

EFFECT OF INBREEDING IN ELITE FAMILIES OF LOBLOLLY PINE

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Inbreeding can increase rapidly in intensively selected breeding populations and is detrimental in outcrossing species such as loblolly pine (*Pinus taeda* L.). Managing inbreeding and the deleterious effects on metric traits is a primary objective in forest tree breeding programs. Effects of inbreeding were quantified for 10 Coastal and 10 Piedmont loblolly pine families. Each of 10 selected parents was bred to other related and non-related selections to provide a gradient of inbreeding coefficients (F); F = 0, 0.125, 0.25, 0.5. Progeny from each cross were planted in field trials, and periodic measurements were collected. There was generally a linear decrease in metric traits with increase in inbreeding coefficient. However, there was a significant family by inbreeding coefficient interaction; not all families responded the same to inbreeding. Further analyses are underway to identify, describe, and explain the nature of differences among families to inbreeding.