Nursery and Planting Practices in the South

By John Barber

"Well, gentlemen, I have an apology to make to you. I left home twenty-one days ago and this is the fourteenth place I've been. The slides for my talk didn't show up tonight, but being a good representative of the Chamber of Commerce, 'I just happen to have one hundred or so slides with me. Dye picked out a few I thought might interest you. As I mentioned today, nursery and planting problems in the South are entirely different than they are in the West. All stock grown is 1-0 with the exception of white pine, and there are only a few million of those grown in the South each year. Some red cedar is grown primarily for nursery stock or maybe for an occasional farmer who wants some for a windbreak or fence posts; and a very small amount of Fraser fir or Norway spruce is grown for Christmas trees, but that probably amounts to less than a million trees a year for the whole South. Even our hardwoods there are grown only a year in the nursery. So with the southern nurseries, its a case of planting in the spring, lift in the fall and following winter, and that's the cycle of your crops. You get through this in time, you hope, to start planting a spring crop. With longleaf pine in southern nurseries, there is a certain amount of fall planting, but as you progress further north, where freeze injury is likely, longleaf is held over for spring planting. So with that, Dick, I think we can go on with the slides.

"These are just miscellaneous slides that I had with me for other purposes, and if you have any questions please just throw them at me and well cover them as we go along.

"The first slide is a close-up view of Purdy Nursery at Albany, Georgia. Its the oldest nursery in the state. The picture was taken about mid-July and shows white pine seedlings at the time. Somebody asked me today how we grew uniform nursery stock in the South to get away from size grading. Our southern trees pretty well adapt themselves to growing uniformly without anything we do as long as we keep the soil moist.

"The second slide is an aerial view of one of Georgia's nurseries. This is a smaller nursery which has a capacity of twenty-two million trees a year. They draw irrigation water direct from the river. They use it from this particular nursery in the skinner system. They have a heel-in barn here which is a packing shed. They bring in the seedlings and pack them on the top floor. Then they're heeled-in in a sort of a silty sand that they get out of river bars. This is in the northern part of the state. They have roughly half the area in trees, and about half of it goes in soil crops. Next is

Page Nursery, one of the **Soil Bank** Nurseries. There are 110 acres of seed bed here. I think that last year this nursery produced 65 M trees. Their irrigation comes from ground water, about 2,000 gallons per minute being pumped from their wells. They have a permanent underground system with-simple vertical risers and rotating sprinklers. This nursery and one of the other large ones is operated by the State prisoners. They have an administrative building and a packing shed. The seedlings go into this holding and shipping shed from the packing belts from where they are shipped immediately by truck or are held *a few* days depending upon the demands of the shipping. The seedlings there are baled 1,000, 1,500, **or** 2,000 to the bale, depending upon the size of the seedlings. They're packed loose in the bales, longer tied **in** individual bundles of 50 to 100 seedlings. They pack loosely in the bales with a sack of moss. In storage they put them **on a slightly** inclined rack and every couple of days they go in and water the bale. The next time they'll turn the bale and water it, **again, so** it gets frequent watering to prevent drying out.

"Next is an aerial view of Morgan Nursery which is rightoutside of Macon. It has a little over 100 acres in production.. Loblolly pine, slash pine, and hardwood species are produced here In this operation they had everything under one roof. They had grading, lifting, packing, administrative--everything under one roof, including the machinery repair shop. That seems to be the present trend there now, is to get all the nursery operations under a single roof where they're compact to get away from this business of having to move stuff back and forth from building to building in handling, packing, and shipping. The picture shows the riser lines for the irrigation system. Those risers are set. I think it's a 40-foot square so that in cultivating plowing they can go crosswise or lengthwise, whichever they want. These beds, incidentally, are 400 feet long. That's standard length beds.

Next is a view of .the TVA Nursery at Muscle Shoals, Alabama, giving some idea of how they're seeding. Here they use a portable irrigation system--portable **alminum** lines with risers. They use this portable system **in a** number of their nursaries. They have enough pipe to irrigate the current seedling crops so they simply move it once a year when they go from this area to the new seed bed in the nursery at Hendersonville, North Carolina. This nursery now is pretty well restricted to growing a little white pine and Fraser fir and a *few* minor things. I think probably this nursery will be closed because its relatively small and has production of 4 or 5 M. A chemical spray operation in one of the Georgia Nurseries was shown. They have simply a nozzle spray covering the bed under the machine. Then there is a large fan which blows from a series of nozzles mounted in it, so that they can cover a fairly wide strip depending **on** wind conditions and all. They cover from 3 to 6 beds.' This particular spray is going on to control fusiform rust. They get a terrific coverage with this type of equipment. Next, a picture showing a

tractor pulling a trailer which is spraying a straw mulch on the nursery beds. After spraying, people walk through and smooth it out. They have in the past used a lot of fine straw mulch. This stuff sane time bunches up so they even it up by hand and walk through and straighten out the mulch, to make sure there's good coverage over the whole bed. In seeding they use the standard drill, putting down eight rows of seed. I think some of the white pine has germinated under shade. Yellow poplar is germinated under the shade here, and after a few weeks, the shade is removed. Incidentally, this is a very tough species to handle in the nursery, because even the high quality seed never has more than about eight to ten percent germination. It's a real tough problem to get a good uniform stand of it. The species grows in such a way that you don't have a uniform stand. If they are too dense you eventually end up with seedlings four or five inches tall, and if they are too open they'll be thirty inches."

