

## GEORGIA'S EXPERIENCE IN HARDWOOD SEEDLING PRODUCTION

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I have been asked to report on Georgia's experience in producing hardwood seedlings.

Our work in this field has been rather limited except for one year. Several years ago there seemed to be a lot of interest among the general public about hardwoods. In 1959, we grew a dozen different species without any major problems from insects and diseases. Our problem was getting the public to buy them. There seems to be a new interest in hardwood in Georgia; the trend is changing from hardwoods that would grow in low or swampy areas to upland hardwoods. Since the public has shown an added interest in hardwoods, this season we plan to grow the following species: charrybark oak, black walnut, green ash, dogwood, redbud, catalpa, yellow poplar, and cottonwood cuttings.

Due to the fact that we have had limited experience in producing hardwoods, I have taken what Georgia has found, and other southern states, and made a chart. If I have incorrectly interpreted some of your information, I would appreciate your clarification.

### MOW POPLAR

Seed preparation.--Seed soaked over night in water, drained, and 20 pounds put in plastic bag (36" x 63") . Six ounces water put in bag, sealed, and stored in cold storage at 37° for 90 days.1/

Seed' .--Bed prepared similar to 4-foot bed used for pine. Hand sown, using 20 pounds seed per 100 feet of seedbed. 1/

Mulching.--Seed placed on top of bed and covered with 1/4-inch chopped pine straw mulch. One-half-inch sawdust placed over straw mulch. No mulch removed.1/

Growing.--No special techniques used, only frequent watering during germination period.

Pest control.--No special control measures as no problems incurred.

### DOGWOOD

Seed preparation.--Soak seed for 3 or 4 days in water. Remove pulp by putting in cement mixer full of water, plus a small amount of gravel, Let a small amount of water run into mixer so that pulp can float off.1/

Seeding--Beds prepared similar to 4-foot beds used for pine. Three drills planted per bed. Hand sown.1/

Mulching--Seed placed in drills and covered with 3/4-inch of soil, plus 1/4-inch chopped straw mulch.1/

Growing--No special techniques used only frequent watering during germination period.1/

Pest control--No special control measures as no problems incurred. 1/

#### BLACK WALNUT

Seed preparation--No special technique is used in preparing seed.

See .--Beds prepared similar to 4-foot beds used for pine . Three drills hand sown per bed. Fifteen nuts per linear foot.1/ Plant at rate of 6 nuts per square foot.)

Mulching--Seed placed in drills and covered with 1 to 2 inches of soil and mulched with 1/4-inch of pine straw. Cover nuts with 1-inch of soil and 1/4-inch of sawdust and a heavy straw mulch.2/

Growin--Sandy soil is best for good root development. Frequent watering during germination period.1/

Pest control--No special control measures as no problems incurred.1/

#### SWEETGUM

Seed preparation--Seed soaked over night, drained, and bagged; stored in cold storage at 37° to 40° for 60 to 90 days.

Seeding--Beds prepared similar to 4-foot beds used for pine. Seeding rate is about 60 seeds per square foot of seedbed.1/ 3/

Mulching--Seed are planted with 4-square-foot box, designed to plant number of seed desired. Seeds are pressed lightly and mulched with 1/4-inch chopped pine straw.1/

Growing--No special techniques used only frequent watering during germination period.1/

Pest control--No special control measures as no problems incurred.1/

#### SYCAMORE

Seed preparation--Soak seed over night, drain, and put in burlap bags, store in cold storage for 45 to 60 days at 35° to 41°. Spring collected fruit need no treatment.1/

Seeding. --Beds are preped the same as for pine. Seeds are sown in rows 6 to 8 inches apart.11

Mulching.--Seed placed in rows and covered with 1/4-inch soil. No mulch required.1/

Growing.--Requires root pruning about mid -season.1/

Pest control.--No special control measures as no problems incurred.1/

#### COTTONWOOD

Seed preparation.--Seed need no pretreatment before sowing. Cuttings need no pretreatment.1/ 4/

Seeding.--Seed are sown immediately after collection, on bed prepared the same as for pine. Cuttings are planted in 3-foot rows, 2 feet apart in the drill. The cuttings are usually planted in a sub-soiled furrow. 1/ 4/

Mulching.--Seed sown or broadcast in drills and covered with 1/2-inch soil. If possible, beds should be shaded during germinatinn period. No mulching required for cuttings. J Li

Growine.--Seedbed should be kept thoroughly moist from 10 to 15 days after germination or until good roots are established. Cuttings should be watered heavy during sprouting period .1/ hi

Pest control.--Control is maintained by spraying with malathion.

