

AGRICULTURAL GUIDE

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Sales

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How to buy and sell cordwood

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One of the first questions "wood burners" ask about wood supplies is, "How much per cord?" The dollars are important. But equally important is a standard way to measure and transfer the wood. Both the buyer and seller must agree upon and understand the procedure.

Many people who buy cordwood for their home wood stoves admit they don't understand the transfer process. Some dealers talk in terms of a "rick," a "rank," or a "pick-up load." Others mention a "face cord" and still others talk in terms of a cord or fractions of a cord. Sometimes, the definitions vary from dealer to dealer and from locality to locality. For example, on most sales, no procedure of transfer even exists. The dealer dumps his pick-up load in the yard at a designated point, collects his fee from the buyer, and moves on.

We'd like to think most dealers are honest and the transaction is fair. But this is no way to run a business. The wood dealer may profess to have sold a half cord, but he probably never measured it. Neither the dealer nor buyer knows with any degree of accuracy how much merchandise "passed" in the transaction. Because this growing industry appears to be operating without an equitable method of sale in many instances, this guide will discuss cordwood sale from the standpoint of: (1) volume transfer (cord) and suggested transfer procedures; (2) advice; (3) weight considerations (species); (4) wood moisture content; and (5) insect problems and damage.

Volume transfer: "The cord"

Despite the lax procedures frequently followed, cordwood must, by law, be sold by the **cord** or fractional

part of a cord. It must be accompanied by a bill of sale in accordance with requirements of the Missouri Department of Agriculture's Weight and Measures Division. As defined by the National Conference on Weights and Measures and Missouri rules and regulations, a gross cord of firewood is the amount of wood ranked and well stowed, and contained in a space of 128 cubic feet. "Ranked and well stowed" means pieces are placed in a line or row with pieces touching on their ends and parallel to each other and stacked in a compact manner.

Other descriptions of volumes of cordwood such as rick, rank, pick-up load, and face cord should not be used. The *only* legal terms are "cord" and fractions of a cord.

To transfer a load of cordwood equitably, the buyer and seller must jointly measure the pile of wood. This is probably best done when the wood (tightly stacked) is still on the truck or conveyance vehicle.

A seller should prepare a price list, preferably on a printed sheet, to distribute to potential buyers (see Figure 1.).

The suggested selling procedure for transferring cordwood is as follows:

1. Jointly measure the closely stacked pile on the bed of the truck. Measure length, width, and height in inches to the closest whole inch.
2. Multiply the length times the width times the height to get the gross volume in cubic inches.
 $(L \times W \times H = \text{Gross Volume (inches}^3\text{)})$
3. Divide "gross cubic inches" by the number of cubic inches in a gross cord—220,000. The answer is the number of cords or fractions of a cord. Round off the answer to two places past the decimal point.

4. Multiply the number of cords by the cost of the wood per cord given on the price list. This gives the retail cost of the wood. This does not include added services, such as special length, transfer, or stacking.
5. Buyer pays seller and seller conveys "Bill of Sale" to the buyer (see Figure 2.). Seller "dumps load."

An **example** of a complete transaction might be:

A buyer wishes to purchase a cord and one-half of wood. After reviewing the pricing list she decides the 20-inch length is acceptable. She tells the seller to dump the wood at the north end of the driveway. She and her husband will transfer the wood to a backyard location and stack it as a weekend project.

The seller arrives with his load on the appointed date. (1) The buyer and seller jointly measure the three dimensions of the load to the closest inch. The load measures as follows:

- (1) L = 120"
W = 120"
H = 24"
- (2) $120'' \times 120'' \times 24'' = 345,600 \text{ in}^3 = \text{Gross volume of load}$
- (3) $\frac{345,600 \text{ in}^3}{220,000 \text{ in}^3} = 1.57 \text{ cords}$
- (4) $1.57 \text{ cords} \times \$85/\text{cord} = \$133.45$. (retail cost of the cordwood)
- (5) Complete transaction. Seller conveys "Bill of Sale" to the buyer and dumps load of wood.

Advice to the buyer

1. Measure your stove to make sure the 20-inch length is satisfactory. If you have a small stove and it can't comfortably accommodate 20-inch logs, adjust your specifications to 18-inch or 16-inch maximum length.
2. Decide exactly how you intend to handle the wood after it is dumped. Some people like the vigorous activity of transferring and piling the wood chunks. Others don't. If you are one of the latter, be sure you decide where you want the seller to stack the wood.
3. If you want the best results, stack a smaller "reserve pile" in the basement and use it to feed your stove. This wood won't freeze on cold winter days and thus will be easier to burn and will give off more heat. It could also save you the discomfort and mess of going outdoors for wood on a cold day.
4. For best results, plan ahead and order your wood in the fall for *next* year. It takes a year for wood to air dry to approximately 20 percent moisture content.