The next picture showed a weeding crew composed of colored women. (The speaker went on to describe the type of weed problem they have.) "They have some grass; in same cases they have rye or oats for a couple of crops the previous years--they may have a little of that scattered in the nursery." Next was shown examples of the Lee Nursery in Florida, nematode injury, and both treated and untreated beds. "Now you can see where the fumigation treatment started. Right here. In those beds and beyond it, they have a good healthy appearance. But that is an example of extreme nematode damage." He described the various types of injury caused by so-called black root rot and nematode complexes.

He showed a sample of those seedlings from root-rotted areas which gives some idea of the type of damage resulting compared to a healthy seedling from methylbromide-treated plot adjacent to it. "This was a striking example. The best cure for these pests is fumigation." Next was shown crews doing fumigation work using covers which were 20 x 60 feet. They spread the covers out by hand and sealed them with dirt. They used the individual type of applicator with a one-pound can of mthylbromide. They treated about one pound to a hundred feet. One thing they have used fumigation for in addition to this root rot, nematode problem, is to control weeds. It is a sedge problem with nut grass, cypress rotunda, and is a very deep-rooted species. It is impossible to get them by pulling, cover cropping, or doing anything else. The only way you can get rid of it is with some form of fumigation or soil treatment."

Next was shown a number of machines used in the mechanical application of fumigants with a description of each and of the chemicals used. One slide showed the effect of loss of chemical through a tear in the cover. It was a very convincing illustration. There were pictures showing the effect of various chemicals. The pictures told the story which was evidently very much on the plus side. Next were pictures showing what is done with those millions of seedlings. About one picture Mr. Barber commented, "This is natural slash pine

in the background. This particular farmer operates a large crew of tenants who pick cotton, peanuts, and stuff like that. In the winter time on their off-hours, the whole family does the planting. Usually the man and wife work together-sometimes you see a whole crew of Negro women out. It's the means of some of the farmers using their labor in the winter time for planting; and as I say, this is a rare situation. They plant right in the old field type of rough without scalping. The primary thing here is broom sedge which tends to grow in clumps. It's an early stage in natural succession. The natural seedlings would come in, and we wouldn't have to plan a situation like this if we had a seed zone." Next was shown an example of the damage done by brown spot on longleaf pine. "This is a thing that has to be controlled in the nursery, also, for the first few years in the field, to get longleaf out of the grass stage. It damages and destroys the needles. Frequently you'll pick up needles and they'll be practically solid, one place after another.

"White grub is another type of injury which is sometimes encountered. It's probably more important in planting old fields where we have sod. Next is a picture and description of tip moth damage. The tip moth lays its eggs on the new shoot growth; the larva crawls around awhile and finally crawls to the top, bores in and kills back the shoot. Now, with our southern pines, while we've lost growth on this ceiling, it will not necessarily be unplantable because buds will become active in a needle fascicle below this. These put out and go ahead, so that seedling would not be unplantable in that case. Tip moth is very serious with us, especially the first generation in the spring. It gets into the seedling when it's only an inch or two tall and then kills the shoot down below the cotyledons. When that happens you lose the seedling completely. Incidentally, in some places in the South, we get as many as six generations of tip moth a year."

A picture showed an example of several fusiform cankers on a young tree in which branch cankers had also gotten into the stem. "Fusiform rust is very common to us. It's especially serious and, I think, does the most damage at the nursery stage where we can control it. It is in the first three to five years after planting when infections generally get into the stem and kill the trees. That's where we have our big loss. Occasionally you see a stem canker when a tree reaches timber size, but generally it's not important. It doesn't do the things blister rust does--go into pole stands and clean them out."

Pictures showing field planting with machines, which are in fairly general use, were then shown. There was an interesting discussion regarding all the types shown, the spacing used, etc. Mr. Barber then showed a film.

This ended the formal program for the day. Mr. DeJarnette thanked Frank Pitkin and Jim Augenstein for an excellent program and for making the meeting and housing arrangements. Supervisor Carl Krueger

was thanked for his assistance in the form of advice and guidance and for making the facilities at Savenac available. He thanked all for coming and cited John Barber as having come the greatest distance.

