



Heating With Wood Series

Managing Your Woodlot for Firewood

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Introduction

Oklahoma's forested land, particularly in the eastern part of the state, is well suited to growing trees. Some forest landowners, however, place little value on their trees. Properly managed, these forests can be improved to provide not only quality timber, but also firewood to be consumed today. They will also provide soil erosion protection, clean water, clean air, and wildlife habitat. With the growing popularity and economic benefits of using wood as a partial or total energy source, harvesting and gathering fuelwood has become a way of life for many. The manner in which these forests are managed for fuelwood, as will be discussed in this factsheet, is critical for the sustained production of benefits for future generations.

For many forest owners, cleaning up dead wood is an obvious source of firewood. If acreage is limited, however, average consumptions of firewood year after year will soon deplete the volume of wood available through scavenging. Landowners are then faced with harvesting live trees. Prior to cutting live trees, landowners need to take time to reflect on what the woodlot will look like in the future. With proper management, small woodlots can provide an ever renewable source of firewood while increasing the value of the crop trees being managed for higher valued products.

The first step in managing a woodlot for firewood is to understand that a woodlot grows wood every year. It is important to get a realistic idea of how much wood the woodlot currently contains, how fast the woodlot is growing, and how much wood is required for heating needs.

How Much Wood in a Woodlot?

The volume of available firewood per acre will vary depending upon the fertility of the soil, the kinds of trees, size of trees, how crowded they are, and the history of the stand. Trees grow better and faster on good soils with adequate moisture.

Wood volume is measured in standard cords. One standard cord takes up 128 cubic feet and contains approximately 80 cubic feet of solid wood. For detailed information on measuring firewood volumes, request OCES Extension Factsheet 9440: "Firewood: How to Obtain, Measure Season, and Burn" and 5021: "Measuring Woodland Timber" from your county Extension center.



Figure 1. Trees, like crops, need space to grow. Thinning a high quality hardwood stand will improve its ability to produce sawtimber while providing landowners with plenty of firewood.

Estimates indicate that average woodlots in Eastern Oklahoma contain approximately six cords of hardwood firewood per acre that can be cleaned out of a stand to bring it under proper management. On average, these acres are currently producing new wood at a rate of about one-third cord per acre per year. Volumes are considerably lower in the Western portions of Oklahoma. If firewood is harvested correctly and the woodlot is managed properly, the rate of growth could be significantly increased.

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Woodland Acreage Required for Sustained Firewood Production

Homeowners who burn wood as a primary source of heat will use more wood than those burning only for pleasure. According to recent studies in Oklahoma, homeowners that burn wood as a primary or supplementary source of heating fuel, on the average, burn about three and a half cords of wood per year. Those that burn for pleasure only, on the other hand, consume much less (about one-third of a cord annually). Very few residential firewood burners in Oklahoma consume more than five cords of wood in one season.

Oklahoma’s forests can provide a sustainable harvest of firewood. Assuming that a homeowner is burning wood as a primary source of heat, about three and a half cords per year will be needed. Considering annual growth and annual consumption, homeowners who rely on wood as a primary source of heat will require about ten and a half acres to sustain their needs. With proper management, acreage needed for sustained production can be reduced. Recommended harvesting techniques are compatible with good conservation practices.

Thinning Hardwood Stands

The majority of eastern Oklahoma’s hardwood forest resource can be managed for the production of lumber or veneer. If a landowner has the objective of timber production, the opportunity exists for a secondary crop of firewood. Assuming that the landowner has timber production in mind, any cultural practices that are carried out on these lands should favor sawlog trees.

Trees, like other crops, need room to grow. Too many trees on an acre of land will cause stagnation in growth rates due to competition for sunlight, nutrients, and water. Periodic thinnings of these stands will permit the better formed, more desirable trees to grow vigorously while supplying firewood for use in the home or pulpwood which can be marketed and sold. The selection of “crop trees” is the first step in thinning a stand of trees.

Selecting “Crop Trees”

Thinning operations should begin as early as possible in order to obtain maximum benefits. The “crop tree selection method” is the best way to thin a young pole-sized stand for timber. The first step in applying this method is to select the crop trees that will not be cut for firewood or other uses. Tree type (species) is one of the most important characteristics of a “crop tree.” Tree species which are valuable as sawtimber and should be left for “crop trees” in eastern Oklahoma include red oaks, walnuts, pines, hickories, gums, pecans, ashes, and hard maples. Tree species of lower sawtimber value which could be cut for firewood include blackjack and post oaks, cottonwoods, willows, elms, hackberries, sycamores, and locusts.

