

VERIFICATION TRIAL FOR EARLY SELECTION OF LOBLOLLY PINE

S. E. McKeand<sup>1</sup>  
F.E. Bridgwater<sup>2</sup>

Abstract.--In previous research, stem elongation in first- and second-year loblolly pine (Pinus taeda L.) seedlings has reliably predicted 8- to 12-year heights in eastern NC and SC provenances. However, it is possible that stem elongation traits will not be reliable for early selection with other provenances. In the Western Gulf Cooperative, total stem dry weight at 4-6 months is used to predict field performance, but dry weight has not been a good predictor in studies of the eastern NC provenance.

A study was established in southwest Georgia with 13 to 16 OP families from each of five provenances to test differences among provenances for early selection. Ranks of heights and stem elongation traits for the five provenances were as expected, and heritabilities for stem elongation traits were moderate to high. Heights and elongation traits were strongly related to 5-year heights in older trials for the Atlantic Coastal and Middle-Upper Gulf Provenances, but the relationships were weaker for the Lower Gulf, Marion Co., FL and Gulf Hammock, FL provenances. There is evidence that early selection based on first- and second-year stem elongation traits will be effective only for certain provenances of loblolly pine. To verify these preliminary results with only five-year "mature" data, the older field trials will be measured through rotation and the long-term relationships determined.

<sup>1</sup> Cooperative Tree Improvement Program, N.C. State University, Raleigh, NC

<sup>2</sup> U.S. Forest Service, Southeastern Forest Experiment Station, Raleigh, NC