

## SEED SOURCE AS RECOGNIZED BY STATE NURSERIES IN THE SOUTH

By P. A. Griffiths

Preparation for this paper necessitated the contacting by letter all the southern State Nurseries. Most of the states gave prompt replies and for the sake of accuracy I have lifted from each state's letter the information which refers to this subject. In all cases I have quoted under each state their exact words in describing this activity.

VIRGINIA: "We have, so far, done very little toward obtaining seed from superior sources. Our only efforts have been to secure good quality cones from a source near ultimate planting area for the seedlings. We are fortunate enough to secure practically all of our seed from Virginia areas, or in a few cases from just over the line in your State." (North Carolina).

SOUTH CAROLINA: "In conjunction with the collection program by geographic sources we have done the following:

1. Produced our present seedling crop by geographic seed collection source.
2. We propose to distribute the seedlings back into the areas from which seed came wherever practical.
3. The Management Branch will in all probability make survival, growth and other related studies on the stocks
4. Our future production and distribution program will be handled in a similar nature, with perhaps specific studies determined later, on the field program by Management Branch Chief."

"Insofar as the nursery end is concerned, I know you must realize this increases the nursery work load considerably. It will further increase costs on seedlings, however, it is something very vital and I for one am very interested and believe the field results will be worth every effort and increased costs."

GEORGIA: "As for our major species; slash, longleaf, and loblolly, for the past four or five years, practically without exception, the slash and longleaf have come from the upper coastal plains of Georgia and the loblolly from the lower part of the Piedmont area. By gathering our seed from these places none of our seedlings have been planted over 100 miles north or south of their origin."

"No attempt thus far has been made to gather seed from superior or better formed trees. At the present time due to the expansion of our nurseries we have been unable to make such a demand on cone gatherers. To elaborate further, we have some 55 million seedlings this year, and plans are now underway to grow approximately 100 million next year. You can see this will take an enormous amount of seed. We are making an attempt to gather some cones of our own in addition to those being gathered by the Southern Seed Company for us and the cones that are gathering are well-scattered over the State."

"Beginning next year an attempt will be made to keep the seed grown in a four or five county radius separated and will ship those back into that area as nearly as possible."

ALABAMA: "As far as our nurseries recognizing this place in routine seedling production, we try to retain seed collection near each nursery for seedling distribution in that locality. Our three nurseries are located in different areas of the state. We find this helps in retaining locally collected seed in these particular areas."

T. V. A: "In planning collection we attempt to procure seed from within the Tennessee Valley or as close to it as possible. For instance collection of White Pine, Yellow Poplar, Black Locust, and Red Cedar is almost exclusively from the valley. Shortleaf collections are partially from the valley. Collection from non-valley areas is made only when we are unable to secure our needs from the valley. Our most recent procurement of non-valley shortleaf has been from Arkansas."

"In loblolly which is, of course, our principal species the bulk of our collection is outside the Valley proper. We are forced into this because of the relatively small amount of loblolly growing naturally in the valley. We try to concentrate our collection of this species as close to the valley as feasible and generally get most of our cones from North Mississippi, North and Central Alabama, and North and Central Georgia. The exigencies of collection sometimes cause us to get loblolly seed from North and South Carolina and Virginia."

"Despite where collection is made, we keep accurate records as to source. We have done this since the beginning of TVA Nursery operations in 1934. Through the years our seed sources have been designated as areas comprising roughly one-third of a state. Designations have been set up such as North Alabama, Central Alabama, and South Alabama. In the last three or four years we have begun to refine this further to the extent that seed lots are designated by counties. The practical difficulty in this procedure is, of course, relatively small lots from individual counties which still have to be thrown together in the nursery seeding operation. Our operations, however, are now geared to the point where with a sizable lot, say 50 pounds or more, from an individual county, we can identify the seedlings from that lot at lifting and distribution time."

LOUISIANA: "We are definitely interested in forest tree improvement work through the production of seedlings from local seed. We have not, however, been able to refine our operations to the point desirable because of the following reasons. They are (1) production requirements to meet the demand exceeds that which can be secured locally; and (2) a considerable part of our production is slash pine and we do not have a large enough area in slash pine to provide an adequate local source of seed."

"We have, during the past two years, begun a program of collecting local seed as much as possible. We have particularly emphasized loblolly and longleaf seed for this operation. Our steps in this direction may be listed as follows:

1. We are attempting to separate the locally collected seed by regions, that is, the seed of North and South Louisiana is segregated.
2. No effort at this time is being made to segregate the seed secured from individual trees considered to be superior. The reason for this is the present production problem."

