Current Results and Future Aspects of Oak Tree Improvement

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Legacy Westvaco's Central Forest Research Center located at Wickliffe, Kentucky established cherrybark and Nuttall oak provenance/progeny trials as well as oak species comparison studies on bottomland sites in western Kentucky and west Tennessee during the late 1980s and early 1990s. The oldest of the studies are now 20 years of age and have exhibited very high survival at early ages followed by intense tree-to-tree competition starting between the ages of 10 and 15 and increasing between ages 15 and 20. Efficient selection age of oaks seems to be approximately 10 years based on current available data from these studies. The best seed source material for western Kentucky proved to be material located some 350 miles south of the planting site. Information from such oak genetic trials needs to be brought together in determination of seed source zones and recommendations for use in conservation plantings. Currently, a variety of conservation programs such as the Wetlands Reserve Program (WRP), the Wildlife Habitat Incentive Program (WHIP), the Environmental Quality Incentive Program (EQIP) list a variety of hardwood species for outplanting but oak species dominate this list. In the lower Mississippi Alluvial Valley approximately 350,000 acres have been planted to WRP, alone. Although, the primary focus of these programs has been wildlife, recent indications are that landowners want the possibility of timber revenue.

Hardwood tree improvement programs have always faced a considerable amount of adversity ranging from low prices, limited markets for intermediate size material, to the lack of funding from private and industrial sources. In addition, the divesture of lands traditionally owned by the forest industry and the subsequent reduction in research efforts have only added to the problems facing hardwood tree improvement. The progress in tree improvements efforts in the more rapid growing species such as, eastern cottonwood (Populus deltoides Bartr.), sycamore (Platanus occidentalis L.) and sweetgum (Liquidambar styraciflua L.) has been the greatest. The ability of a single hardwood species to grow well over a variety of sites has also hindered work on hardwood species. However, there is enough genetic information concerning a variety of hardwood species including various bottomland oak species to draw some inferences concerning recommendations for seed source movement, outlining plans for use of selected material and the steps needed to conserve the genetic progress made to date.