

## LOBLOLLY PINE INTER-PROVENANCE HYBRIDS AND FUSIFORM RUST

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Fusiform rust (*Cronartium quercum f. sp. fusiforme*) is a noxious pathogen that severely impacts loblolly pine (*Pinus taeda*) tree health and stand productivity in the Southeast. Southern pine tree improvement programs incorporate breeding strategies that focus on the development of fusiform rust-resistant planting stocks. Many of these selections are inherently resistant to fusiform rust, however tree form, volume production and adaptability may not be optimal. A solution is to incorporate loblolly pine inter-provenance hybrids as planting stocks that express strong family heritability for rust-resistance, site adaptability and desirable growth attributes. In this experiment, six progeny tests were established in 2017 across the natural range of loblolly pine. The field trials were laid out in randomized complete blocks design with border trees adjacent to the perimeter. Each block is replicated six times and within each block there are six representations resulting in thirty-six observations of each family selection. Tested selections include; full-sib loblolly pine inter-provenance hybrids, within provenance full-sib loblolly pine crosses, and loblolly pine open-pollinated selections from the piedmont, coastal, and western gulf provenances. After 3-years of growth, the field trials will be measured to determine if there is a positive correlation between inter-provenance hybrids performance regarding fusiform rust-resistance, stem form, and growth attributes across a wide geographic region.