The meeting was turned back to Frank Pitkin for the conduct of business.

Business Session

Frank dispensed with minutes, treasurer's report, and old business. He called for invitations for the next meeting. Frank Barber invited the group to meet in Georgia. This invitation was declined with thanks, since this is a Northwestern nurseryman's meeting.

On behalf of George Silburn, Al H. Bamford then invited the group to Duncan, British Columbia, citing the advantages there and the fact that it is ten years since British Columbia had the meeting. The invitation was unanimously accepted. The time of meeting was left to the discretion of the host. August was, however, the favored month, and the week of the 10th to 15th (approximately) was suggested instead of later in the month as this one.

The question of annual or biennial meetings was decided in favor of biennial timing, as present, after brief discussion.

Charlie Rindt then brought up this point: "I'd like to call something to the attention of the whole group. You probably know about it, but when we were originally organized we were sort of an outgrowth of the old Seeding and Planting Committee. It was sponsored by the Western Forestry and Conservation Association. That committee became sort of inactive over the years, but the nursery group has carried on. With the renewed interest in reforestation, the Western Forestry and Conservation Association has established a new group within itself known as the Reforestation Committee. Membership on that committee includes, among others, chairmen of all the various working committees such as this. They include the Forest Soil Committee, the Genetics Association, the Seed Committee, and the Seed Certification group. This is included so that we are revitalized. We have a very strong sponsorship now and we will be represented at each annual meeting of the WFCA. In the line of business that might be discussed, the WFCA has stated that they, as a group, will stand ready to consider a request for action by this group such as requests for putting out publications that we might want or putting out other informational correspondence which we might want to present to them for consideration. Anything that t we have to put up to them should be preferably made ready for presentation a day or two before their annual meeting in the first part of December. I think that this chore now (call it that, a privilege perhaps would be better) is incumbent upon the chairman of this group for each biannual meeting."

"Are there any other comments concerning Charlie's statement?"

Rindt: "By the way, minutes of all these meetings now are distributed to members of the Reforestation Committee so that we will want about forty extra copies of the minutes of this meeting. These copies should go to Hardy Glasscock, or you can send them to me and I'll forward them."

Question: "Would this information have to be in, Charlie, before the annual meeting or would it have to be in before the executive committee meeting?"

Rindt: "Well, we really have two chances at it, but I think before either one. The executive committee meeting is usually in June. But they've been very good; they've put out the book of the Animal Damage Commitee, and they have put out the book for the Forest Soils Committee. They have gone to bat on several other occasions, with their group. They are a powerful group. It has representation through all of the industry, Government, and schools and everything in the whole Northwest and British Columbia. Any member of the group who has an individual paper may send it to them. They may call on someone here for a part in their annual program, which I think would be a fine thing. In fact, I'm thinking of borrowing this movie to show them."

Barber: "This movie is available simply by writing to . the Forestry Commission."

Question: "What would it probably cost?"

Barber: "You mean to buy a copy? You •could buy one, but I don't know what it would cost. It's eighteen minutes and they have what they call the master' there. It cost them a thousand dollars to 'produce the original. I don't know what the film would cost, probably $100 to $150."

The evening meeting was then adjourned.

The morning session on Thursdays August 18, included a scheduled tour of Savenac Nursery. The group inspected the nursery plant and the nursery beds 0n the north Side. This nursery is under reduced schedule now, with no trees on the main nursery area south of the river.

During the tour, Jack Fisher and Jack Callen, Sr. of the Mountain Home Nursery at Deborgia, just east of Savenac, demonstrated the soil fumigating equipment used in treating with Dow fume.

Mr. Callen very kindly loaned a tractor equipped with the tarp laying mechanism for this demonstration.

The meeting was moved to Coeur d'Alene for lunch and an inspection of the Coeur d'Alene Nursery operation. This included **a visit to** the area under lease which has been used as a pilot plant in developing the nursery practices which will be applicable **in** that area.

The new nursery site was inspected. Here there are about three acres of new seed beds.

Virgil Moss has an installation of actidione and phytoactin treated western white pine planting stock at the new site. Virgil used this as a demonstration. He described the tests being made and the results to date. The treatment of nursery stock by dipping in a solution of the antibiotic, dipping in a slurry, or by **introducing** into the nursery soil all have promise of immunizing the trees for a period of time without deleterious effects on the trees.

There has not yet been time enough to determine how long immunization will last. Some damage to seedlings has shown up with the heavier concentrations used in solution and slurry. Further work will be needed to stabilize the rate and type of treatment. However, "Virg" feels that he will soon have reliable information for us in that respect.

Final evening session

Social hour and banquet at Sourdough.

Presentation of the following papers: