PRODUCTION OF COTTONWOOD CUTTINGS AND SEEDLINGS BY THE TEXAS FOREST SERVICE

Mason C. Cloud
Head, Reforestation Section
Texas Forest Service

It has been several years since I last visited in Oklahoma City and I am pleased to participate in this 2-day meeting with you.

There are several of you here who have produced a greater quantity of cottonwood seedlings and/or cuttings than the Texas Forest Service, but because of administrative necessity in getting subject matter items assigned for this meeting at an early date, our friend, Robert Hitt, saw fit to assign this topic to me.

I trust you will recognize that the soil amendment procedures and techniques that will be enumerated herein apply only to the conditions found at Indian Mound Nursery. They may or may not apply to conditions found at other nurseries.

Indian Mound Nursery has been used since 1940 for the production of southern pine seedlings. During a brief 8-year period beginning in the mid-1940's, hardwoods were produced for windbreak planting in the central, south, and western parts of the State, but were discontinued in the early 1950's.

A little over 2 years ago we were requested by a pulp and paper industry to produce cottonwood cuttings for them. This we did and so far the 1962-1963 season approximately two-hundred thousand 17-inch cuttings were grown for them at our Indian Mound Nursery.

Several state forest nurseries in the South who had had previous experience in growing cottonwood, both cuttings and seedlings, were contacted by our people before final production plans were made. Based on the information available to us the decision was made to plant 7-row units of 8- or 10-inch cuttings on a spacing of 1 x 3 feet. Rows were started at a riser line and so on each side of this line there were 7 rows or a 21-foot wide strip of cottonwood and then a gap of approximately 14 feet to allow for movement of motorized equipment for applying insecticides and mineral spirits throughout the growing season.

With this spacing arrangement, it was estimated that one gross acre of production area would produce a maximum of 10,940 switches of an average length of 72 inches. That is, each switch would produce on the average 4.2 seventeen-inch cuttings. An acre then would yield slightly under 46,000 cuttings. On a field spacing of 10 x 10 feet, this may later be increased to 14 x 14 feet, these 46,000 seventeen-inch cuttings will plant an estimated 105 acres.

Production was tripled in the winter of 1962-1963 so that for the 1963-1964 planting season an estimated 500,000 seventeen-inch cuttings were made available for field planting. Inventory this current season is estimated at one million 17-inch cuttings.

Cultural practices that are followed at Indian Mound Nursery include:

1. Annual applications of a complete commercial fertilizer. The soil series at Indian Nound Nursery is classified as "Amite" which is a reasonably fertile soil.

The actual amount of fertilizer applied will vary depending upon the fertility level of the natural soil. This is determined from a soil analysis made each year. The nutrient level maintained for cottonwood is approximately the same as for southern pine, viz. 60 to 70 pounds of N per acre, 150 to 200 pounds of P205 per acre, 300 to 400 pounds of K20 per acre, 1,000 to 1,400 pounds of Ca CO3 per acre, and organic matter content in the amount of 1.5 to 2.0 percent.

2. Annual application of 100 cubic yards of compost per acre.

3. Planting rows were sub-soiled the first year before cuttings were set out and for each succeeding year thereafter sub-soiling was done between rows after the 100 cubic yards of compost per acre was applied.

Endrin, BHC, dieldrin, and malathion in water solutions were applied as an insecticide every 3 to 5 days for the control of the twig borer, stem borer, and the leaf beetle, Gypsonoma haimbachiana, Parparanthrene dollii, and Chrysomela scripta, respectively. Indications are that these insects may be effectively handled through a spraying schedule that is repeated approximately every 3 to 5 days beginning in early-March and continuing through the month of August. During periods of high insect incidence, however, the twig borer is most difficult to restrain. Effective control through use of systemics, with Thimet the most promising, has been largely erratic; and most of these systemics are organic phosphorus compounds and are treacherous to handle.

Cottonwood seedlings may be produced much the same way as comparable species of hardwoods. That is, on beds 4 feet wide with the seed sown broadcast, or in drills 4 to 6 inches apart. Seedbeds are kept moist during germination of seed, thereafter, watering is reduced.