28. PROGRAM OF TREE IMPROVEMENT RESEARCH, TEXAS FOREST SERVICE

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Active forest tree improvement research by the Texas Forest Service began in 1951. The research program is financed through three sources: (1) forest products industries and landowners interested in forestry, who provide funds for some operating expenses and for graduate-student fellowships; (2) the Texas Forest Service, which pays salaries of research personnel and provides funds for some equipment and field operations; and (3) the Agricultural and Mechanical College of Texas, which makes available a laboratory, greenhouse, and office facilities.

We have at present two graduate students, both in attendance at this meeting, who are well advanced toward the PhD degree. In 1955 we will have the funds and facilities to grant three new fellowships towards the PhD. To be eligible for these fellowships, each $2,080 per year for out-of-state students, the student should already have a Master's degree in forestry or related biological science. The graduate student's research problem is chosen by the student from the numerous basic problems confronting us in our tree improvement research. We will supply anyone interested with the details of the fellowship. I want to point out that these are fellowships, not assistantships. The fellow spends full time on academic work and research.

We have made a very strong effort to have a well balanced tree improvement research program. An attempt has been made to have a balance between long-term and short-term projects, and between basic and applied research. There often is the temptation to emphasize the short-term projects. Such projects yield numerous quick publications and are perhaps suited to organizations whose continuity is not assured. But the productive projects in tree improvement are usually long-time studies. In working with these long-term studies, a number of important short-term problems are encountered which must be attacked.

At the present time the Texas Forest Service has 10 active projects underway. I will mention a few of them to illustrate what is being done.

Despite a lot of interest, there has been practically no work in the genetics of wood characters. Long-term studies in this field are very important in forest genetics. Therefore, in 1951, the Texas Forest Service started a project on the genetics of wood specific gravity. This study is now well underway. As work progressed in this project, other fields of interest came to view and now many projects in this general field are possible. For example, a parallel to inheritance of specific gravity is a study of inheritance of fiber characteristics. Immediately we were faced with the fact that practically nothing is known of the physiology of wood production, i.e., such questions as, "why does a tree stop producing springwood and start producing summerwood?" Mr. VanBuijtenen, one of our graduate students, is now working on some of the basic phases of growth physiology that may supply the answer. Many more need to be undertaken. For example, in our study of genetics of the inheritance of wood specific gravity many statements were encountered in the literature which, on observation, did not seem to hold for loblolly pine in the Western Gulf Region. Therefore, a project on environmental control of wood specific gravity was initiated. Results of this investigation will be published soon.

I reported yesterday on the drought-resistance studies being undertaken by the Texas Forest Service. We also have underway studies on the selection and value of so called superior trees, and of outstanding nursery seedlings.

One graduate student is working on the very difficult problem of the vegetative propagation of older loblolly pines.

We have established a breeding arboretum of pine exotics and of available pine hybrids that will grow in Texas. As most of you are doing, we are cooperating on the southwide study of geographic races. In addition we have studies underway on pollen collection and handling, care and treatment of seed orchards and seed production areas, and studies and observations on flowering and root development.

Some of our problems are regional, some strictly local. In either case, we have cooperated freely with other organizations doing similar research. We attempt to answer all questions to the best of our knowledge, and aid any other research within our limitations.

For anyone interested in more details of the Texas Forest Service Tree Improvement Program, we will gladly send you a copy of our "Second Progress Report". This is prepared yearly for our sponsors. Projects underway are discussed, publications are described, and other information about our tree improvement program is outlined.