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### GROWTH OF SLASH PINE AND POND PINE ON WET SITES

Slash pine (*Pinus elliottii*) grew three times as fast as North Carolina pond pine (*P. serotina*) when planted on wet sites in south Mississippi. Pond pine, however, survived better than slash in these seven-year-old plantings.

Slash pine seedlings from local seed and pond pine seedlings from Onslow County, North Carolina, seed were planted on two typical wet meadows in January 1952. Each species was represented in each meadow by 144 trees at 4- by 4-foot spacing. The trees in one meadow were burned by an early morning wild fire in March 1954.

After seven growing seasons the slash pine on the unburned area averaged 7.3 feet in height with a survival of 80 percent; the pond pine averaged 2.2 feet in height and 91 percent in survival. On the burned area the slash pine averaged 7.1 feet in height with 23 percent surviving, while the pond pine averaged 1.8 feet in height, but had 60 percent survival. Most of the burned pond pine seedlings sprouted, as did a few of the slash pine.--R.M. Allen and N.M. Scarbrough.

### DIRECT SEEDING WHITE PINE

For the first time on Tennessee's Cumberland Plateau, eastern white pine has been established by broadcast sowing. On disked areas where conversion from low-grade hardwoods to a better crop was desired, repellent-coated seed produced 2,350 seedlings per acre after 1 growing season, as compared to 1,350 from untreated seed. Milacre stocking averaged 80 and 68 percent, respectively.

All seed was from the 1957 crop in western North Carolina. It was stratified in wet sand at 38° to 40° F. for 17 days, and then half the lot was coated with a mixture of 6 pounds of Arasan-75 and 0.8 pound of Endrin-50W per 100 pounds of seed. The sticker was Latex 512R. Aluminum powder was added to make the treated seed easier to handle.

The seed was broadcast on April 2, 1959, at the rate of 10,500 full seeds (about 0.6 pound) per acre. Laboratory germination after stratification was 82 percent for untreated seed, and 55 percent normal and 26 percent abnormal for treated seed. Normal field germination under screen-wire cones was 53 percent for treated and 64 percent for untreated seed. An additional 8 percent of the treated and 3 percent of the untreated seed germinated abnormally.--T.A. Harrington.

### DROUGHT SLOWS TIMBER GROWTH

Timber growth in north Alabama was considerably reduced by the dry years of 1952 through 1956. This fact was evident in growth data from the Flat Top Experimental Forest, near Birmingham.

In a test of cutting methods in pine-hardwood stands, one set of plots was cut in 1950, a second set in 1951, and a third in 1952. Growth rates were measured 5 years after each set was cut.

The 5-year span for the first set of plots took in 2 normal years and 3 drought years; growth on these plots averaged 62 cubic feet per acre annually. The second set encountered 4 dry years, and averaged 52 cubic feet of volume growth yearly. The third set, which suffered from drought during all 5 years, grew at the rate of 22 cubic feet per acre annually.

In board feet, average annual growth per acre was 294 for the first set of plots, 265 for the second, and 150 for the third. At an assumed stumpage value of \$30 per MBF, the value of the board-foot growth on plots cut in 1952 was \$4.32 less per year than on those cut in 1950. Such losses point up the desirability of conserving soil moisture by the removal of useless trees--pines as well as hardwoods.--Herbert A. Yocom.

### TOWN ANTS DAMAGE SLASH PINE PLANTATION

Defoliation by the town ant, *Atta texana*, seriously reduced survival of slash pines in an experimental plantation in central Louisiana.

First-year survival of grade 1 and 2 ('plantable') seedlings was 57 percent for those partially to wholly defoliated and 92 percent for those that escaped the ants' attention. The injury--which occurred within 2 months of planting time--was more lethal to cull (grade 3) seedlings: survival of this class was 18 percent for ant-damaged seedlings and 81 percent for undamaged. In all grades of seedlings, those dam-

aged the worst--needles clipped, terminal buds removed, and stem partially debarked--did not suffer much if any greater mortality than those damaged more lightly.

As the ant town responsible for the damage was eradicated when the plantation was about 2 months old, no measure of the effects of multiple defoliations was obtained.--*Eugene Shoulders*.

### LATE SPRAYS KILL HARDWOODS IN WET YEAR

In the Ouachita Mountains of Arkansas, foliage sprays controlled undesirable hardwoods as effectively in the late growing season as in the spring, provided that soil moisture remained adequate for good tree growth. Relative humidity at time of spraying appeared unimportant.

Tests were made with an oil-water emulsion of low-volatile propylene glycol butyl ether ester of 2,4,5-T on understory oaks and sweetgum: (1) in May 1958, with high soil moisture and high relative humidity, (2) in late July and August 1958, with high soil moisture and humidity, (3) in late July and August 1958, with high soil moisture and low humidity.

By the end of the same growing season following spraying, the proportions of sprayed stems with dead crowns were 78 percent, 78 percent, and 75 percent for the three test conditions.

The spray was delivered from a tractor-mounted boom. Pressure was 40 pounds per square inch, and the rate was 40 gallons of mixture per acre. The formulation consisted of 1 gallon of Dow Esteron 245-OS (4 pounds acid equivalent), 1 gallon of number 2 diesel oil, and 38 gallons of water.

Late-season tests at low soil-moisture levels have been installed.--*J.L. Smith* and *E.R. Lawson*.

### HERBICIDAL SPRAYS DAMAGE PINE SEEDLINGS

Foliage spraying with 2,4,5-T to control understory hardwoods is lethal to newly germinated shortleaf pine seedlings during the early growing season. A June 1958 spraying killed 90 percent of seedlings from the 1957 seedfall; natural mortality on unsprayed areas was only 32 percent. Spraying late in the growing season (August) was not quite so destructive--mortality was 71 percent, as compared to 33 percent on unsprayed areas.

The spray was applied by a tractor-mounted boom spray unit and consisted of a low-volatile propylene glycol butyl ether ester of 2,4,5-T in diesel oil and water, at the rate of 40

gallons per acre of a mixture of 1 gallon diesel oil, 1 gallon 2,4,5-T (4 pounds acid equivalent), and 38 gallons of water. The chemical was Dow Esteron 245-OS.--James L. Smith and Edwin R. Lawson.

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\*Copies are available at the Southern Station.