

Hybrid Poplar Production

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The first hybrid poplar planting for cutting production was made at Dague Nursery in 1960 when 1500 cuttings of 23 Northeastern clones were obtained from the U.S. Forest Service.

Production in 1961 was 3,000 cuttings and in 1962 increased to 41,000. Clonal identification was maintained on all cuttings these two years and they were distributed to cooperators for evaluation on strip mine spoil banks. The first distribution of clonal mixed cuttings to the public was in 1963 when 92,000 were shipped. Since that time, our production has averaged 222,000 cuttings per year. The cuttings we ship are unrooted, 10 inches long, and graded to a small end diameter of 1/4 inch minimum and 1 inch maximum. Cuttings larger than 1. inch are too bulky to handle and pack. The cuttings are sold for \$25.00 per thousand and the minimum order is 500. We are growing 59 clones, at the present time, but the bulk of our production is from 18 proven clones. Small quantities of 20 new clones have been obtained in the last two years from the Forest Service.

CULTURE:

Planting in our three acre production area is done by hand using planting bars. About 3,000 cuttings are planted each year on a 3 1/2 by 3 1/2 foot spacing with the cuttings inserted to a depth of 7 inches. This firmly anchors the cutting in place and allows one or two buds above ground. A complete fertilizer is worked into the soil prior to planting and usually no additional fertilization is done the first year. When top growth is 4 to 6 inches long, the area is cultivated and sprayed with 4 lb. dymid 80W and 2 lb. simazine 8 OW per acre. If application of the herbicides is made earlier, some foliage discoloration occurs.

Growth the first year varies considerably from clone to clone. It ranges from 1 foot to 5 feet with the average about 3 feet. At the end of the first season all plants are cut back to 4 to 5 inches. Very little usable cutting wood is obtained, but additional sprouting is induced the following year.

In the second year, just before top growth begins, a high nitrogen fertilizer (10-6-4 organic at 600#/A) and the simazine - dymid combination are applied. By the middle of the second year, cuttings are well established and the operation consists mainly of checking for insects and spot weed control. A light crop of cuttings is obtained this year.

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The cycle is repeated the third, fourth and fifth years with one added operation. After harvesting, the stumps are pruned of the fine sprouts coming out almost at right angles to the main stems. Many of these are flat on the ground and, if left on, will produce twisted and deformed stems in too great numbers for good production. We tried cutting the stumps back below the large head of sprouts, to cut down on the sprouting problem, but this only caused a decline of all top growth and increased root sprouting. A production peak occurs in the fourth year and then the yield slowly declines after that as the average cutting diameter decreases. This condition occurs because there are a greater number of stems of smaller size.

After the fifth year stumps are removed. We have in the past continued to use cutting beds for six or seven years, but cutting quality declines and problems increase each year. Root sprouting makes cultivation almost impossible, the stumps are quite large (10 to 12 inches high) and sprouting of fine shoots multiplies. Stumps are pushed out with the corner of a dozer blade and the area root raked. Nothing is grown the following season and the area is harrowed several times to eliminate sprouting roots. The second year after the stumps are removed the area can be cover cropped or replanted to hybrid poplar,

Several minor defoliating insects have shown up along with aphids. Fortunately we have been relatively free of serious insect and disease problems. The most serious damage in recent years occurred in a late June hail storm this year. One inch diameter hail damaged many soft growing tips causing deformed stems and some growth reduction.

HARVESTING:

Cutting wood is harvested in late November, after the plants become dormant and before deep snows. When harvesting we go across rows to obtain a thorough mixture of clones and get several clones represented in each customer's order. Resistance to canker and drought, and tolerance of low pH, varies with clones, and a mixture of clones assures success under varying conditions.

For harvesting we use a gasoline powered brush cutter which is carried by the operator on a shoulder harness. Each poplar clump is hand held about waist high while it is cut, to prevent scattering. The saw operator stands opposite the holder, to prevent injury if the saw should jump, and cuts the clump as close to the original stump as possible. After being cut, the sticks are tied in bundles about 1 foot in diameter and put in cold storage until processed into cuttings. This operation takes 4 to 5 days with a 5 or 6 man crew.

PROCESSING:

The first step is to prune all small branches from the cutting sticks. After this pruning, the sticks are graded (small, medium, or large) and fed to the saw on a conveyor in fives, or multiples of five, up to twenty. The number of sticks in a bunch is determined by how many the saw operator can hold. The saw operator trims the ends, and cuts the wood into 10 inch lengths using a circular table saw with an 8 inch planer blade. The cuttings are then placed on the bundling table, where a person gathers 20, checks them for size, and secures the bundle with two rubber bands. A funnel, welded into a 1/2 inch pipe, is used to apply the bands by pushing the small end of the bundle into the funnel and pulling the bands over it. The cuttings are then packed with sawdust in wooden crates and returned to cold storage till spring. Storage building temperature is 34 - 37 F. and its relative humidity is 90%. About 20,000 cuttings a day can be processed by a 4 or 5 man crew

In the spring the cuttings are repacked in cardboard boxes for shipment. We have tried storing cuttings in cardboard, but even the wax filled or plastic coated boxes become soft in the three to four months they are stored.

SUMMARY:

The preceeding is a brief description of hybrid poplar production at Dague Nursery as we now do it. We are working on improvements and some of these I hope to adopt in the next few years. Briefly these include; shorter cutting length, a rubber strap to hold clumps when they are cut from the stump, and a harvest saw in a front mounted Gravely rotary mower attachment.

If any of you have experience in the production of hybrid poplar or similar material, I would like to know how you do it. Maybe some of the things you do will help me just as I hope my descriptions have given you some ideas