**Wood as a Heating Fuel**

By: John Hobbs

Reference used: MU Guide G5450 Wood Fuel for Heating

**Where are you getting your firewood?**

Does the higher cost in heating fuel prices or electricity have you dusting off that old wood stove in the corner or researching the latest wood stove technology? If so, then you’ll also want to spend some time contemplating where you are going to get your firewood.

Wood is plentiful and accessible fuel for many Missourians and for those who think “green”, it is a renewable resource as compared to coal or oil. As a rule of thumb, a cord of air-dry hardwood fuel yields about the same usable heat as 250 gallons of propane (LP), a ton of hard coal, or about 6500 kilowatt hours of electricity.

By comparing the cost of other fuels with cordwood, you can figure out the savings you’ll realize by burning wood to heat your home.

Don’t expect to go out in the backyard when the weather turns cold to cut down a few trees to saw up and throw into the new stove. It takes time to cure and dry firewood. Burning green wood is very inefficient, and it can be unsafe.

The moisture content of green wood averages 60 to 80 percent of the total weight of a cord of firewood depending on when it was cut. Evaporating all that water in your stove will use as much as 15 percent of the potential heat in your firewood, so you are better off letting nature do it for you by air-drying your wood before you burn it.

Burning green wood also promotes a buildup of creosote in the chimney, increasing the risk of a dangerous chimney fire.

It will take about six months to air-dry a cord of cut and split wood to 30 percent moisture content and nine months to reach 20 percent moisture content. So if you haven’t started cutting and splitting your wood pile, you won’t catch up before cold weather arrives this fall. That means you’ll probably need to buy dry firewood this year and plan on using any wood you cut now during the next heating season.

**What is the best wood to burn?** Not all firewood is created equal. Some species of trees are denser thus able to produce much more heat per cord of wood. A cord is the amount of wood in a well-stacked woodpile measuring 4 feet wide by 8 feet long by 4 feet high.

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Following are heat values in million BTU’s (per cord for various species of tree. The higher the BTU value, the more potential heat generated.

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>BTU Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash, Green</td>
<td>23.6</td>
</tr>
<tr>
<td>Elm, American</td>
<td>20.1</td>
</tr>
<tr>
<td>Hackberry</td>
<td>21.6</td>
</tr>
<tr>
<td>Red Oak</td>
<td>25.3</td>
</tr>
<tr>
<td>Locust, Black</td>
<td>28.1</td>
</tr>
<tr>
<td>Hickory</td>
<td>29.1</td>
</tr>
<tr>
<td>Maple, Silver</td>
<td>20.8</td>
</tr>
<tr>
<td>Mulberry</td>
<td>25.3</td>
</tr>
<tr>
<td>Oak, Post</td>
<td>27.0</td>
</tr>
<tr>
<td>Sycamore</td>
<td>20.7</td>
</tr>
<tr>
<td>Osage Orange (Hedge)</td>
<td>30.7</td>
</tr>
</tbody>
</table>

Osage Orange (Hedge) 30.7: Sparks, do not use in open fireplace

Heating a house with wood is relatively clean and economically beneficial. That burning wood is physically healthful, and that experiencing it is comforting to the body and soothing to the spirit.

Choosing and Caring for Your Christmas Tree
By: John Hobbs

Many will soon visit their local tree grower or tree lot in search of the perfect Christmas tree. Selecting a good tree and proper care for it once it is home can ensure a safer, more enjoyable holiday season. Consider these tips:

If selecting a cut tree, watch for these signs that the tree is too far gone.

- Needles are a dull, grayish-green color
- Needles fail to ooze pitch when broken apart and squeezed
- Needles feel stiff and brittle
- Gently pull on several needles to check for freshness. If many come off, look for another tree. Also, lift the tree and strike the butt end on the ground. If many needles fall from the twigs, the tree is probably not fresh. You can also break a few needles to see if they are moist and fragrant.

Once you have your tree home, recut the trunk about one inch above the original cut. This will open up unclogged water conducting tissues.

Immediately place the trunk in warm water.

Locate the tree in as cool a spot as possible. Avoid areas near fireplaces, wood-burning stoves, heat ducts and television sets as the heat will result in excess water loss. Make sure the reservoir stays filled. If the reservoir loses enough water that the bottom of the trunk is exposed, the trunk will need to be recut. Adding aspirins, copper pennies, soda pop, sugar and bleach to the water reservoir have not been shown to prolong the life of a tree.

If you choose a living Christmas tree, be sure to dig the planting hole before the ground freezes. Mulch the hole and backfill soil to keep them from freezing. Live trees should not be kept inside for more than three days. Longer periods may cause them to lose dormancy resulting in severe injury when planted outside. You may wish to tag the tree at the nursery and then pick it up a couple days before Christmas. After Christmas, move the tree to an unheated garage for several days to acclimatize it to outside temperatures. After planting, water well and leave some mulch in place to prevent the soil water from freezing and becoming unavailable for plant uptake.

Kids Crafting Christmas
December 6, 2014
9 am – 4 pm
Redings Mill Fire Protection District
344 Redings Mill Road
RSVP to (417) 455-9500

Parents will be able to take care of their Christmas Shopping while the children create gifts of their own to put under the family Christmas tree. This event is for youth 5-12 years old. For more details please call.

Cost is $45.00 per child and children will need to bring a sack lunch from home and be ready to create some awesome gifts!