TEXAS: "We have the policy of planting at our nursery only seeds from a Texas source for loblolly, shortleaf, and longleaf. We have two years or more supply of loblolly and shortleaf in cold storage and have plans to collect each year enough to replace our annual requirements. This year with a short crop it looks like we will get only about half of what we need. Further we have urged our collectors, through our district foresters, to obtain seed only from individual trees or stands with superior characteristics. We do not want seed from old field type trees."

"The larger planters in Texas have been offered the opportunity to collect cones in their operating territory, with the commitment on our part that the seed extracted from these cones will be kept separate and the seedlings will be grown in separate beds at the Nursery, and the planter will receive trees from the seed which were extracted from the cones they collected. Last year four planters took advantage of this offer. This year due to a very poor seed crop and the critical fire season, only one planter is taking advantage of this. We intend to continue this offer through future years."

Texas further states that on each planter they keep a plantation establishment record which shows the ordinary information of number of trees, spacing, site and species. In addition, they show the seed source from which the trees were grown.

Since slash is not native to Texas they receive their supply from South Georgia, and will continue to do so until plantations are to the seed-producing stage.

MISSISSIPPI: Loblolly: "We produce seedlings only from seed collected within the state. We also separate Mississippi seed into three sub-groups based on the location of the collection; but to date, we have not been able to correlate our seedling distribution with the seed collection territory."

Slash: "We collect a small portion from Southeast Mississippi. The bulk of our slash is bought from Georgia collectors. Seedling distribution is not yet correlated.

Longleaf: "Use only Southeast Mississippi seed; there is no further breakdown."

Shortleaf: "Use only Mississippi seed. Seed is separated by two areas-- North Mississippi and Southeast Mississippi. Seedling distribution of the two seed source groups is not yet correlated.

FLORIDA: "We do recognize the importance of seed source as based on the available research data to date but when you are attempting to obtain, cones in sufficient quantity to supply ten to twelve thousand pounds of seed per year, it is difficult to specify the area from which you will

obtain your cones as well as the trees from which the cones should be collected. The variation in cone crops requires that you obtain cones wherever they are available in sufficient quantity to interest collectors. Fortunately,, most of our slash pine is collected in North Florida or South Georgia which is well within a two hundred mile radius of the bulk of the planting sites in Florida. Our longleaf cones are usually collected in West Florida from quite well-developed and acceptable timber. This happens because the quantity required is small and we collect it with our own personnel."

"The only variation from our general procedure is that we collect South Florida slash to grow seedlings which are planted back in South Florida. This year we are collecting cones from Polk County, which is near the extreme southern range of the so-called North Florida slash and the seedlings from this seed will be planted back in that county. This is our first attempt at, custom seedling production for an industrial concern."

NORTH CAROLINA: This year we have been able to collect about 100 bushels of loblolly cones from what we consider superior trees. This loblolly stand is located in Wilson County, coastal plains, North Carolina. The stand previously had been marked and cut in 1948 and this cutting in 1952 was removing some poles and piling. This stand is approximately 85 years old and will average 4 to 5 logs in merchantable lengths. These seedlings will be planted back in this area on private and public lands..

Loblolly: This species comprises the bulk of our seedling production and efforts are made to plant seedlings back or near the seed source. We divide the state into regions for seed collection and plant the seed accordingly in the nursery beds. The state is divided into North Coastal Plain, South Coastal Plain, Piedmont, and Mountains,

These same regions hold for all the other species grown, except slash pine. This pine as you know is not native to North Carolina and the bulk of the seed comes from Georgia.

Incidentally, 93% of the seed used at our nurseries is collected under the supervision of our district personnel.

An attempt is being made to establish a loblolly pine seed orchard of approximately 15 acres on the Bladen Lakes State Forest. This stand is now 50 years old and a series of cuttings are planned, collecting seed from cut trees. This cutting will continue until the desired spacing and superior trees are known.

As you can see from the above, progress is being made by the Southern State nurseries in this all important work. However, we are still faced with the problem of seedling production and seed must be obtained economically as well as in quantity to meet demands. Florida summarizes this thought in this way, quote, "All foresters in nursery production recognize the importance of seed source, but any development

in this phase of genetics must be, to quote Schopmeyer, "economically practical and administratively feasible." Florida continues, "Hand in hand with research in genetics should be research in developing ways and means to economically collect cones from the type of tree that we should obtain our seed. The testing of various types of ladders, climbers, pole hooks and other devices for cone collection should be set up as a research project."