Another important characteristic to look for in “crop trees” is the quality of the trunk of the tree (see Figure 2). Quality sawlog trees have straight boles which are free of branches, foreign material (barbed wire), and disease defect (see Figure 3). It just so happens that these characteristics are also what firewood collectors look for in wood that will split easily. Firewood collectors are advised to resist the urge of cutting straight trunks for firewood simply because they will split easier. These higher quality trees, if allowed to grow and produce sawtimber, will yield a much higher value than if cut and split for firewood.

The number of “crop trees” to select in the woodlot will depend upon the size and distribution of the trees. Pole sized hardwood stands should contain between 100 to 125 “crop trees” per acre while mature hardwood stands ready for sawtimber harvest will contain only 50 to 75 “crop trees” per acre. Once crop trees have been identified, the woodlot “thinner” will need to evaluate the crown spacing of the trees. Trees touching the sides of “crop tree” crowns should be removed on one or two sides. Allow three to four feet between the crowns of crop trees. Periodically repeating this thinning procedure throughout the rotation age of the sawtimber stand will eventually yield quality sawtimber while providing ample supplies of firewood. Eventually, “crop trees” should be evenly distributed approximately 25 feet apart.

The initial thinning of a woodlot should concentrate on the poorly formed, crooked, limby, insect and/or disease damaged trees and the undesirable species (see Figure 4). Technical advice and assistance on a personal basis can be obtained by contacting the Oklahoma Department of Agriculture, Forestry Division.

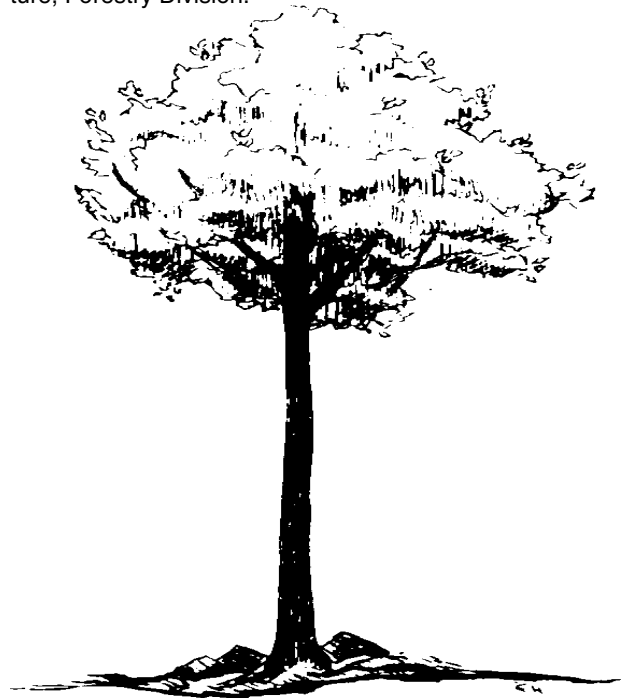


Figure 2. A crop tree is straight and tall. Its relatively smooth bark is free of seams, breaks, and large wounds.



Figure 3. Crop trees should not have: A) Swollen stem, B) Seams or breaks in the bark, C) Mechanical wounds caused by logging or other equipment, or D) Poorly healed branch stubs. All of these defects indicate internal damage or disease. Such affected trees and crooked trees are best removed for firewood

The Harvesting Operation

After selecting the crop trees needing release, begin harvesting the stand. In some higher-quality stands, the trees being removed may appear as valuable as the crop trees. Although this may be disturbing, this will allow the crop trees to be released. These released crop trees will grow faster and quickly regain any perceived loss of value. In harvesting firewood, always be careful not to scar or damage the crop trees that will remain. When using a tractor to pull wood out, be careful not to scuff the bases of these trees. If felling taller trees, be careful that the tops of these don't get "hung up" in crop trees. Most of the value of sawtimber trees is found in the first log (first 12 feet). Remember, the care with which competition is removed will have a large impact on the value of future income from sawlogs.

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Work safely in the woodlot. Felling trees and falling branches, both dead and alive, present potential hazards. Stay alert until they are safely burning in the fireplace. For more information on safely harvesting firewood, request Extension Factsheet F-9431 "Cuffing Firewood Safely" and F-9430 "Safe Chain Saw Operation" from your county Extension office.

