

PRELIMINARY GUIDELINES FOR THE USE OF TREE SHELTERS
TO REGENERATE NORTHERN RED OAK AND OTHER HARDWOOD SPECIES
ON GOOD TO EXCELLENT GROWING SITES

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Abstract: Regenerating northern red oak (*Quercus rubra* L.) on good to excellent growing sites is a serious problem for forest managers throughout the eastern and central United States. Natural regeneration using shelterwood methods are still being refined and are dependent on existing natural seedlings, an uncommon situation in many of today's forests. A possible alternative to natural regeneration is the use of plastic tree shelters in conjunction with a planted seedling. Research has shown that tree shelters promote a period of rapid seedling height growth followed by a period of much slower growth after emerging from the top of the shelter. Because the use of tree shelters represents a significant financial investment, judicious use of this technique is warranted. Preliminary guidelines are presented to maximize the likelihood of early seedling survival, growth, and potential competitiveness in the regenerated stand. Recommendations are based on research in the use of tree shelters conducted since 1988 on the Fernow Experimental Forest in north central West Virginia. Considerations include the age and origin of planting stock; size, color, style, and height of the tree shelter; stake material; planting location, density, and timing in relation to overstory removal; the use of herbicides or mulch to retard competing vegetation; maintenance schedules; and costs for installation.

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