PAPER PRESENTED AT A-9 STATE NURSERYMEN'S MEETING

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The Eastern Tree Seed Laboratory, the only one of its kind in North and South America, is located near Macon, Georgia. This laboratory had its birth at the Ashe Nursery near Brooklyn, Mississippi. As the forest industry was re-activated following World War II, the demand for seed and seedlings for reforestation increased throughout the south. Initially, seed tests were run at the Ashe Nursery in a small laboratory set up to test their own seed lots plus a few other seed lots for nearby nurseries. The word getout! Seed flowed in and at an increasing rate, too. It soon became apparent that there was need for a larger facility to handle this seed testing.

The Georgia Forestry Commission, expanding their overall program near Macon, Georgia, offered a site for the proposed laboratory. Equipment and technical personnel were soon in larger temporary headquarters on the grounds of the expanding Commission Center. Soil Bank Funds later permitted the construction of a still larger permanent modern laboratory and office building in which the present laboratory is now located.

The Eastern Tree Seed Laboratory is a unique institution for several reasons. We handle only tree and shrub seeds for testing and research, Although our service test customers cover a wide geographic range, we try to confine our domestic service activities to the area East of the, Great Plains, and including the Great Plains. We do both service testing and contract and regular research work. We also enter into cooperative studies with other private, State, and federal agencies an(institutions.

Lastly and perhaps most significant, we are an organization which answers to four bosses! The Laboratory is operated cooperatively by the Georgia Forestry Commission, the Georgia Forest Research Council, the Southeastern Forest Experiment Station of the U. S. Forest Service, and the Division of State and Private Forestry of the U. S. Forest Service. The Georgia Forestry Commission is responsible for physical facilities, seed test billing, some services and laboratory personnel.

The Georgia Forest Research Council contributes toward the salary of our Director and Lab Technician for the research work they do. They also are responsible for publication of some of the laboratory findings.

The Division of State and Private Forestry of the Region 8 office of the U. S. Forest Service in Atlanta, Georgia, is responsible for providing technically trained supervisory personnel, travel, and other miscellaneous operating funds. They also assist in the publication of some laboratory reports.

We can honestly say they are a great bunch to work for and with! We are delighted with the progress we can and have made under this cooperative arrangement.

We've talked about us enough - now, how about you? Well -- YOU, the seed test customer or cooperator, are our most important interest!! You are always welcome at the Laboratory -- in person, by mail, or by phone.

When a typical seed sample is sent for service testing by you to the Laboratory, it is received and given a test number. We get samples for testing in all sorts of containers. We suggest these types for best results and urge each of you to use one of these types when you send your samples. The sealed tin can, polyethylene bags properly secured, or sealed bottles adequately packed against breakage.

Proper labels should be affixed to the exterior of the container and, ideally, one should also be included with each container.

After numbering, the sample of seed is taken to our main laboratory room. Here each sample is thoroughly mixed by machine. Then moisture content, purity, seeds per pound, and full seed percent are determined. Inasmuch as our Laboratory is a member laboratory of the Association of Official Seed Analysts and the International Seed Testing Association, we adhere strictly to the seed test regulations advocated by these organizations.

Several methods and tools are utilized in setting up the tests. A 50-50 mixture (by volume) of sterilized sand and perlite is placed in clean plastic containers. Incidentally, fresh media is prepared each day. A known amount of water is added to each media lot prepared. Six boxes of 100 seeds each constitute a test. For most species, the seed is placed on top of the medium using a counting head. Slight pressure on the head presses the seed into the medium.

The boxes are placed on shelves in a well lighted, temperature controlled germination room. A 16-hour light day is maintained for most testing. For some species, companion tests are started using pretreated seed or the seed are prepared for stratification and tested later. White spruce, for example, is generally tested unstratified and after a 30-day stratification period.

Polyethylene and cloth bags are used for the stratification test. We stratify the sample in the same way you stratify. Although in most instances there is no difference between polyethylene and moss stratification, we do not wish to introduce any additional source of error into the tests. That's why you must tell us how you stratify.

Following the proper length of time in the germination room, the boxes are removed to the counting room where the full seed percentage is determined by cracking the balance of the seed left ungerminated on the medium.

If no additional information is requested or required, the test results are analyzed and a final laboratory report is sent back to you, the seed test customer. Should any additional treatments be applied to the particular seed lot under test after the seed sample has been drawn, the nurseryman must take this into account when applying our laboratory test results to his computations of sowing rate. If this is not done, actual field results will be at variance with those expected based on the laboratory tests.

One of the services we offer to customers of the Eastern Tree Seed Laboratory is a field counseling service. Whenever possible and practical, we follow up in the field on special problems or circumstances which may attend seed lots we have tested. Should the nurseryman need additional help, we want him to and urge him to call us for assistance. Often a phone call or a detailed letter will answer his questions; however, if this is inadequate, a visit to the problem nursery may be possible.

We strongly recommend the use of history plots in every forest tree nursery. This method, although not new, was developed by Earl Belcher of our Laboratory for use in inventory. It was first used and refined while Belcher was on the staff at the W. W. Ashe Nursery in Mississippi. If you are not familiar with this procedure, it is reported in the February 1964 issue of Tree Planters' Notes. Although you may not be able to use it as an inventory tool, it will help you determine a survival factor. Reprints are available upon request from our Laboratory.

