CULTURAL PRACTICES OF COTTONWOOD AND OTHER HARDWOOD SEEDLINGS 1/

W. D. McNeel, Nursery Supervisor
Mississippi Forestry Commission, Jackson, Miss.

In this report, the term "hardwood" will include all species other than the southern pines.

Just what do we mean by the term "cultural practices?" Webster defines "cultural" as pertaining to culture. Now we have to define "culture." Webster gives many definitions. The one I like is: "Culture is the business or profession of giving expert care or training."

I wish to limit my remarks to the expert care the nurseryman gives the seedlings from time of germination to lifting; more specific to:

1. Weed control.

2. Insects and diseases.

3. Control of seedling height growth.

Control of weeds

The only practical solution is hand weeding. Mineral spirits may be used on baldcypress and sweetgum. Soil fumigants and herbicides may be helpful, but cannot be depended upon. These chemicals are covered in other discussions; therefore, there is no need to take them up here.

Insects and diseases

Except for cutworms and corn borers, we have little or no trouble with insects in hardwood, other than cottonwood. Cutworms and corn borers can be controlled with Toxaphene or Malathion 55 percent and DDT 50 percent.

Cottonwood can be destroyed by cottonwood borers or cottonwood leaf beetles. The Delta Experiment Station recommended treating the cutting before planting with a systemic poison, 44 percent Thimet - carbon dust. This material is highly toxic and is effective for only 1 year. We have found we can extend control by applying the dust to the production area before the next spring's growth and then watering. Spraying the stubbles with liquid Thimet or Cygon is just as effective. Systemic insecticides are also effective in controlling the leaf beetles.

1/ This was a panel presentation. The papers of the participants are presented.

We are producing our fourth crop of cuttings on a production area established 4 years ago at Mt. Olive Nursery. At this time, we have very few borers and have sprayed only one small spot this year for the control of leaf beetles.

Control of seedling height growth

For years, we had complaints from landowners about hardwood seedlings being too large. Other than chopping off the tops, we did nothing about controlling growth until 1963. First, we contacted a number of persons involved in hardwood seedling production and hardwood timber management, asking them what constituted a plantable hardwood seedling. Again, the Southern Hardwoods Research Center at Stoneville, Mississippi, came to our aid. Using their recommendations as guidelines, we established specifications to be used in grading hardwood seedlings. For your information a copy of these specifications are being submitted with this'paper.

Now that we had some idea of the type of seedling we wanted, we began to look for ways of producing it. We clipped tops, under-cut (root pruning), reduced fertilizer and irrigation. These practices helped but did not completely solve the problem of height growth.

We are now trying chemical control. This year, we establi shed a study at Winona Nursery on two chemicals which are supposed to slow down growth of plants without any harmful effects. Their trade names are Slo-Gro M. H. and K.M.H. Each chemical was applied August 10, 1966, at the rates of 1, 2, and 4 pounds per acre to 7 species of hardwood seedlings. We hope to make other applications later in the year and include pines in the study. This study is being conducted by Mr. Sheron McIntire, Representative of U. S. Rubber Company, Box 485, Senatobia, Mississippi.

STANDARDS FOR GRADING HARDWOOD SEEDLINGS
Mississippi Forestry Commission (Effective 10/2/61; Prepared by W. D. McNeel)

Species	Specifications (Root collar diameter)	(Height)
Oaks	Minimum - 1/8-inch Maximum - 1/2-inch	Minimum - 8 inches Maximum -36 inches
Pecan	Minimum - 1/8-inch Maximum - 1/8-inch	Minimum - 8 inches Maximum -36 inches
Black locust	Minimum - 1/8-inch Maximum - 1/2-inch	Minimum - 8 inches Maximum -36 inches

Species	Specifications (Root collar diameter)	(Height)
Redcedar	Minimum - 1/8-inch Maximum - 1/2-inch	Minimum - 8 inches Maximum -36 inches
Arizona cypress	Minimum - 1/8-inch Maximum - 1/2-inch	Minimum - 8 inches Maximum -36 inches
Yellow-poplar	Minimum - 6/32-inch Maximum - 1/2-inch	Minimum – 8 inches Maximum -36 inches
Tupelo gum	Minimum - 6/32-inch Maximum - 1/2-inch	Minimum – 8 inches Maximum -36 inches
Baldcypress	Minimum - 6/32-inch Maximum - 1/2-inch	Minimum – 8 inches Maximum -36 inches
Cottonwood seedling	Minimum - 6/32-inch Maximum -	Minimum – 8 inches Maximum -36 inches
Sycamore	Minimum - 5/32-inch Maximum - 1/2-inch	Minimum – 8 inches
Green ash	Minimum - 5/32-inch Maximum - 1/2-inch	Minimum – 8 inches Maximum -36 inches
Sweetgum	Minimum - 5/32-inch Maximum - 1/2-inch	Minimum – 8 inches Maximum -36 inches

Cottonwood cuttings shall be 20 inches long. Minimum diameter at the small end shall be 3/8-inch and the maximum shall be 3/4-inch.

In cases where we are custom-growing seedlings, we may use different specifications where agreement has been made between Commission and party concerned otherwise, the above specifications should be complied with.