OAKS- (swamp, chestnut, white, cherrybark)

Seed preparation.--Seed need no pretreatment .1/

Seeding.--Beds are similar to beds used for pine. Seed are planted in rows 8 to 12 inches apart .1/

Mulching.--Seed are planted by hand and covered with 1/2-inch to 1-inch of soil, with 1/4-inch chopped pine straw.1/

Growing.--No special techniques only frequent watering during germination period./

Pest control.--No special control measures as no problems incurred .1/

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1/ Data from Georgia Forestry Commission.

2/ Data from South Carolina Commission of Forestry.

3/ Data obtained from U. S. Forest Service, Southeastern Forest Experiment Station, Macon, Georgia.

4/ Gilmore, A. R., Kahler, L. H., Planting Cottonwood Seed in a Nursery. Tree Planters' Notes 55:23.

VARIOUS SPECIES OF SEEDLINGS BEING PRODUCED IN SOUTHEAST MN

UNITED STATES - 1964-65 SEASON

<u>Species</u>	<u>Agency producing<sup>1/</sup></u>	<u>Price per thousand<sup>2/</sup></u>
<u>ASH</u>		
green	6	\$ 5.50
	7	4.50
white	5	8.00
<u>CATALPA</u>		
	1	4.00
	2	4.50
	3	5.00
	4	15.00
	10	4.00
<u>CEDAR</u>		
eastern red	1	4.00
	3	8.00
	7	4.50
	8 (1 year)	10.00
	8 (2 year)	11.00
	9	8.00
	11	8.50
<u>CHESTNUT</u>		
Chinese	5	8.00
<u>COTTONWOOD</u>		
	2	4.50
	3	10.00
	4	10.00
	6	5.50
	7	4.50
	10	7.00
<u>CYPRESS</u>		
Arizona	1	5.50
	3	8.00
	4	15.00
	7	4.50
	8 (1 year)	10.00
	8 (2 year)	11.00
bald	7	4.50
	8	10.00
Mexican	7	4.50

<u>Species</u>	<u>Agency producing<sup>1/</sup></u>	<u>Price per thousand<sup>2/</sup></u>
<u>DOGWOOD</u>	4	\$ 30.00
<u>FIR</u>		
Fraser	8 (3 year)	55.00
	8 (3-2)	65.00
<u>GUM</u>		
black	6	5.50
red	9	8.00
sweet	1	4.00
	6	5.50
	7	4.50
tupelo	6	5.50
<u>LESPEDeza</u>		
bicolor	1	5.00
	4	6.00
<u>LOCUST</u>		
black	5	8.00
	7	4.50
	10	4.00
	11	4.00
<u>OAK</u>		
cherrybark	2	4.50
	6	5.50
cow	6	5.50
nutall	6	5.50
Shumard	6	5.50
water	6	5.50
white	5	8.00
	6	5.50
<u>PINE</u>		
cluster (Maritime)	8 (1 year)	4.75
	8 (2 year)	5.00

Species	<u>Agency producing</u> <sup>1/</sup>	<u>Price per thousand</u> <sup>2/</sup>
<u>PINE</u> - (continued) eastern white	4	\$ 8.00
	5	8.00
	8	7.00
	9	8.00
	10	6.00
	11	8.00
loblolly	1	4.00
	2	4.50
	3	4.00
	4	4.00
	5	8.00
	7	4.50
	8	4.75
	9	4.50
	10	4.00
	11	4.50
	longleaf	1
3		4.00
4		4.00
7		4.50
8		4.75
9		4.50
red	11	8.00
sand	1	4.00
	3	4.00
	4	4.00
Scotch	5	8.00
	8	10.00
shortleaf	1	4.00
	2	4.50
	4	4.00
	5	8.00
	7	4.50
	8	4.75
	9	4.50
	10	4.00
	11	4.00

