

TREE IMPROVEMENT HIGHLIGHTS OF SOUTHEASTERN STATES

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Data compiled in this summary of tree improvement activities was obtained from correspondence received from the various State Organizations involved. Information reported was obtained during June and July, 1964.

In an attempt to conserve space and present a concise summation, the data is presented as follows:

ALABAMA

Organization. --Alabama State Division of Forestry.

Total acres to be planted. --Not reported.

Remarks.--The Alabama State Division of Forestry has entered into a cooperative agreement with the Department of Forestry, Auburn University, to develop improved varieties of forest trees. This program has just been initiated and the Auburn, Miller, and Hauss Nurseries are growing root stock for grafting. Selected phenotypes are being located.

ARKANSAS

Organization.--Arkansas State Forestry Commission.

Total acres to be planted. --Thirty -seven acres.

Remarks.--Arkansas' seed orchards are in three separate locations:
Orchard 1: 16-2/3 acres in size is designed for 48 parent trees of approximately 11 ramets each. Most grafts in the orchard are 2 years old and approximately 728 grafted trees are established.
Orchard 2: 10-2/3 acres in size. The first grafts were made during 1964. It is designed for 49 parent trees of which 23 have been selected. Orchard contains 230 living loblolly ramets selected from southwestern Arkansas.
Orchard 3: Will be 10 acres in size and is designed for approximately 49 shortleaf parent trees. Clones will be selected in the northern two-thirds of the State. Initial grafting will be done next year.

Arkansas reports 85 percent grafting survival, using the International Paper Company system of grafting. Most ramets are planted on a 30 x 30 spacing.

FLORIDA

Organization.--Florida Board of Forestry.

Total acres to be planted.--Nine hundred acres.

Remarks.--Florida's seed orchard program initially began in 1959.

They have approximately 350 acres established and report they have sufficient grafting stock on hand at present to plant an additional 30 acres. They outplanted 799 grafts of slash pine during the middle of May 1963 and reported a survival of 81.4 percent. Spring and summer planting of grafts in orchards is used in an attempt to prevent losses due to freezing while transplanting; also to take advantage of better moisture conditions.

Control breeding from progeny tests is being delayed until trees are of a size to produce cones in quantity sufficient to make control pollination economical.

Florida has 5 slash pine seed orchards. Two are located in the Blackwater River State Forest in west Florida and three are located on Withlacoochee State Forest in central Florida.

Slash pine has made up 90 percent of Florida's grafts, however, recent work has been commenced with sand and longleaf pine. Grafts made for the current season were as follows:

North Florida slash	17,000
High gum yield slash	2,000
South Florida slash	1,000
Sand pine	2,000
Longleaf pine	500

GEORGIA

Organization. --Georgia Forestry Commission.

Total acres to be planted.--Five hundred and twenty-five.

Remarks.--The Georgia program was initiated in 1954 when approximately 200 clones of slash and loblolly pines were graded. Georgia's tree improvement activities consist primarily of three orchards:

Arrowhead: Located near Cochran, Georgia, is the largest, being approximately 325 acres in size.

Horseshoe Bend Seed Orchard: Located near Glenwood, Georgia, is composed of 3 separate tracts. Tract 1 is approximately 45 acres in size and composed of slash pine ramets.

Tract 2. is a loblolly orchard 52 acres in size.
Tract 3 is a cooperative orchard between the Georgia Forestry Commission and the Union Bag-Camp Paper Company. It is 77 acres in size and consists of slash pine. Clones in this orchard were selected by Union Bag-Camp. Scion material was supplied to the Commission by the above organization, with the Commission grafting ramets involved and transplanting same. It is the Commission's responsibility to maintain this orchard as the site was furnished by Union Bag-Camp. Both organizations will jointly bear the cost of seed collection. Progeny tests to be completed by Union Bag-Camp.

Sandy Run Seed Orchard: Located on the Davisboro Nursery site, is 20 acres in size. Ramets are composed of slash and loblolly.

The Georgia program is approximately 80 percent complete and we are anticipating only one more year of large-scale grafting. Trees in Georgia's oldest seed orchard blocks are beginning to produce cones. Approximately 50 pounds of slash and 66 pounds of loblolly seed were obtained from the orchards and planted for use in Georgia's Reforestation Program. Seedlings from the above seed were inventoried in July 1964 and indicated that 319,000 slash and 393,000 improved loblolly seedlings will be available to landowners.