The second best plan is to order the wood you need in the spring for the following burning season. This gives a shorter drying period but

includes the best drying months. Assume all wood you buy is "green" wood (not air dried) and treat it as such. That is, air dry it before use.

5. If you cover your wood pile with a tarpaulin before the snows fly, the wood will be easier to handle all winter long.

Species of wood

The species of wood you receive makes a great deal of difference. The potential heat value of wood is directly proportional to its weight, and there is wide variation in weight for equal volumes of wood (see UMC Guide G5450, "Wood fuel for heating," Table 1). For example, a cord of pine weighs about 2,700 pounds at 20 percent moisture content. An equal volume of oak weighs about 3,700 pounds at 20 percent moisture content. The pine, therefore, has about 73 percent the potential heat value as the oak, yet you may have paid the same price for the wood.

The term "mixed hardwoods" has very little meaning because many hardwoods grow in Missouri. Some have high densities and others, such as cottonwood and silver maple, have relatively low densities. If you can identify the woods, it would be logical to lower the price for the wood if the load is predominately a less dense species. The question you should ask about any cord of firewood is, "What is the BTU potential per cord?"

In Missouri we do not need to be too concerned about species make-up of cordwood because the most common species cut for firewood are red and white oak, hickory, and ash. They are all relatively heavy woods and are considered to be among the best cordwood species.

Most people don't specify cordwood by species. Buyers are generally unaware of this important characteristic and buy primarily on "faith." The Missouri Department of Weights and Measures "Uniform Regulations for the Method of Sale of Commodities, 1979" states, "A representation (any advertisement, offering, or invoice) may include a declaration of identity that indicates the species group (Example: 50 percent hickory, 50 percent miscellaneous softwoods). Such a representation shall indicate, within 10 percent accuracy, the percentage of each group."

Moisture content of cordwood*

The moisture content of wood is another important factor to consider if you use wood as an energy source and want to operate at maximum efficiency. When trees are cut, wood contains a lot of water. This quantity of water is generally called the "green moisture content." The amount of water in green wood varies with species. Some hardwood species are as low as 50 percent and others are more than 100

* See UMC Guide G5450, "Wood fuel for heating."

Price Sheet

A.B.C. Cordwood Supply Company
West Avenue
Columbia, Missouri 65201
phone: 555-1000

Quantity of cordwood	Rate/cord (\$)
1. less than ½ cord	\$95.00
2. less than 1 cord but greater than ½ cord	\$90.00
3. 1 to 4 cords	\$85.00
4. more than 4 cords	\$80.00

Length of cordwood pieces:

All wood is cut to 20'' unless buyer specifies otherwise

Lengths	Added cost/cord (\$)
1. 18''	10.00
2. 16''	15.00
3. greater than 20''	no added cost

Transfer and stacking

After measurement of the load of cordwood on the truck it will be standard procedure to "dump" the load at a point accessible to the truck and mutually agreed upon by the parties to the transaction. If the buyer wishes to have the wood transferred beyond the dump point or stacked, costs will be as follows:

Transfer	cost/cord (\$)
1. to 40'	\$15.00
2. greater than 40'	\$20.00

Stacking	cost/cord (\$)
	\$20.00

NOTE: The loads may be a maximum of ± 10 percent of the amount of wood ordered. The buyer will **not** be required to pay for quantities in excess of 10 percent and may ask the seller to deliver appropriate quantities to bring the total delivery to within the minus 10 percent limit at regular (no special) cost.

Figure 1. Example of a "price sheet"

percent moisture content. After cordwood is cut to length, split, and stacked in a sunny and well-ventilated spot, it loses moisture rapidly. Wood dried for one year may be near the 20 percent moisture content—air dried.

When you purchase wood, assume it is green and dry accordingly. Few dealers stack firewood and hold it for a year because they are generally not compensated adequately, if at all, for this effort. The drying then is up to you, the buyer, if you think the effort is worth the gain. Green wood will burn in a stove. Contrary to popular thought, it is *not* responsible for the deposit of creosote on the lining of your chimney. Green wood does burn more slowly than air dried wood and may be somewhat slower on the "uptake" when you start a fire.

If you burn green wood, you stand to lose 10 to 12 percent of the original heat potential of the wood.

