DEVELOPMENT OF ELITE LOBLOLLY PINE FAMILIES FOR THE PIEDMONT REGION USING CLONAL PROGENY TESTING AND GENOMICS

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The development timeline to breed, select and commercialize new genetic families for seedling production is a significant bottleneck for forest tree improvement. Reductions in the time required to progeny test and establish seed orchards have been valuable improvements for tree breeding programs in the past. In this study we evaluate the use of clonal progeny testing and genomics to accelerate the development of new selections for the Piedmont region of the southeastern United States. An elite population was created with selections from Alabama, Georgia, North Carolina, and South Carolina. A partial diallel mating design of 22 crosses was completed and 20 to 50 clones per full-sib family were established in 4 locations. After 3 growing seasons, mean height ranged from 10.3 feet to 14.5 feet across the 4 sites with single site h^2 ranging from 0.25 to 0.42. We will present results from current phenotypic and genomic analyses.