

**EFFECTS OF STOCK TYPE, FALL NURSERY FERTILIZATION AND
ECTOMYCORRHIZAL INOCULATION ON SURVIVAL OF LONGLEAF PINE
(*PINUS PALUSTRIS* MIL.) SEEDLINGS PLANTED ON LIGNITE MINESPOIL**

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Longleaf pine (*Pinus palustris* Mill.) seedlings were planted on lignite minespoil in east Texas in 1996 and 1997. Effects of stock type, fall nursery fertilization, and ectomycorrhizal inoculation on seedling morphology, ultrastructure, mineral nutrition, physiology, and survival were assessed.

Stock type differences in root collar diameter, root weight, shoot weight, total weight, and root shoot ratio were significant. Fertilizer treatments had no significant effect on seedling morphology. No ultrastructural differences in seedling needles were evident between fertilized and control seedlings. Macronutrient and micronutrient concentrations were significantly affected by stock type and fertilizer treatments.

Root growth potential was significantly greater for container seedlings than bareroot. Water potential, leaf conductance, and transpiration tended to be greater for container seedlings and differences were significant during some measurement periods. Fertilizer treatments had no significant effects on physiological variables.

Container seedlings survived significantly better than bareroot in both years. In 1997, container seedlings grown at greenhouse facilities at Stephen F. Austin State University survived better than commercially-grown container seedlings. Based on this study, it appears that successful regeneration of longleaf pine on lignite minespoil sites can be accomplished more reliably with container seedlings than with bareroot.

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