Insect problems and damage

Insects can cause damage or be bothersome when you store wood. Pests include wood borers (round and flat head wood beetles), wood roaches, and termites.

People who often use wood to heat their homes usually have had experience with wood borers. In the summertime you can frequently hear the borers chewing wood in most older wood piles. Once borers become established in a wood pile they can reduce the pile 20 to 30 percent per year by weight. This means that, from the standpoint of borer damage, it is probably not a good idea to hold your wood outside for more than a year or two, at most.

If you can postpone felling trees cut for cordwood until after the first frost, your wood will be relatively free of wood borers at least for the first year. The adult borers do not fly after the first frost and thus

Sales invoice

A.B.C. Cordwood Supply Company
West Avenue
Columbia, Missouri 65201
phone: 555-1000

Name: _____

Address: _____

Telephone: _____

Date delivered: _____

Measurements of load of cordwood to nearest inch:

Length: _____

Width: _____

Height: _____

Quantity (cords): _____

Price per cord: \$ _____

Price of wood: \$ _____ \$ _____

Accessory Costs:

Length adjustment: \$ _____

Transfer: \$ _____

Stack: \$ _____

Total accessory costs \$ _____

Signature _____ Sale \$ _____

Figure 2. Example of a sales invoice

the logs are not contaminated. If adequate drying takes place before spring, the adult borer will be less attracted to the wood. We are not advocating that everyone should always wait for a frost before cutting trees for cordwood. However, it is a good idea to consider this as an option in your time schedule.

People frequently ask about the consequences of bringing borers inside the home with the cordwood. Will the borers flourish and infest the wood of the house? The answer is "no." They do not reproduce inside nor do they contaminate the wood of your home. Their normal habitat is outside. Inside, they emerge from the wood as adults and die within a short time. The worst scenario is that you will sweep or pick up a few adult borers where the wood is piled.

Wood roaches can be bothersome when you store wood inside the house. Wood roaches seem to inhabit

an outdoor wood pile after the bark loosens. It usually takes one or more years of outside storage for bark to loosen. It loosens because the wood shrinks as it loses moisture. The action of bark beetles and other insects also loosens the bark.

Wood roaches are not the "common house roach" usually associated with dirt and filth. Even though the wood roach looks like the cockroach, the wood roach is completely out of its environment inside the house. They, like the wood borers, don't reproduce and multiply inside the house. Instead, they either die or seek passage to the outside.

A paragraph taken from UMC Guide G7384, "Cockroaches," states, "Wood roaches (several species), which normally develop outside, may occasionally infest homes. They may enter the home in the fall or during heavy rains and may also be carried in on firewood. Winged males are attracted to lights. They

generally do not become a persistent problem in homes.”

Termites may infest a wood pile, especially one stacked on the ground. The degree of infestation and damage to the cordwood is usually a factor of location and time. For example, wood piled on a concrete or asphalt pad may be somewhat protected from termite damage.

Termites, like wood borers, can reduce the heating potential of cordwood. This again suggests that holding wood outside for about one and one-half years or more could be a losing situation.

It is unwise to pile your cordwood *against* your house, especially a house with a wood exterior. This could not only discolor the exterior of the house, but, more importantly, it could promote entry of termites into the wood structure of your home.

Summary

You as a buyer have a high degree of control over the efficiency of cordwood procurement and wood preparation before burning. Properly purchased, handled, and prepared wood can create a much more pleasant operation and can save money on your heating bill.

A few final advisements:

1. Buyers, do not accept randomly piled cordwood

for measurement purposes. You cannot estimate the volume of a randomly piled load to the needed degree of accuracy. Insist on a tightly stacked and stowed piling.

2. Only buy cords or fractions thereof. A seller may say he will sell you a rank of wood. When you ask him how much that is, he may reply “about a half cord.” At that point, tell him you would prefer to buy a half-cord and proceed with your transaction.
3. Measure pile dimensions in inches (not feet) to the closest full inch. Practice the simple steps in calculating the cord or fractions of a cord to get a fair and measured cost.
4. Non-split pieces (smaller whole round branches) tend to be crooked and thus reduce the net volume in a well-stacked pile. All trees contain some of this wood but an excess amount of the smaller parts increases the cost of your wood energy source.
5. If you are interested in preparing cordwood, that is, cutting, splitting, piling and drying wood, see UMC Guide G5451, “Preparing wood for your wood stove.”
6. For more information on roaches and termites, see UMC Guides G7384 “Cockroaches,” and G7420 “Termite control in existing structures.”

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