

## **Plantation Management Research Cooperative**

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### **LOBLOLLY PINE SITE PREPARATION STUDY**

In 1986, a study was established across the piedmont of Georgia and the upper coastal plain of Alabama with the objective of evaluating different methods of preparing loblolly pine plantation sites for planting on growth and yield. This is one of the largest regional site preparation studies in the South. The study included six treatments: (1) burn only; (2) chop, burn; (3) chop, herbicide, and burn; (4) shear, rake, and disk; (5) herbicide and burn; (6) herbicide and burn followed by complete weed control. The study consists of 28 locations across the study area. Each location has 7 plots (one treatment is replicated on each location), each 0.5 acre in size with a 0.2 acre measurement plot approximately centered in the treatment plot. Site preparation is one of the most expensive operations in regenerating a new stand. This study is providing much needed information on which alternatives are worth the investment. The study was measured initially at age 3 and has been re-measured every three years since. Competition, both hardwoods and herbaceous vegetation, has been monitored on nine 4-ft radius subplots on each measurement plot at each measurement.

#### **Status**

- **The study is ongoing. Measurements from the age 18 measurement have been analyzed and will be presented at the 2004 annual meeting. The new technical report is PMRC Technical Report 2004-3 and is available on the web site.**
- **A Southern Journal of Applied Forestry article was written based on the age 12 measurements. The citation is**

Shiver, B. D. and S. W. Martin. 2002. Twelve-year results of a loblolly site preparation study in the Piedmont and Upper Coastal Plain of South Carolina, Georgia, and Alabama. *South. J. Appl. For.* 26(1): 32-36.

- **The PMRC membership voted to fertilize this study and company personnel fertilized the study in spring 2000. The fertilization treatment was 25 lbs P and 200 lbs N (125 lbs DAP and 385 lbs urea).**
- **The study was retagged (every individual tree now has a unique ID #) in summer 2000 and was remeasured over the 2003-2004 dormant season for the age 18 measurement.**

#### **Key Research Results**

- **There is a steady progression of increasing yield with increasing site preparation intensity.**

- **The chemical treatment results in slightly better yields than the mechanical treatments.**
- **The herbicide and burn treatment with follow-up herbicide for complete vegetation control resulted in a significant increase in volume and weight compared to herbicide and burn alone or any other treatment indicating the importance of herbaceous weed control.**
- **The absolute difference between complete vegetation control and herbicide and burn has remained approximately the same (increase for complete vegetation control) from age 9 to age 12 and from 12 to 15 and from age 15 to 18.**
- **Periodic growth in average dbh and average height between ages 9 and 12 and ages 12 and 15 for the more intensive treatments is slightly lower than the less intensive treatments after being higher up to age 9. These more intensively managed plots are at a different level of stand development than the less intensively site prepared plots. Even so, the 9-12 year, 12-15, and 15-18 year periodic growth in total and merchantable volume per acre is greater for the more intensive treatments than for the less intensive treatments.**