Seed orchard seedlings will be marketed as improved trees and not superior planting stock. Georgia will continue to use the term "improved trees" until progeny tests are complete. Landowners will be able to purchase improved trees in a manner similar to other nursery stock with the exception that only 1,000 seedlings of each species will be sold to an individual. This planting stock will sell for \$10 per thousand, FOB nursery.

The following grafts were made by the Commission during February and March 1964 and will be planted in the various orchards during the fall of this year: slash, 5,586; high gum yield slash, 591; Union Bag-Camp-GFC slash, 1,335; loblolly, 2,003. A small amount of grafting using longleaf on slash root stock has given good results. Several ramets are being grown so development of same can be observed.

LOUISIANA

Organization.--Louisiana Forestry Commission.

Total acres to be p reported.

Remarks.--Louisiana has located its seed orchards at various State nursery sites for convenience and economy. They report working with 75 to 80 clones of slash and loblolly pines. Louisiana also reports a small acreage of seed production area has been established. Selected cottonwood clones received from Stoneville have also been established for use in the landowner program.

NORTH CAROLINA

Organization.--North Carolina Department of Conservation and Development, Forestry Division.

Total acres to be planted.--Not reported.

Remarks.--North Carolina reports working in cooperation with North Carolina State and the University of North Carolina, also industry. Details of program not reported.

SOUTH CAROLINA

Organization.--State Commission of Forestry.

Total acres to be planted.--One hundred and fifty acres.

Remarks.--South Carolina's tree improvement program has been underway since a little over 2 years. Current plans call for the following seed orchard establishment: 30 acres in Piedmont loblolly, 30 acres in Coastal loblolly, 90 acres in slash pine. Orchard establishment plans call for 30 clone orchards. South Carolina's largest orchard will be located in the Manchester State Forest near Sumter, South Carolina. It will be near the Horace L. Tilghman State Tree Nursery. A 20 acre slash pine orchard will be established on a part of Coastal Nursery site near St. George, South Carolina. A definite location has not been decided upon in regard to the 50 acre slash orchard to be established.

Approximately 1,000 ramets have been established in all orchards; 5,800 grafts were made during the spring of 1964 and will be moved to the various orchards this fall. All grafting to date has been done on 1-1 root stock in the nursery seedbeds.

South Carolina reports one of their major problems is producing the correct size root stock for grafting. Root stock

TENNESSEE

Organization.--Department of Conservation.

Total acres to be planted.--Five acres.

Remarks.--Tennessee reports that very little work has been done in regard to tree improvement so far as total acreage is concerned. It is reported that the major portion of the Tennessee program is in cooperation with Tennessee Valley Authority. They advise that at present, Tulip poplar is the only species being worked with. A 5-acre yellow poplar seed orchard has been established; 10 clones of poplar have been successfully grafted. Future plans call for work with cherrybark oak, black walnut, sycamore, white ash, white oak, and sweetgum.

TEXAS

Organization.--Texas Forest Service.

Total acres to be planted.--Not reported.

Remarks.--Details of the Texas program were not received. Mason C. Cloud advised that a great deal of information was available in regard to tree improvement activities. This information may be available perhaps on request from interested parties.

The Texas program began in 1952, with emphasis on selection for drought resistance. Texas has also been selecting for resistance to bark beetles and for various superior properties of wood. The drought resistant orchard established in 1954-58 has yielded considerable quantities of seed that are being used in a direct seeding experiment. Results of this study should be available in the near future. Studies have been conducted in Texas seed orchards and the application of certain balanced fertilizers stimulates female flowers.

Texas added cottonwood to their program during the 1962-63 season in cooperation with the Champion Paper Company. Fifty clones are now being propagated. They were selected for growth rate and form.

MISSISSIPPI

Organization. --Mississippi Forestry Commission.

Total acres to be }planted. --Not reported.

Remarks. --Reports they have no formal tree improvement work.

VIRGINIA

Organization. --Virginia Forest Service.

Total acres to be planted. --Not reported.

Remarks. --Virginia's tree improvement activities began in 1958 with an objective of 350 acres. Eighty-five acres of slash and loblolly pine orchards have been established to date. An additional 141 acres are currently in development. White pine is also included in their program.