuttings are misted intermittently with the mist boom. We use well water, which naturally has a pH of 7.5. To bring the pH down to 6.5 we inject concentrated sulfuric acid.

The cuttings take anywhere from 3 to 8 weeks to root. Week by week we carefully monitor the state of the cuttings and gradually decrease the frequency of the misting. After the cuttings are completely rooted we stop misting and just water the houses every other day.

Every other watering, we liquid feed with Peters 20N-10P-20K PL soluble fertilizer at 150 ppm N. By the middle of August, we stop fertilizing and by the end of August we remove the shade cloth.

As the days get shorter and cooler in the fall, we gradually reduce the frequency of the watering. By late November the cuttings are completely dormant and most of the leaves have fallen off. We dig the cuttings from the sand beds, place them in plastic baskets and transport them up to the cooler. Here the rooted cuttings are counted, bundled, and sealed in plastic bags. They are stored for the winter in a freezer set at 28°F.

In early May of the following spring, the rooted cuttings are planted in the field. They are planted in 3-row, 6-ft wide beds. The rows are 18 inches apart in the beds and the plants are spaced 10 inches apart in each row. We use a three-row planting machine from mechanical transplanter. Immediately after a block is planted, it is cultivated and watered in thoroughly.

Most of the plants we grow this way are left in the beds for two growing seasons. Each growing season we make two to three applications of a complete granular fertilizer that we purchase in bulk from a local farm supply. Also, the year prior to planting a block, we grow a crop of Sudan grass as a soil improvement measure.

Through timely cultivation and hoeing, we have found we can efficiently control weeds in the beds without the use of herbicides. Over the past several years, I have kept very accurate records of our labor costs for hoeing and cultivating in the liner beds. Last year we spent roughly \$700 per acre or about 3¢ per plant.

Early in the spring of the second year, before bud break, all the liners are cut down to the ground.

Most of the plants we grow are harvested in the fall. We use a Lundeby plant lifter and start about the middle of October. When the liners are ready to dig we try to get everything lifted and in the cooler as quickly as possible. We like to have everything lifted by the end of October.

Once all the liners are lifted and in the cooler, we count, bundle, label, and stack the liners on steel racks for the winter. The cooler is kept at 35°F and about 95% humidity. As a preventative measure we spray the liners in the cooler once a month with a fungicide. The liners remain in the cooler until April or May at which time they are planted out.

By using some new technologies and some old tried-and-true methods we feel we have developed a system that allows us to consistently produce the type of liner Wilson Nursery demands.