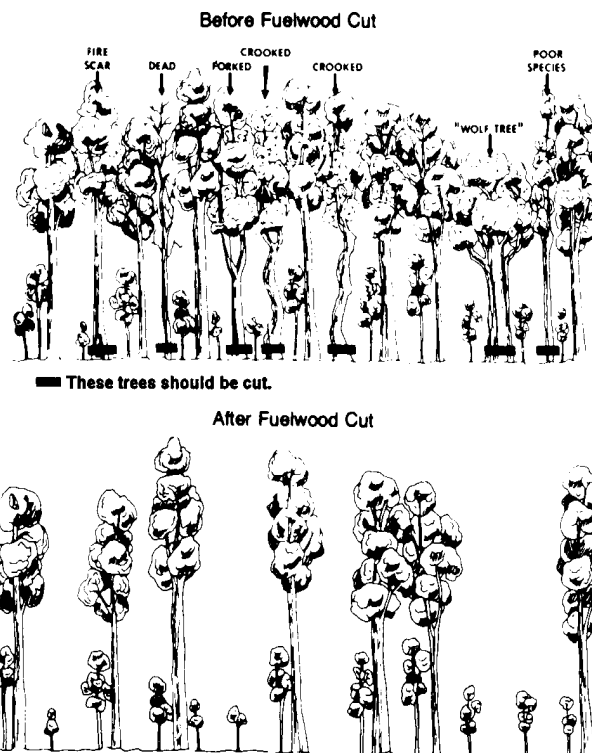


Figure 4. Removal of inferior trees will result in increased production.

Opportunities for Firewood Plantations

Growing firewood is possible and practical for those with idle acreage or those considering entering highly erodible land in government programs such as the Conservation Reserve Program. Black locust is one of the most highly rated woods used for fuel and grows exceptionally well in Oklahoma. Black locust is also an extremely good species to plant for soil erosion control. It is adapted to a wide variety of soils but will do better on moist, rich, loamy soils. Well tended plantings should begin to produce some firewood in about six to seven years (Note: be aware, however, that certain programs, such as the CRP, have restrictions on harvesting during the contract period). Maximum production should not be expected until the trees reach ten to twelve years of age.

Black locust has some interesting advantages that make it a superb choice for firewood plantations. This species will sprout from the stump after the first harvest. Normally the second crop will grow faster than the first due to the established root system. Also, black locust is a leguminous tree species that "fixes" its own nitrogen. Black locust improves the soil while producing valuable firewood. Other benefits of this species are its excellent soil binding qualities which aid in reducing erosion and its durable wood which has traditionally been used for fence posts. Landowners would be wise to consider a planting of black locust as a potential firewood source for the future.

Other tree species are also suitable for fuelwood production in Oklahoma. Species in addition to black locust which should be considered in establishing fuelwood plantations include osage orange, catalpa, thornless honeylocust, cottonwood, and green ash. A professional forester can provide specific site recommendations.

Acreage requirements for producing firewood on a sustained basis will vary depending upon species planted, site fertility, and other factors. As a general example, if a landowner wishes to produce a constant supply of five cords per year of cottonwood firewood on an average site in eastern Oklahoma, approximately 1,400 trees would need to be established. Planted on a spacing of eight feet by eight feet, these trees would take up slightly more than two acres of land. Firewood harvest could begin in year six.

Appropriate spacing and cultural treatments will depend upon available machinery, landowner objectives, tree species, and site characteristics. For specific recommendations, please contact the local Oklahoma Department of Agriculture, Food, and Forestry - Forestry Division office or a county OCES Extension.

Heating With Wood Series

The following publications are included in the Heating with Wood Series, published under OCES Extension Factsheets. They may be obtained from the nearest OSU Cooperative Extension office.

- F-9430 Safe Chain Saw Operation
- F-9431 Cutting Firewood Safely
- F-9432 Selecting a Wood Burning Stove for Safety and Efficiency
- F-9434 Safe Operation of Wood Burning Stoves
- F-9435 Wood Stove Chimney Installation and Care
- F-9437 Fireplaces and Fireplace Accessories
- F-9439 Managing Your Woodlot for Firewood
- F-9440 Firewood: How to Obtain, Measure, Season, and Burn
- F-9441 Heating Your Home with Wood

Wildfires destroy timber and wildlife habitat, reduce soil fertility and generate soil erosion by destroying the ground cover. People cause nine out of ten woods fires and nearly one-third are set deliberately. Some are set for malicious reasons and some are set because of the mistaken idea that fires will destroy snakes, ticks or chiggers. Every Oklahoma citizen has the responsibility of protecting our forests from needless destruction. Let's all do our part to conserve our forests for the benefit of this and future generations.