

LOBLOLLY-PITCH PINE BREEDING ORCHARDS

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The Northeastern Forest Experiment Station and the West Virginia Pulp and Paper Company will soon establish orchards for artificial breeding within pitch pine, within loblolly pine, and between the two species. The overall objective is to provide a source of high-quality, locally adapted hard pines for most sections of the Northeast.

To meet this objective, artificial breeding and outplanting tests will be needed on a fairly extensive scale, because there are several questions that should be answered.

1. Can hybrids between the two species be produced that will survive as well as local pitch pines and outgrow them in the various portions of the Northeast beyond loblolly's range? Very probably the answers will be positive in some sections, negative at greater latitudes or altitudes.
2. Do selected pitch pines from different sections of the Northeast differ in cold hardiness and growth?
3. Can superior pitch pines be so bred that they provide locally adapted trees appreciably better formed and faster growing than pitch pines from usual sources--in several geographic locations of the Northeast?
4. For Delaware and eastern Maryland,, can superior loblolly pines be bred so that they provide locally adapted trees appreciably better formed and faster growing than trees of usual sources?

With the help of state and other foresters, personnel of the two major participants spent many days last year in selecting parent trees for this breeding work. Thirty loblolly pines were chosen as scion sources in Delaware and eastern Maryland. The 27 pitch pines, similarly selected, represented 7 geographic sources--4 Virginia trees, 3 in West Virginia, 4 in southern New Jersey., 4 in the northeastern Pennsylvania-northwestern New Jersey section, 4 in the north-central Pennsylvania-south-central New York area, 4 in southeastern Massachusetts, and 4 in the New Hampshire-Maine area. For the most part these trees were widely scattered within the general area mentioned.

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Selection criteria emphasized height dominance and form, Usually the chosen trees were somewhat taller, 3 to 15 feet, than other dominants of the same age, and were outstanding also in form. Straightness of bole usually received a very good or excellent rating. While nearly all the chosen loblolly pines were 30 to 60 years old, and 60 to 102 feet tall, pitch pines were appreciably older: many were 75 to 150 years old. However, these pitch pines were outstanding in their height and form, and many reached heights comparable to the younger loblolly pines. For example, all five of the more northern geographic sources included pitch pines that had total heights of 85 feet or more.

Professional tree climbers were employed in collecting scions from the selected trees last spring. Usually 35 to 100 possible scions were taken from a source tree.

Under the direction of I. F. Trew, personnel of West Virginia Pulp and Paper Company grafted the scions to seedlings of the same species that had been planted a year earlier. Loblolly seedlings were from the nursery of the Maryland Dept. of Forests and Parks; pitch pine seedlings from a nursery of the West Virginia Conservation Commission. Fred Trew and his crew did a splendid job: in mid-July 69 percent of the pitch pine grafts and 78 percent of the loblolly ones were still living, New growth on the grafts was appreciable, 2 or 3 feet on some of them.

Present plans are to move the grafted seedlings into breeding orchards within the next year. The Northeastern Forest Experiment Station will have a 5-acre orchard in the Lebanon State Forest near New Lisbon, N. J. The West Virginia Pulp and Paper Company will have one near Charlottesville, Va. Possibly 2 years later flowering will be sufficient so that work in controlled pollination can start.

LOBLOLLY SEED PRODUCTION AREA

Last winter the Maryland Department of Forests and Parks started to develop a seed-production area in loblolly pine. This is a 15-acre area in the Milburn Landing Tract of the Pocomoke State Forest, Worcester County.

The area is in a section with little pond pine influence, and the site of summer-burned plots used in a cooperative study with the Northeastern Forest Experiment Station. The present stand is the second generation from an old field. The former stand was given a seed-tree cutting, after which the portion being developed as a seed-production area was prescribe-burned in September 1951. From the best trees of the former stand left as a seed source, dense reproduction, 7,000 to 10,000 pine seedlings per acre in the 1952 summer, developed. In January 1964 the dominants in the new crop, only 12 years from seed, had reached 3 to 6 inches in diameter and 25 to 35 feet in height.

Well-formed dominants were then chosen on about a 20- by 20-foot spacing, and cutting for release of side branches on these trees was done last spring, Gradually all other tree growth will be eliminated from the area, and eventually selected stems will probably be reduced to about a 40- by 40-foot spacing.