



# VIRGINIA DIVISION OF FORESTRY

DEPARTMENT OF CONSERVATION AND ECONOMIC DEVELOPMENT



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## YELLOW POPLAR DIRECT SEEDING AND PLANTING STUDY

### Introduction

The Staunton District of the Virginia Division of Forestry installed a yellow poplar direct seeding and planting study near Deerfield, Virginia, in Augusta County during the winter and spring of 1961-62. The study was installed in a 2 1/2 acre field, on bottom land adjacent to the Calf Pasture River. The elevation of this field is 1,720 feet. Corn was harvested from this field during the 1961 season.

The soils in the field have been formed from alluvial material coming from sandstone and shale. Two level terraces occur in the field, one about 3 to 4 feet lower than the other. The high terrace makes up most of the field. Sequatchie soil occurs on the higher terrace and Pope on the lower. Both of these soils are well-drained, have sandy loam topsoil, and are derived from similar parent material, but the Sequatchie is a somewhat older soil. Excellent stands of natural yellow poplar frequently occur on both Sequatchie and Pope soils.

### Description of Study

Three different treatments were tested:

1. 15 pounds per acre of non-stratified seed, sown on December 7, 1961.
2. 15 pounds per acre of stratified seed,<sup>1/</sup> sown on April 10, 1962.
3. Seedlings (1-0) planted on April 10, 1962.

These three treatments were replicated four times on twelve 1/10-acre plots using a complete randomization design.

<sup>1/</sup> Stratified in a moist mixture of sand and peat for 130 days.

### Installation of Plots

The plots were disked to cut and turn in the corn stubble during the first week of December, 1961. Seed was broadcast by hand on December 7th and April 10th. Seedlings were planted using a 6.6 x 6.6 foot spacing — eleven rows of 11 seedlings each for a total of 121 seedlings per plot. The seedlings used in this study had tops measuring approximately 6 to 8 inches in length.

### Results

The direct seeding failed completely on all plots. Only one seedling was found and it did not survive. Four seasons after sowing no seedlings could be found on any of the direct seeded plots.

Survival of planted seedlings was good initially but has become progressively poorer. Survival at the end of the first growing season was in excess of 90 percent. A survival count was made on May 6, 1964, at the beginning of the third growing season, and survival was 75 percent (the 95 percent confidence interval is plus or minus 7 percent). Another survival count was made on August 16, 1965, near the end of the fourth growing season, and survival had dropped to 44 percent (the 95 percent confidence interval is plus or minus 9 percent). Seedling vigor is low and additional mortality is expected.

Heights of planted seedlings were measured on August 16, 1965, after almost four growing seasons. The seedlings ranged from 3 to 30 inches in height, with an average of 11 inches (the 95 percent confidence interval on this average is plus or minus 1 inch). Practically all of the seedlings show evidence of "dieback" (many have died back to the ground and resprouted, resulting in multiple stems in many cases).

The present vegetative cover on the plots is a moderately dense growth of weeds two to three feet tall. There is very little grass and no hardwood brush present.

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