

## EARLY DEVELOPMENT OF OPEN-POLLINATED SWEETGUM PROGENIES

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Abstract.--Data on 6-year-old sweetgum progenies planted on two sites in Mississippi indicate moderate heritabilities for height and diameter. Relatively large family-location interactions for height and diameter suggest that most sweetgum selections should be planted within limited zones. Since number of branches on the lower bole was not under strong genetic control, selection to minimize number of branches would be ineffective.

Additional keywords: *Liquidambar styraciflua*, heritability, genetic variability.

Because sweetgum (*Liquidambar styraciflua* L.) is a prime candidate for intensive hardwood management in the South, tests to determine its genetic variability are underway. This paper summarizes measurements made in two such tests 6 years after planting. The data supplement Wilcox's (1970) report on survival, growth, phenology, and crown development through the end of the third growing season.

### MATERIALS AND METHODS

In 1962 we planted sweetgum seedlings from 40 parent trees representing a wide range of phenotypes and sites in south Mississippi. Two plantations were established with 1-0 seedlings. The planting sites were about 200 miles apart; one was on the Harrison Experimental Forest (HEF) near Gulfport, Mississippi (31°N); and the other, on the Delta Experimental Forest (DEF) near Greenville, Mississippi (33°N). The HEF plantation is on a sandy, well-drained loam; and the DEF planting is on a fertile, poorly-drained clay.

Trees were spaced 12 feet apart in a randomized complete-block design with five blocks at each site. Each plot contained a four-tree row from a single family.

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