VEGETATIVE PROPAGATION PROBLEMS IN THE SOUTH

Keith W. Dorman 1/

Research in vegetative propagation of southern pines is directed towards perfection of methods for multiplying selected stock for research or commercial use. It is desirable to have stock on its own roots where inherent resistance to root fungi is being investigated, but either grafted or rooted stock is suitable for seed orchards or breeding collections. To date, a goodly proportion of research effort has been expended on slash and loblolly pines, and less on shortleaf pine and other species, including white pine.

Research in vegetative propagation methods and field tests of new methods are currently under way in Georgia, Florida, Mississippi, Arkansas, Louisiana, and Texas. Very strong staffs are maintained at the state and federal research stations, and consequently new developments occur constantly. It is expected that most of the problems in vegetative propagation will be overcome in the not-too-distant future, and that research time now devoted to these projects will be focused on other phases of tree improvement.

At present, air-layering techniques used successfully by Mergen at Lake City, Florida, on slash pine are being widely tested on slash pine, as well as other species. Results are as yet inconclusive, but it is evident that considerable modification of the treatments may be necessary for some species.

Tests in methods of rooting cuttings are being made at many places, but results are not very promising. The largest volume of work has been done with slash pine, but successful rooting is neither as high as with air-layering nor is the type of root system as desirable.

Grafting has been developed to the stage where material is being produced for seed orchard planting on an impressive scale. The Georgia Forestry Commission, for example, grafted 2,500 plants last spring with approximately 65 percent success. Grafts in the terminal shoot and in the seedling stem are possible. Moisture control in the scion is maintained in field-grafted plants with plastic bag covers. Bottle grafts in the field are also possible. In the greenhouse and lathhouse, shade, high humidity, and mist are used to reduce transpiration losses.

Some of the problems facing the researchers at present area how to control disease and insect pests in stocks and scions; how to adapt research techniques to large-scale production; how to increase the percent of takes; how to modify basic methods of plant propagation to the peculiarities of the various tree species; and how to clarify stock-scion relationships.

1/ Forester, Southeastern Forest Experiment Station, Macon, Georgia. Forest Service, U. S. Department of Agriculture.

The long, warm summers of the South permit use of air-layering of wild trees and grafting to established seedlings in the field. However, because of the large volume of material to be propagated, it is desirable to have techniques that can be used in all seasons, Also, some of them at least should be economical and suitable to mass production.

In conclusion, I would say that much has been accomplished in developing vegetative propagation methods to meet the needs in tree improvement research. Many problems remain, but our current research effort is strong, and it should not be very long until the major ones will be solved.