



RESEARCH

 University of Kentucky
Department of Forestry and Natural Resources

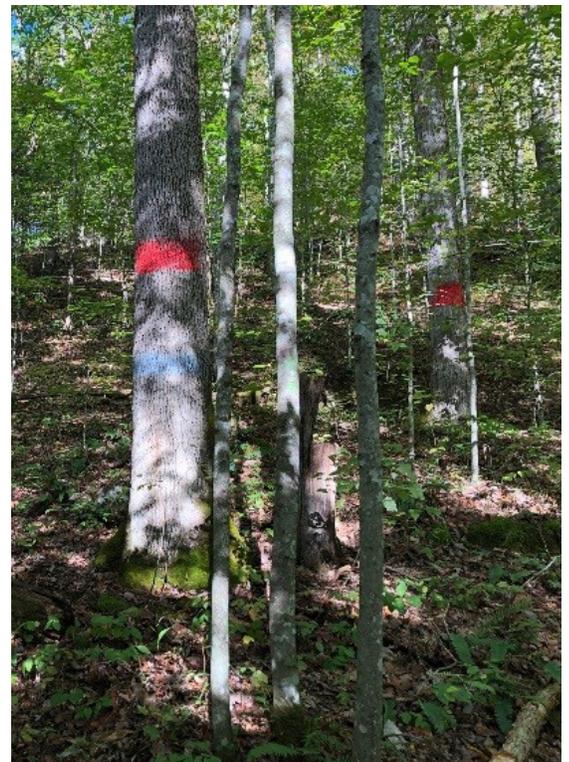
MANAGEMENT OF WHITE OAK TO IMPROVE GROWTH AND QUALITY FOR LUMBER, STAVES AND VENEER

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PROJECT GOAL: To investigate the use of crop-tree release for improving the growth and value of small-sawtimber white oak (*Quercus alba*) for lumber, staves, and veneer.

PROJECT DESCRIPTION: Developing practices that can be implemented by family forest owners in the Central Hardwood Region to improve the quality and growth of white oak is an important part of ensuring the continued availability of the region's growing stock. Crop-tree release can be a cost-effective practice for improving the growth of hardwood trees. This practice is implemented by removing trees that are restricting the horizontal crown expansion of identified crop trees, increasing available growing space for the crop tree. It can be used as a pre-commercial treatment in small diameter stands, or as a commercial treatment where harvesting can be used to remove competing trees. This research evaluates a crop-tree release study installed in southeastern Kentucky in 1983 to determine the effectiveness of two levels, 20 and 34 crop-trees per acre, in improving growth and value compared to unreleased control stands. The study used a replicated design where four 70 to 90-year-old stands were assigned to each of the three treatments. The crowns of the crop trees in the 20 and 34 crop tree per acre treatments were fully released from competition on all four sides of their crowns, while the control treatment was untouched. Stem diameter and quality for lumber, stave, and veneer were followed over 35 years.



PROGRESS: Initial data showed that released trees responded well in both diameter and stem quality. The current phase of the project is assessing the volume and grade changes at maturity from a growth and financial perspective to provide information that foresters and landowners can use to improve white oak stands.

FUNDING AND RESOURCES:

- University of Kentucky: \$120,000, Department of Forestry and Natural Resources, Kentucky Agriculture Experiment Station
- External: \$60,000 USDA Forest Service and NIFA, McIntire-Stennis Cooperative Forest Research Program