

CUSTOM LONGLEAF AND LOBLOLLY PINE SEEDLING PRODUCTION - SAVANNAH RIVER SITE (SRS) - AIKEN, SC

Charles E. Cordell, Forest Pest Management, Region 8
USDA Forest Service, Asheville, NC

Donald H. Marx, ITRB, SEFES, USDA Forest Service, Athens, GA

In an unprecedented cooperative project, the USDA Forest Service, U.S. Department of Energy, and a private company (Int. Forest Tree Seed Co.) are custom producing 1.0 million longleaf and 0.5 million loblolly *Pt-ectomycorrhizal* fungus-tailed pines annually as part of a 5-year reforestation plan at the Savannah River Site near Aiken, South Carolina. State-of-the-art bare-root nursery cultural, biological, and chemical practices are being utilized to produce seedlings of the highest quality. In operational loblolly and longleaf field plantings, tree survival has averaged more than 90 percent and 85 percent, for *Pt*-inoculated loblolly and longleaf pines, respectively, during the 1988-90 planting seasons. Furthermore, 2-year-old longleaf pines have over 90 percent emergence from the "grass" stage. The 1991 planting season was accompanied by periods of abnormal environmental conditions-excessive rainfall prior to and immediately following planting, extensive spring and summer drought, and abnormally high summer temperatures. Consequently, seedling survival was somewhat lower, but still averaged over 70 percent and 90 percent for *Pt*-inoculated custom-grown longleaf and loblolly pines, respectively. Approximately 7,300 and 3,700 acres of loblolly and longleaf pines, respectively, have been planted during the period 1988-92. Previous operational plantings with nursery-run seedlings have resulted in 50 percent to 60 percent longleaf pine survival, 70 percent to 80 percent loblolly pine survival, and less than 50 percent longleaf pine emergence from the "grass" stage after 2 years. During the spring of 1992, 1.0 million longleaf and 0.5 million loblolly pine seedlings were inoculated with *Pt* at the nursery for planting in the 1993 planting season at the Savannah River Forest Station. Approximately 2,500 liters for *Pt* vegetative inoculum were applied in 25,000 linear feet (4.7 miles) of nursery seedbed.

During the past 5 years, 25 field demonstration sites have also been established at the SRS. These sites include approximately 165,000 loblolly and longleaf pine seedlings on approximately 200 acres. The sites include selected pine species, *ectomycorrhizae*, tree spacing, storage treatment, and herbicide treatment comparisons on statistically-designed replicated plantings. Scheduled measurements, statistical data analyses, and progress reports are made and furnished to cooperators and other concerned parties. Results to date are highly significant and parallel those obtained from the operational plantings. The demonstration sites are planned for annual measurements a minimum 5 years duration with permanent field marking, mapping, and data storage for extended measurements and observations. A cooperative publication, summarizing the nursery and field results obtained from this project, is planned for the near future. Finally, the demonstration sites are available for visits by all interested foresters and land managers as desired. Arrangements for individual and/or group visits can be made through the Project Manager, John Irwin, Savannah River Forest Station, P. O. Box A, Aiken, SC 29802, telephone no. (803)-725-2441.