



White Oak Progeny Test: Are Local Seed Sources Better?



Caption 2: A white oak progeny test site. Photo Credit: Wisconsin DNR.

Principal Investigators & Partners

- Wisconsin DNR
- White Oak Initiative
- University of Kentucky
White Oak Genetics Tree Improvement Program

Timeline

- Launch – April 2023
- Expected Completion
Date – 2033
- Status – Ongoing

Contact Information

Scott O'Donnell

Genetics and Ecology Specialist

Scottt.Odonnell@wisconsin.gov

Richard Nesslar

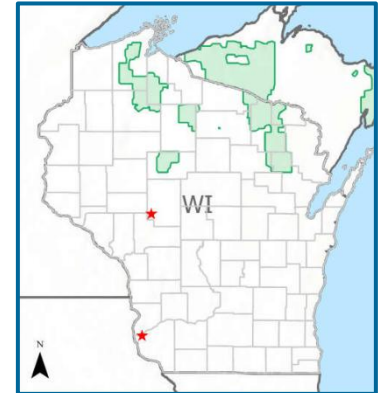
Tree Improvement Specialist

Richard.Nessler@wisconsin.gov

Project Overview

White oak is a crucial ecological and economic species throughout its range. Land managers are experiencing increasing difficulty in successfully regenerating white oak nationally and the decrease in young, developing stands threatens several major U.S. industries. One factor that may be contributing to the lack of regeneration is decreasing local adaptation in the

face of rapidly changing climate. This study tests the theory that seed sourced from more geographically distant populations growing in environments similar to current environmental conditions in Wisconsin perform better than local seed sources. In April of 2023, 3,800 trees sourced from 72 white oak families from throughout the range of the species were planted at two sites in western Wisconsin. The seedlings will be grown and measured for 10 years, and the best families will be selected for a seed production orchard.



Caption 1: A map of Wisconsin depicting site locations. Photo Credit: Wisconsin DNR.

Key Points

- Through testing and identifying the best seed sources for white oak, it will be possible to increase the success of regeneration and reforestation efforts of white oak in Wisconsin.
- The formation of a white oak seed orchard of the best performing families allows the Wisconsin State Nursery System to provide the highest quality seedlings for our customers and partners.

Management Implications

- Well-adapted seedlings will increase the success rates of plantings and allow land managers to continue to identify other factors hindering white oak regeneration.