

BENEFITS OF LOBLOLLY PINE GENETIC IMPROVEMENT FOR THE UPPER COASTAL PLAIN OF MISSISSIPPI

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Across the southeast U.S. landowners who wish to plant loblolly pine (*Pinus taeda* L.) are finding they have more options than ever before. In the past, plantation establishment relied primarily on open-pollinated seedlings. As breeding programs have progressed the seedling marketplace has grown to include multiple generations of open-pollinated (OP) stock, full-sib family stock generated by mass control pollination (MCP), and varietal stock derived from somatic embryogenesis or hedging. These new and diverse reforestation options need to be tested for suitability to the non-industrial private landowner (NIPL). In 2007, a loblolly pine genetic level study was installed in northern Mississippi to examine differences in growth among second-generation OP seedlings, MCP seedlings, and varietal stock. Following eight growing seasons, the average height of the MCP material was significantly taller than that of the varietal and second-generation OP planting stock types. The second-generation OP stock was also significantly taller on average than the majority of the varietal stock tested, in respect to total height. The average DBH of the MCP material was significantly larger than that of either the second-generation OP or the various varietals tested. The current findings of this study indicate that for the upper coastal plain of northeastern Mississippi the use of loblolly pine MCP material will maximize both total height and diameter growth for the forest landowner.

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