

LONGITUDINAL STUDY ON IN-FIELD TRIAL RUST RESISTANCE AND SEEDLING SCREENING RESULTS

Stephanie K. Fong¹, W. Patrick Cumbie¹, Jeremy Brawner², and Michael Cunningham¹

¹ ArborGen Inc., Ridgeville, SC, USA 29472 (skfong@arborgen.com)

² Assistant Professor, University of Florida, Gainesville, FL, USA 32611

The identification and selection of disease-resistant seedlings continues to be an important component of loblolly pine (*Pinus taeda* L.) breeding programs. Fusiform rust (caused by *Cronartium quercuum* (Berk.) Miyabe ex Shirai f.sp. *fusiforme*) is a prevalent disease across much of the southeastern United States and causes significant damage to loblolly pine plantations. Tree breeders can currently evaluate rust resistance through progeny testing in field trials or greenhouse inoculations at the USDA Forest Service Resistance Screening Center (RSC) in Asheville, NC. Both methods to evaluate rust resistance have been useful in breeding programs but the relationship between the two is not always clear. This study explores the relationships between a decade of field trial data and greenhouse inoculation results from the ArborGen population. We will compare how families perform for rust resistance across sites and determine if greenhouse inoculation results correlate to different rust incidence levels in the field. A total of 28 trials were analyzed for rust incidence with individual sites ranging from 4% to 72%. Individual families range from 0% to 80% in the field and 0% to 98% at the RSC.