# SEED ORCHARDS AND SEED PRODUCTION AT WESTVACO

by

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In the fall of 1949 Westvaco Experimental Forest was very happy to grant permission to a group of high school students to collect. loblolly pine cones from our sawlog operation. he were quite surprised when the leader of the group stopped by the office to thank us and said " The trees you are cutting are too long and keen. They have only a few cones on them. If you get into some short, scrubby stuff with a lot of cones let us know."

Since the cones were to be sold to the state nursery we began to wonder just how much of the seed came from "short, scrubby stuff" and what could we do about it right now. This incident occurred along, about the time Keith Dorman and some of the other foresters in the South were beginning to talk Forest Genetics and Tree Improvement. We started working on a simple method of developing a seed source to fill the need until the problems of forest genetics could be worked out. We were looking for a simple, practical means of securing the seed from a good source and hit upon the "seed orchard" idea.

Using such qualitites as form, disease resistance, branching habits and growth as recommended by Dorman in his "Heredity Variations as the Basis for Selecting Superior Forest Trees" we selected areas supporting "plus stands". These areas, 5 or 6 acres in extent, are marked for cutting so as to leave 15 to 25 of the best individuals for seed production. Other trees in the stand are sold for piling, saw timber and pulpwood. Loggers are quite willing to make such a cut at going stumpage rates as the volume per acre is usually considerable. Following the lodgings all hardwoods over head high are removed or treated with silvicide.

From loblolly seed fall studies carried out at Westvaco we know that it takes individuals of this species 3 to 4 growing seasons to develop their seed producing ability after release. The first area was selected in December 1950 and cut January of 1951. Cones will be collected from this area in the fall of 1953 . Since cones are to be collected by felling the trees, a new seed orchard is marked each year. The area prepared in January 1952 will yield seed in October 1954.

When cones are harvested all but four trees per acre are cut. Cones are picked by hand. The loggers and pulpwood producers remove the felled trees after the cones are harvested.

Until the first seed orchard is ready for harvest we are collecting seed from individual trees left as seed trees in some of the earlier cut-over areas. Our collection of seed from "plus" trees began in October 1950.

Collected cones are stored in our own cone drying house where the seed is extracted when the cones are dry. The seed is turned over to the state nursery where it is earmarked for West Virginia Pulp and Paper Company's Woodlands Department. Seedlings so raised are sold to the Company at the going rate. Westvaco bears the cost of the seed to be able to get seedlings from its own seed source.

Our seed house has a drying capacity of about 70 bushels of cones but it can be expanded to take 100 bushels. We expect to get 100 bushels of cones from each seed orchard. Thee cones should yield enough seed to produce about 750,000 seedlings.

We have another loblolly pine study aimed at learning how we can develop seed production in younger trees. "Plus" individua1s from 10 to 30 years of age have been released to give then more light and an opportunity to develop their crown. So far 45 of these "plus" trees have, been selected; some in old field and some in natural stands. Selections were made on a basis of growth, disease resistance and form. Some of these trees have been topped and some are banded with steel strapping to induce strangulation. Others may be given still other treatment that might hold promise.

As a possible slash pine seed source, we have a 10-acre plantation of slash pine that was established in 1932 from seed obtained from the Lake City area in Florida. This plantation was very heavily infected with cronartium. Last January, at 20 years of age, all infected trees were removed and used for pulpwood. A good number of the trees remaining are "plus" trees and show signs of being good cone producers. This stand should offer a better strain of seed for local planting than seed shipped in from further south. One, generation may not do much to acclimatized or make the progeny rust resistant, but it should help.