For those of you who are old test customers, as well as for the new customers we seek, another bit of information will be welcomed news. A new billing system is now in effect. Quarterly bills rather than an annual billing for service tests should facilitate your book-keeping. We are also announcing a fixed charge for each test so you will know in advance what you can spend out of your year's budget for seed testing. This charge was based upon an analysis of test charges for the past four years and although it is subject to change annually as dictated by our operating costs, we believe we have arrived at a costfigure which should remain fairly constant. Incidentally, although we recommend that a service test be made following seed extraction and again just prior to sowing, you should know we operate on a year-round basis. We will accept seed for testing at any time.

Thus far we have considered only our service testing work. Another important phase of our work at the Eastern Tree Seed Laboratory is that related to tree and shrub seed research. In addition to our Director and Assistant Director who both spend 1/4 to 1/2 time on seed research, we have a seed physiologist, Dr. C. Cotrufo. Currently he is studying the factors related to seed dormancy with several tree species. A well equipped laboratory is at his disposal and an experienced laboratory technician assists with this research.

Studies which have been conducted at the Laboratory include work on several species indigenous to this, your Northcentral States area.

A cooperative white pine cone storage study with Chittenden Nursery in Michigan showed that green cones should not be piled when collected. Due to the high moisture content, they probably build up enough heat to cause injury to the seed.

A 5-year storage study indicated that white pine seed should be stored between 15° and 25°F. A moisture content of less than 12 percent is best.

Germination tests on seed drawn from various stations in the extractory have been undertaken. Recent tests run cooperatively with Darrel Benson of the Eveleth Nursery indicate that he had an efficiently run extractory since he was experiencing very little loss in germination due to mechanical injury to the seed by the extractory equipment.

Our Laboratory cooperated with Hugh Wycoff of the Mason State Tree Nursery at Topeka, Illinois, on a white pine seed sizing study. The studies indicated the value of using a gravity separator.

A study on the effects of stratification on Eastern hemlock has just been completed. The results indicate that a 120-day stratification gave maximum germination. This study was carried out for the State of New Hampshire.

Research work on several southern pines has provided clues and answers to many problems which nurserymen in the south were experiencing. We are anxious to extend our research and service testing activities to include your Northcentral States species, so do get in touch with us with your tree and shrub seed problems.

The use of X-ray photography as a research and service testing tool is also under investigation. That this technique can be used successfully has already been well established abroad. Now procedures specific to our native coniferous and hardwood species need to be determined.

Cooperative studies of interest not only to nurserymen but as well to direct seeders are underway on such factors as seed repellents, presowing soaks, stratification requirements, etc. Note in table 1 that this study on seed treatment indicated the new Arasan 42S gave better results than the older Arasan 75W. Because it is dustless, it is also much safer to apply. If additional chemicals are used in combination with the Arasan 42S, be sure to use a latex sticker.

TABLE 1. ARASAN TREATMENT

Treatment	1964 (Arasan 42S)		1957 (Arasan 75)	
	Full Seed Germ. (%)	Speed (Days)	Full Seed Germ. (%)	Speed (Days)
No Treatment	84	13	81	12
Arasan	81	17	15	16
Arasan, Endrin, Aluminum	79	20	-	-
Arasan, Endrin, Aluminum, Latex Sticker	83	17	79	12

North Dakota Soil Conservation Districts submitted 21 samples of hardwood species to us for testing. Since our Laboratory had not tested these before, we were glad to receive them.

A test conducted recently on water tupelo seed from North Carolina helps to bring out an interesting point. Table 2 shows that three different lots of seed were tested for germination. The unstratified seed showed some variance between lots; however, it was only when the three lots were tested for germination after the different stratification treatments that the apparent damage caused by the machine depulping showed up. In this instance, an old accepted way of stratification apparently did have a decided detrimental affect on the seed lot. The old way is not always the best way!

We are interested in and will perform extensive research tests on selected species on a cooperative basis. This can be done at a reduced cost to the cooperator, or we will make service tests on these new species while making limited research tests under the resources of our own research program.

The vastly expanding efforts on forest tree improvement and forest genetics command attention. As more and more seed production areas and seed orchards come into production, adequate seed test methods must be ready. We expect all sorts of seed: The State of Georgia has already marketed some 750,000 seedlings utilizing seed derived from established seed orchards. An additional 2,000,000 seedlings will be available during the 1956-66 planting season. Within the next 3 to 5 years, hundreds of acres of seed orchards throughout the south will come into seed production. Although this seed, in most cases, will not have been progeny tested yet, it will still represent a gentically improved grade of stock going into forest plantations. We are anticipating some increase in service testing activity as these orchards reach the production stage.

From time to time, our staff puts out special research reports. We publish an annual report which also includes items of technical interest. We hope to eventually put out a semi-annual Eastern Tree Seed Laboratory Newsletter. Any or all of these publications are free. Some are on display here. If you are not already on our mailing list, we'd like to have you. If you're not one of our service test customers, we'd like to have you. If you have any special tree or shrub seed problems, we'd like to help you. And, if you are ever down our way, remember it's -- the Eastern Tree Seed Laboratory near Macon, Georgia. Stop by We'd like to have you.