

19. RESULTS FROM WESTVACO SEED PRODUCTION AREAS THROUGH 1951

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At the Atlanta Forest Tree Improvement Conference in January 1953 it was my privilege to give a short paper on Westvaco seed production areas setting forth the methods of selecting the trees and collecting and handling the cones and seed. This paper deals with cone and seed yields from our 1953 and 1954 seed production areas and the cost of the seed produced.

In September 1953 we collected 105 bushels of cones from 74 trees in our first loblolly pine seed production area. This amounted to 1.44 bushels per tree. These cones yielded 115 pounds of double winnowed clean seed--17.5 ounces of seed per bushel of cones. Cutting tests showed 85 percent sound seed. Seed counts averaged 18,100 seeds per pound. Cone counts ranged from 225 to 300 per bushel and cones weighed 28 to 31 pounds per bushel at the time of collection. Seedlings from this seed lot will be planted on Company lands this winter.

This past fall we cut the remaining 31 trees on the first seed production area and they yielded a much smaller average volume of cones--only 1/2 bushel per tree. These trees had been left standing the previous year because we could only handle about 100 bushels of cones at that time. In general they were the trees with the poorer crop of cones in 1953. This past fall--four seasons after release--again these trees had a poor crop of cones.

Last October 60 trees cut from our 1954 seed production area yielded 99-1/2 bushels of cones--an average of 1.66 bushels per tree. The cones turned out 116.5 pounds of double winnowed clean seed--18.7 ounces per bushel of cones. Cones averaged 330 per bushel. Collection cost was \$2.02 per bushel. To this must be added \$0.58 per bushel for extracting plus \$0.21 per bushel for tree selection making a total of \$2.81 per bushel of cones, or \$2.39 per pound of clean seed.

In addition to the 99-1/2 bushels from the 1954 seed production area we collected 83 bushels from the remnants of the 1953 area and from scattered seed trees left in harvest cuts at the same time in the same general area. This lot of cones from 78 trees averaged 1.06 bushels per tree and yielded 104.5 pounds of clean seed--20.1 ounces of seed per bushel of cones. Collection costs were \$2.68 per bushel--\$0.66 per bushel higher than from the 1954 seed production area. Seed extraction cost \$0.58 per bushel and tree selection \$0.33 per bushel--a total of \$3.59 per bushel of cones, or \$2.85 per pound of clean seed.

^{1/} Read by R. O. Gustafson, Westvaco Experimental Forest, in the author's absence.

The cost figures given are based on \$1.08 per hour for labor with a foreman at \$1.41. A breakdown of collection costs shows 70 percent for labor, 11 percent for transportation, and 19 percent for overhead. Included in the extraction cost is a charge of \$0.25 per bushel for depreciation on equipment and buildings. Tree selection cost \$0.35 per tree. Cone and seed yields and seed costs are summarized in Table 1.

Table 1. Cone and Seed Yields and Cost of Seed from 1953 and 1954 Production Areas

Area	Number of Trees	Cone Yield Bushels	Bushels per Tree	Pounds Clean Seed	Seed per Bushel of Cones ounces	Seed Cost per Pound
1953	74	105	1.44	115	17.5	\$ -----
1954	60	99.5	1.66	116.5	18.7	2.39
1/1954	78	83	1.06	104.5	20.1	2.85

This fall we also collected 2-1/2 bushels of slash pine from our 23-year-old slash pine seed production area, and several small lots of seed from high density trees.

In addition to the Experimental Forest's collection of cones our Company's Southern Woodlands Department collected 868 bushels of Coastal Plain loblolly, 110 bushels of Piedmont loblolly and 110 bushels of Colleton County, South Carolina slash pine. The State Forest Service extracted the seed from the 868 bushels and Westvaco extracted the seed from the two small lots.

Total collection of cones this year for West Virginia Pulp and Paper Company seed to be planted at the State Nursery was 1,160 bushels of loblolly and 110 bushels of slash pine. Southern Woodlands collections were made from seed trees left to re-seed cut-over areas. In 1956 Southern Woodlands' seed production areas will come into production.

The Experimental Forest now has 55 acres of loblolly pine seed production area containing 608 trees as well as 18 acres of slash pine seed production area containing 520 trees. Our Company's Southern Woodlands Department has 37 acres of loblolly pine seed production area containing 494 trees and 18 acres of slash pine seed production area containing 520 trees. This is a total for West Virginia Pulp and Paper Company of 92 acres of loblolly pine and 36 acres of slash pine aggregating 2,142 selected seed production trees. We plan to add another 100 acres this winter.

1/ From scattered seed trees and remnants of 1953 area.

From 1956 on we expect to furnish from selected parent trees all the seed for our loblolly pine planting stock. This is a feasible and financially sound program. West Virginia Pulp and Paper Company for one considers it a first step in the improvement of our Southern pine forests.

Hoy C. Grigsby and Charles T. Shotts of the Mississippi Forestry Commission concluded the afternoon session by showing the Commission's 18-minute color film, "Developing Pedigreed Trees".

Dr. Bruce Zobel's talk describing his 1954 trip to Mexico to collect seed of Mexican pine, scheduled for the night session was given at an informal meeting in his hotel. His talk was illustrated by kodachrome slides.