



Crop Tree Release in Pre-Commercial Hardwood Stands

(Part I of a two-part article)

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The length of time necessary to grow quality hardwood trees is perhaps the greatest deterrent preventing private landowners from practicing hardwood management. Valuable trees such as white and red oaks, cherry, ash, yellow poplar, and black walnut require decades to reach financial maturity. This article describes how to accelerate growth rates in your young hardwood forest, which is vital to keeping your interest alive during the critical and dynamic time between seedling establishment and final harvest.

Timber Stand Improvement (TSI) is a forest management tool used to enhance growth rates of timber and shorten the time required for hardwood crops to mature. TSI provides an opportunity for

you to become actively involved in managing your timber, while increasing the possibility of a more favorable financial return.

Defining TSI and Crop Tree Release

TSI is controlling, manipulating, and improving the growth, quality, and species composition of a timber stand. One method of TSI is Crop Tree Release (CTR), the practice of deadening selected trees in younger, overstocked forests for the benefit of releasing desirable crop trees. Overstocked indicates a forest stand having more trees than is desired, causing the growth rate on individual trees to decline. CTR can be used to alter species composition within the forest,

and to concentrate diameter growth on desirable, potentially valuable crop trees. When applied properly, CTR results in a faster-growing, healthier woodland composed of a greater percentage of more acceptable trees. Similar to the principles applied to gardening, CTR allows you to guide your forest, leaving it with well-spaced crop trees whose crowns are capable of rapidly responding to increased growing space. CTR can be first applied to younger, pre-commercial stands (trees that are too small for market), with diameters ranging from 4 to 8 inches (measured at 4.5 feet above the ground).

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For clarification, CTR is not the practice of beautifying a forest. For example, clearing undergrowth to improve the appearance or visibility of a forest or cleaning up tree tops left after a timber harvest are cosmetic practices having little effect on the growth of your forest investment.

Other practices of TSI not addressed here include: improvement harvesting, fertilizing, deadening culls, controlling wild vines, pruning and, to some extent, prescribed burning and site preparation.

Apply CTR on the Best Sites

Most hardwood forests could benefit from CTR to some degree, but the greatest benefit will be realized on more productive sites. This is where measurable growth response will occur and where returns on your investment will be realized more quickly. Sites with deep, fertile and moist soils, sites protected from hot and dry southwest winds, and sites where hardwood trees typically can

reach a height of at least 70 to 75 feet tall in 50 years are the best choices. These sites are typically found along rivers, creeks and drainages, on north- and east-facing slopes and in coves and ravines. Ridgetops and slopes with a southern or western exposure are drier and usually support less desirable species, such as blackjack and post oaks, blackgum, red maple, sourwood, elms and hickories.

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The condition of trees growing on a site can further indicate site quality. Trees found on better sites will have

smooth, thin and tight bark. Their tree tops are expanding (rather than stunted or flat-topped) and they will often have long, merchantable log length.

Select Stands with Desirable Species

Once the best sites have been located, desirable trees must be present. Not all of the best sites are composed of tree species worthy of CTR. Through past treatment (or mistreatment) of the forest, often the more acceptable and valuable trees have already been harvested. Many times, the residual trees were left because they were undesirable species with low market value

or poor form. When this is the case, CTR is not recommended. Instead, regenerating the stand is the priority.

Species found within the white and red oaks groups have traditionally commanded the highest price and should take top priority. They are the mainstay of the Southern forest products industry and are likely to remain so. Speculating on the trends of future markets also can help you decide which species to favor. For example, market cycles periodically cause sharp increases in price for alternative species such as yellow poplar, black cherry, black walnut, maple, and ash. Managing for a diversity of tree species can help you benefit from uncertain future timber markets. A mixture of tree species also offers diversity in wildlife food sources, particularly for smaller non-game species.

Likewise, markets fluctuate according to location. A study of the historical demand for wood products in your region, as well as seeking input from professional foresters, is essential before implementing CTR.

Use Correct Materials

A variety of tools such as hatchets, axes, hypo-hatchets, and tree stump injectors have been used to conduct CTR, usually in combination with a systemic herbicide applied to the cut surface. Some herbicides can be applied directly to the base of thin-barked trees for their deadening, while others require for the bark and cambium to be severed and herbicide applied to the open cut. Following the label instructions is crucial. Contact your local cooperative extension service or Forestry Commission office for recommended herbicides.

Another reliable method, with regard to both effectiveness and efficiency, is the chainsaw. A light-weight but powerful saw complete with safety features and a 14- to 16-inch bar length is sufficient. Using a double-girdle method with the chainsaw will eliminate the need for herbicide (see procedure section). Other safety equipment, such as ear and eye protection, leg chaps, gloves, and steel-toe boots are recommended. 

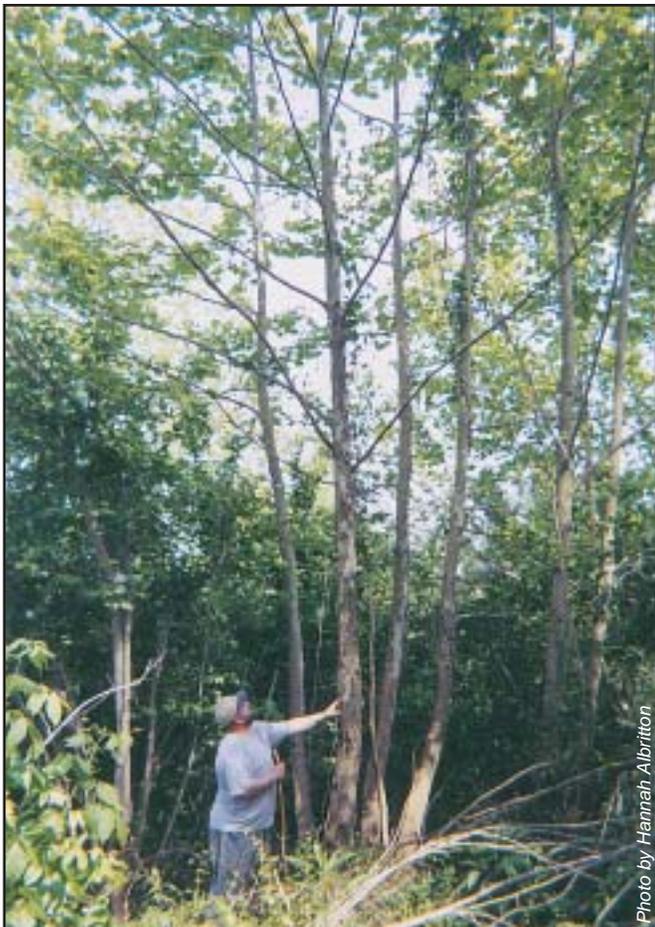


Photo by Hannah Albritton