

PROBLEMS THE PLANTER ENCOUNTERS IN PLANTING NURSERY STOCK

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Gentlemen, it is a pleasure to be here. Certainly we have mutual problems worthy of discussion.

The title of my paper is "Problems the Planter Encounters in Planting Nursery Stock". I am going to confine my remarks to hardwood seedlings and cuttings exclusively. Our experience with pine seedlings has been quite satisfactory. We have always been able to obtain good, well graded pine seedlings in quantities desired. I complement you on your success with the southern pines. Thirty to forty years ago pine tree planters had many problems with pine seedlings. These problems were worked out, and I am confident that our problems with hardwood cuttings and seedlings can also be solved.

Our number one problem with hardwood planting stock has been and still is this: Healthy seedlings and cuttings of the proper size are not available on a reliable basis. This poses a tremendous problem to the hardwood tree planter, who must plant and execute site preparation as much as a year in advance of planting.

Intensive and expensive site preparation is necessary before hardwoods can be successfully planted. These site preparations must be completed the fall before planting. Planting must usually go ahead with whatever stock is available because to come back another year is too expensive. Crews may be scheduled for areas miles away the next year and most of the site preparations would have to be repeated again if planting were delayed.

Site preparation may consist of simply discing and fallowing abandoned fields or pastures the summer and fall before planting. Often several discings in conjunction with herbicide treatment are necessary for areas heavily infested with johnsongrass.

On timbered areas, complete clearing, raking and discing is necessary so that intensive cultivation can be done. Current costs for such preparations run \$85 per acre. Planting and cultivation cost another \$30 to \$40 per acre.

Cattle must be controlled, beaver dams blown up, and deer populations put in balance. You can imagine the disappointment of a tree planter who has gone to the expense and effort of making these preparations; only to find at planting time that his plantation will be a failure because he cannot get planting stock of proper quantity or quality. He might as well have taken his employees dollars and stuffed them down the drain.

Let me sight some of our disappointing experiences. In 1959 we disced and fallowed an old pasture in preparation to plant. Cherrybark oak seedlings were planted in January of 1960. When the seedlings leafed out the next spring, we discovered that 50% were water oak, willow oak and southern red oak. On this site water, willow and southern red oaks can not be grown profitably. We had been sold good quality seedlings but now have only half a plantation because of this mixed planting stock.

In 1964 we prepared a site on an island in the Mississippi River for planting sycamore. Elaborate preparations were made to move the planting crews onto the island. A quarter boat was towed to the island, along with food, tractors and all the paraphernalia necessary for the planting operation. We had a confirmed order for 36,000 seedlings. We sent a truck to pick up the seedlings the day before operations were to begin. The truck came back with 7,000 seedlings; the entire sycamore production of the nursery. Someone had mis-inventoried by 2,000%. We planted the area the next year sucessfully, however, the overall plantation cost was double what it should have been.

In 1967 we established yellow poplar on an old field site. Johnsongrass was so heavy on the area that it had to be mowed before discing could be done. We aerial sprayed and then disced several more times to control the grass. This site preparation cost \$30 per acre. Thirty acres were planted with seedlings 3/8" to 1/2" at the root collar. Seventeen acres were planted with smaller seedlings from a different nursery which were 1/16" to 1/4" in size. We had to plant this smaller stock in order to finish the planting job because our crews were already scheduled to plant an area some 60 miles distant the next year.

The larger stock received three cultivations the first year. In order to get adequate survival where the smaller stock was planted, we had to cultivate six times and hand hoe twice the first year. The larger stock cost \$48 per acre to establish and the smaller stock \$76. Survival of the larger stock was 85% compared to 60% for the smaller. In the area planted to the larger seedlings, trees average 4.5" D.B.H. and 32' high; the smaller seedlings only average 1.5" D.B.H. and 16' in height.

In 1971 we planted an abandoned pasture to yellow poplar. Site preparation consisted of three disings the fall before planting. Some of our planting stock proved to be infested with a root rot. Again we could not come back the next year because all our crews were scheduled to plant an area already being cleared. We selected through this rot infected stock and discarded those seedlings most heavily infested. Here is the result, complete

failure. Fortunately, we were able to secure healthy stock from another nursery to complete planting the area. Survival of these seedlings was 80%, and heights now average nine feet.

In 1970 my company decided to embark on a 1000 acres per year cottonwood planting program but did not wish to begin until sufficient amounts of Stoneville superior cuttings were available. The 14 Stoneville clones produce plantations which grow 25% faster than ordinary unselected stock. Only with the superior clones could we justify the \$120 per acre cottonwood establishment costs. Sufficient stocks of superior cuttings could not be expected to be available from state nurseries until 1974.

we decided to put in our own nursery during 1970, in order to expand what little Stoneville superior stock we could obtain that year. Starting out with 20,000 discarded limb trimmings from Stoneville, we were successful in rooting 2,000 in paper cups. Those rooted were then field planted and when of sufficient size; slips were taken from limbs, rooted in a mist chamber and then out planted. By September of 1970, the original 2,000 plants had been expanded to 26,000. Four hundred thousand cuttings were produced this past winter from this stock; sufficient to commence our 1,000 acre all superior clone planting program this year.

I don't want to leave the impression that all of our hardwood plantations have been failures or unnecessarily expensive. Where adequate planting stock has been available, success has been apparent. These slides show some of the success:

- Eleven year old cow oak plantation average D.B.H. 6.5" average height 30'
- Five year old sycamore - 8" 52'
- Two year old cottonwood plantation a^y. 4.2" D.B.H., 32' high on 180 acres. This tree was the largest in the plantation and was 6.5" and 39' high. These trees are from unselected nursery stock from a state nursery.

Another problem, we are currently facing, is the expense of the seedlings and cuttings themselves. In the past ten to twelve years, the cost of hardwood seedlings and cuttings has doubled in many areas. This is beginning to be a burden on the hardwood planter who is being faced with rising site preparation and planting costs and is competing with the soybean planter for land. The cheaper he can get his seedlings and cuttings, the more acres he will be able to plant.

Problems yes , solutions certainly! Within this audience is the ability and technical know how to solve each and every problem sighted. However, can they be economically solved at each and every nursery producing hardwood seedlings? Can each such nursery take the time and acquire the necessary specialized equipment to produce quality hardwood seedlings and cuttings cheaply? Efforts in Mississippi to obtain a nursery specializing in hardwoods have met with no success despite years of effort.

Perhaps a regional hardwood nursery that would serve several states is a solution worth considering. Regional education has been a reality in the south for twenty-five years. More volume in one nursery would justify specialized equipment and technics to reduce per thousand costs. Personnel in such a nursery would be hardwood specialists who would be more sensitive to the hardwood tree planters problems.

Good hardwood lands are becoming more scarce each year. We must grow more volume on fewer acres in order to meet the future demands of this nation for hardwood products. In order to meet these demands, plantations originating from selected seed, seedlings or cuttings, will become increasingly important. The success of these plantations will depend to a degree on the ability of the hardwood nurseryman to produce quality hardwood seedlings and cuttings.