Wood For War Emergency Fuel

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With fuel oil, gas and coal subject to strict rationing under the war emergency program, the use of wood for supplementary fuel in heating stoves and fireplaces becomes important. Labor shortage and transportation difficulties will prevent wood from being placed on commercial markets in adequate volumes to meet needs of homeowners. However, many families, facing the prospect of insufficient winter fuel, can plan to supply their individual needs through their own efforts.

A vast overabundance of wood suitable for fuel exists in all rural wooded regions. Most Missouri woodlands contain from 1 to 6 cords per acre in dead and defective trees, which should be weeded out to improve the stands. Value of this potential fuel wood to the landowner is negligible. Fallen and standing dead or defective trees should be obtained at from no cost to $1.00 per cord in the woods. (One standard cord is a pile of wood, 4 feet high, 4 feet wide and 8 feet long, containing 128 cubic feet of stacked volume).

Trees which have died recently and are still sound make better fuel for immediate use than green trees since they are at least partially seasoned. Wood which has lain on the ground for longer than six months is often decayed to the point where it has little fuel value. However, top or branch wood from down trees which is not in direct contact with the soil remains fairly sound for from one to two years. Any sound down trees should be used first, as the labor of felling is saved.

Fuel Value of Tree Species

Fuel value of wood varies directly with its weight and hardness. One cord of Shagbark hickory, one of the best common species used for fuel, will produce as much heat as 3,000 pounds of soft coal. Relative fuel value of 20 common Missouri species is shown by the following list.
1. Osage Orange  
2. Hickory  
3. White Oaks  
4. Red and Black Oaks  
5. Ironwoods  
6. Hard Maples  
7. Beech  
8. Locust  
9. Mulberry  
10. Red and Black Gums  
11. Elm  
12. Sycamore  
13. Red, Green, White Ash  
14. Soft Maples  
15. Yellow pines  
16. Red Cedar  
17. Catalpa  
18. Basswood  
19. Cottonwood  
20. Willow.

Seasoning of Fuel Wood

Green wood, freshly cut, contains from 25 to 45 per cent water by weight, and in such species as Cottonwood and Willow the water content may run as high as 60 per cent. When the wood is burned, this moisture must be converted into steam and driven off, and much heat is lost in this process. By drying out the wood, its heating value is greatly increased, and the weight of the wood decreased. Dead standing trees which are still sound are partially seasoned and are much better than living trees for immediate use. Many trees which have been dead for several years, either standing or down, contain sound heartwood and make excellent fuel, even though the outer ring of sapwood is completely decayed.

Green wood should be piled loosely so that air circulates freely around each stick in the pile. This should be done in the woods because the decreased weight of the seasoned wood will lessen labor and cost of hauling and handling. Green wood should be seasoned for six months for effective drying but if time is not available even one, two or three months will improve its heating efficiency.

How to Cut Fuel Wood

The average unskilled workman will find that cutting and piling one-half a cord of wood requires in the neighborhood of 8 hours. With experience and average skill in the use of tools, the output can be increased to one cord a day. Highly skilled, professional woodsmen usually produce from 2 to 3 cords per day, but this production is gained only by long experience and with the best of tools.

Tools required include axe, saw, whetstone, file, and for large trees a splitting maul or sledge hammer and two steel wedges. The axe may be of the single-bladed pole type, or the double-bladed or logger’s type. Most experienced woodsmen prefer the double-bladed type since less time is required for sharpening in the woods. Moreover, the hammer head of the pole axe cannot be used to any extent without spreading the eye and ruining the tool. It goes without
saying that tools kept sharp and in good condition are essential to good production.

The wooden-framed bucksaw, with turnbuckle to adjust tension of blade is one of the best fuelwood saws. An improved "pulpwood" saw, similar in principle to the bucksaw but having a bowed, tubular steel frame to keep the blade tense, is a recent development and can be used effectively by one man for both felling and bucking. Two men working together may prefer the two-man crosscut saw, but this tool like the one-man crosscut, has a thicker blade and cuts a wider kerf requiring more energy than the thin-bladed bucksaw.

Wedges and heavy maul hammer should be used for splitting large sticks. An axe is altogether too light for this heavy work. When wood is to be split after having been sawed to stove-wood lengths it may be placed on a block and split with the axe.

The householder interested only in cutting his own supply of fuelwood will probably find it most effective to fell and limb the trees, and haul them home in long lengths where they may be bucked, split and piled as time permits. Where a number of cords of wood have been accumulated it will be economical to hire a man with a power buzzsaw. Charges for sawing to stove wood lengths are about $1.00 to $1.50 per cord, depending on the length desired and the number of cords to be cut.

General Rules for Preparing Fuel Wood

Sharp tools save time and labor.

Sound, dead trees are better for immediate use than living trees.

Loading sticks in truck, wagon, trailer or sled as they are cut reduces labor in piling and handling.

Close utilization of stumps and tops means less felling.

Fuelwood cuttings should remove only undesirable trees.

Dimensions of fireplace or firebox in stove should be measured in advance so that sticks can be bucked to maximum length.

A chopping block and saw buck are essential to efficient splitting and bucking.

Rules for Use of Axe

Learn to chop from both right and left.

Remove brush and low branches so that nothing can interfere with axe swing and cause accidents.

Hitting exactly where one aims is much more important than powerful strokes.

Work without haste.

Never use head or side of axe for hammering.

Use saw rather than axe wherever possible, as it is less laborious and wasteful.
'Never swing' axe until footing and balance are secure.  
When limbing, always stand on far side of felled tree.  
Axe head must be wedged securely to handle.  
Blade should be kept sharp by ‘touching up’ with hand whetstone each day it is used.

Efficient Use of Wood Fuel

The ordinary, damperless, fireplace requires 10 times as much wood as a tight stove to furnish equal heat. Damper controlled fireplaces, and particularly the circulating fireplace which discharges warmed air from hot air space back of the fireplace to adjoining rooms, are much more efficient. However the stove whose air intake can be completely controlled, is the most efficient heating unit for burning wood. Recently, “slow combustion” stoves, developed in Europe and available in limited numbers in the United States, have been placed on the market. These route the escaping wood gases downward, and back through the stove, so that they are completely consumed and result in highly efficient heat production. Stoves of this type require refueling once in from 8 to 24 hours, depending on severity of weather. They are thermostatically controlled and furnish even, almost smokeless, heat, with practically no ashes.

Wood should be cut just the proper length to fit the firebox, which should be square or rectangular, rather than round or oval. After a fire is kindled wood should be laid on tightly for a hot fire or laid loosely or crossed for a light fire. Green wood may be mixed with dry wood to reduce rate of burning or to hold a fire over night. Covering fire almost completely with wood ashes will reduce rate of burning and hold a fire for several hours.

Advantages of Wood as a Fuel

Wood is clean and free from disagreeable dust.  
One cord of hardwood produces about 60 lbs. of ashes, as compared to 200 to 300 lbs. from a ton of hard coal.

Wood is more easily kindled than coal, and can be maintained at a lower ebb.

Wood is more desirable to furnish quick, short-time heating, as desired during mild weather to reduce chill of early morning and evening.

Wood is the most universally available fuel in the United States, and can usually be obtained locally by the user if necessary, at little cost aside from the labor of cutting and handling. As a supplementary fuel, to be used during periods of labor, transportation and material shortages, it fills a need which cannot be met by other fuels.