<u>Species</u>	<u>Agency producing</u> <sup>1/</sup>	<u>Price per thousand</u> <sup>2/</sup>
<u>PINE</u> - (continued)		
slash	1	\$ 4.00
	3	4.00
	4	4.00
	7	4.50
	8	4.75
	9	4.50
spruce	1	4.00
	7	4.50
Virginia	1	4.00
	4	4.00
	5	8.00
	8	4.75
	9	4.50
	11	4.00
<u>POPLAR</u>		
yellow	1	4.00
	4	10.00
	5	8.00
	6	5.50
	7	4.50
	8	10.00
	9	8.00
	10	10.00
	11	8.00
<u>SPRUCE</u>		
Norway	8	25.00
<u>SYCAMORE</u>		
	1	4.00
	6	5.50
	7	4.50
<u>WALNUT</u>		
black	2	4.50
	5	8.00
	10 (nuts)	4.00

<sup>1/</sup> See attached code for agency name and address.

<sup>2/</sup> Prices listed FOB nursery per thousand.

(Data obtained from various states involved)

CODE SHEET

Code

Agency name and address

1

Alabama Department of Conservation  
Forestry Division  
Administrative Building  
Montgomery, Alabama 36104

2

Arkansas State Forestry Commission  
P. O. Box 1940  
Little Rock, Arkansas

3

Florida Board of Forestry  
Tallahassee, Florida

4

Georgia Forestry Commission  
P. O. Box 1077  
Macon, Georgia

5

Kentucky Department of Conservation  
Division of Forestry  
1122 South Main Street  
Dawson Springs, Kentucky

6

Louisiana Forestry Commission  
Box 15239 Broadview Station  
Baton Rouge, Louisiana

7

Mississippi Forestry Commission  
1106 Woolfolk Building  
Jackson, Mississippi

8

North Carolina Department of  
Conservation  
Forestry Division  
Raleigh, North Carolina

9

South Carolina Commission of  
Forestry  
P. O. Box 357  
Columbia, South Carolina

10

Tennessee Department of Conservation  
Division of Forestry  
Cordell Hull Building  
Nashville, Tennessee

11

Virginia Department of Conservation  
Division of Forestry  
Box 3347  
Charlottesville, Virginia



DISCUSSION TO: T. V. Lehto and M. C. Coleman

COMMENTS by Mr. Lehto:

Most folks think that sawtooth is like white oak because it sprouts just as soon as it hits the ground. You've got to plant it right away - it a lot of trouble to plant if it has a sprout.

Q. Have you held any seed over in cold storage?

A. (Lehto) Only small quantities.

Q. Would the Eastern Tree Seed Laboratory run tests on hardwoods?

A. (Jones) Yes.

Q. Do you fumigate?

A. (Coleman) Yes, before we plant.

A. (Lehto) I may not have made it clear but we fumigate the seed and we fumigate the soil before we plant.

Q. Do you have any persistent weed problem?

A. (Lehto) Only in spots where we get an overflow from the alley into the bed during treatment. We get some weeds through our irrigation system. This is something that most people don't think about.

Q. What do you fumigate your seed with?

A. (Lehto) Thiamine bisulfite and methyl bromide.

Q. **Is** it safe with most hardwood seeds?

A. (Lehto) We just fumigate acorns.

COMMENTS by Dr. Foster:

Some of these entomologist ought to try some new insecticides. Carbon bisulfite is a mess, and dangerous too.

COMMENTS by Mr. Jones:

I would like to add that we have done a little bit of work on the fumigation of acorns with methyl bromide in the past year. We found that you can easily put too much on and kill the acorns. If anybody wants to use methyl bromide, we can give you some amounts that will help you use it.

Q. What is Mag Amp?

A. (Foster) Mag Amp is the trade name for the W. R. Grace & Co. (147 Jefferson Ave., Memphis 3, Tennessee) formulation of magnesium ammonium phosphate, a 6-29-0 fertilizer with 16 percent magnesium oxide.