

Jack Pine and White Pine: Wisconsin's Tree Improvement Approach

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Selection and breeding continued in four second generation populations of jack pine growing at the Ten Mile Creek Seed Orchard (Wood Co.). Height measurements in conjunction with scores for incidence of pine-oak gall rust (*Cronartium quercuum*) were used to select superior trees for breeding using a polycross mating scheme to produce progeny for third generation populations. Controlled pollinations were completed in the spring of 2005, producing 352 cones from which 4,997 seeds were extracted this past fall. The Ten Mile Creek populations were thinned in 2006 following completion of breeding. Fifty percent (1,700 trees) of the planting was removed to provide more space for crown expansion and facilitate development of a production seed orchard. Further thinning and pollarding of trees to control height growth will take place during the winter of 2007 and 2008.

Two eastern white pine family tests established in Wisconsin provide data on early survival and third-year height, and we can already observe patterns of variation related to provenance and planting location. For example, seed collected from populations in eastern Upper Peninsula Michigan (EUP) performed very poorly in north-central WI as did several provenances from Minnesota. In general, the best performing families came from Wisconsin counties south and west of the planting site in Oneida County. At the Black River Falls site, UP seed sources also fared poorly, as did some from Iron, Vilas, and other northern Wisconsin counties. In general, the best performers at Black River Falls were those sources originating in Jackson, Monroe, Sauk, and Burnett counties. Results after three years are inadequate for predicting long-term success, but these patterns are clearly different for north vs. central Wisconsin, suggesting that some care should be taken with the choice of eastern white pine seed source for reforestation even within Wisconsin.