

USDA/NIFA Program: *Plant Breeding and Education*

TITLE: Advanced Pine Breeding through Association Genetics and Biotechnology

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INSTITUTION: University of Florida

NON-TECHNICAL SUMMARY: The US southern states generate almost one fifth of the global wood supply, mostly from loblolly pine (*Pinus taeda*). Wood productivity in *P. taeda* plantations is limited by water and nitrogen availability, and diseases such as fusiform rust and pitch canker. Conventional breeding to overcome these limitations is slow and somewhat limited. Therefore new technologies need to be aggressively developed and integrated with classical breeding to accelerate gains in raw material yield and quality. Training of plant geneticists with the capability to integrate classic and modern genetic improvement approaches will be critical to this effort. The **research component** of this integrated project will focus on understanding the function of the identified genes that underlie these traits and pyramiding them into elite varieties that can be clonally propagated and established on commercial plantations. The **education component** will train students and stakeholders to integrate biotechnology with classical tree breeding in a customized graduate curriculum. All activities will be coordinated with a group of major forestry stakeholders.

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