PRE-REGISTRATION IS REQUIRED and space is limited.

An Equal Opportunity/Access/Affirmative Action/Pro-Disabled & Veteran Employer
Call Extension Office If You Have a Problem With Sheep and Goats
By: Dr. Jodie Pennington

I am retiring soon. Over the years, I have had many farm visits to investigate a problem on a farm, whether it be for sheep and goats or another species. It seems that the one common factor in well over half of the calls related to the call being days or months too late. That is, most producers would have been better served by calling earlier before the problem got as significant as it was at the time of the first visit. Not all delay calling me or their local county extension agent, but the majority of producers delay calling until the problem is too severe or the problem has run course.

Some producers who work closely with extension call before the problem is significant. Many years ago, I thought that some of the calls were premature but tried to tell the producer how to address his/her concerns. These producers were often among the best herders who watched their animals closely and had detected minor changes that they felt could develop into a significant problem. I wish more people called earlier as it is much easier to address upcoming concerns than to correct major problems which have already cost significant dollars. Thus, if you have a concern, however minor, call your local extension office and get an additional pair of eyes on the farm so the problem can be addressed before it becomes severe. Also, a fresh pair of eyes can often detect a problem or solution that you have not seen.

In a previous job when working with dairy cattle, I had a producer who invited me to visit his farm each year to see if there were management changes that he might make to improve his operation. As he had a very attractive and well-managed farm, I usually complimented him on how well things looked and on his management. I also made a few minor suggestions on what he might do to improve the dairy. The next year he had usually made most of the changes that I suggested. However, one year he had made almost no changes and I made some of the same suggestions from the previous year. He mentioned that I had made the suggestions the previous year and, that he would like to make them, but he could not because of some financial and health concerns. I told him that I understood, but then told him the highest priority concern to address. Most producers want to do a good job, some want to do a great job—this producer wanted to do a great job and, more importantly, did a great job but had some limitations in that specific year.

In some degree, we all go through these types of limitations. With sheep and goat producers, the limitation is often time as the sheep or goat owner may have a full-time job off the farm.

Small ruminant producers, especially goat owners, tend to come and go in the industry at a higher rate than producers of larger species. Part of this turnover is because the costs of sheep and goats are less than with larger species and no additional facilities may be required. Liquidation is less expensive.

However, many wool sheep producers have been in business for years and some goat producers have had goats for over 40 years. Hair sheep tend to be less management intensive than goats and probably stay in business longer than the average goat producers. Some get into goats because they think they can make a lot of money with goats—which is possible with good management. However, goats require more management than other species because of increased problems with internal parasites and predators, often the owner’s or neighbor’s dogs. Also, extra fencing is required for small ruminants compared to cattle, both to keep the animals in the lot and the predator out of the lot.

A lot of farm owners do not know about the extension service and do not realize that most services are free. Some farms might involve commercial goats and/or might be hobby farms to occupy the owner’s time. Other producers have no agriculture background. These producers need training on basic agricultural practices for livestock production and could benefit significantly by attending local extension meetings.

It is important to plan before you buy sheep and goats. Planning includes visiting several good farms to see what best fits your management style and resources. Then, make sure that you have a business plan to know how much you can spend and what income you expect. Such plans are available through your extension office. Business plans do not have to be extensive, maybe 1-2 pages. Marketing and management plans are needed also and are available through the extension office. A marketing plan may be to sell at the closest sale barn or it can be more detailed in order to maximize selling when prices are the highest or input costs are the lowest or somewhere in between for most people. Selling before Easter usually results in the highest prices but also can have the greatest feed costs with winter feeding of the young and nursing mother. Management plans outline the calendar of management practices for the year, including upkeep of facilities. Then, with your business, marketing, and management plans in hand, you are ready to buy good quality sheep or goats from a farm with your management style. With limited experience, most producers are better served by starting small and then growing the flock or herd as their management knowledge increases.

In closing, let me encourage all of you to visit your local extension office and see what it has to offer you.
Farm Bill Crop Provisions
By: Brent Carpenter, Ag Business Specialist, Pettis County

You've been hearing about it for months. Now is the time to think seriously about the crop provisions of the new farm bill and how they may impact your farm(s). Both landowners and operators have important decisions to make for each FSA farm unit. These decisions are made once and will stay with the farm for the life of the bill, 2014-18.

Sign up dates have been announced as follows:

Dates and Action:

♦ September 29, 2014 to February 27, 2015
  Land owners make base reallocation/yield updates

♦ November 17, 2014 to March 31 2015
  Producers make election between ARC and PLC

♦ Mid April through Summer 2015
  Producers sign contracts for 2014 & 2015 crop years

Basically, there are three new programs to consider: Agriculture Risk Coverage-County (ARC-CO), Agriculture Risk Coverage-Individual (ARC-IC), and Price Loss Coverage (PLC) which includes the option to purchase supplemental crop insurance (SCO). No previous farm bill has given producers as many choices.

This farm bill also allows land owners the choice to redistribute base acres among crops and update program payment yields. Base acres and yields are used to calculate potential program payments. Generally, higher program yields are going to give more risk protection.

The ARC programs are triggered by crop revenue per acre. A farm receives a payment if crop revenue falls below a benchmark level. The benchmark is a calculation of a moving average of revenues in previous years.

PLC payments are triggered by low crop prices. The reference prices for PLC are set in law as follows: Com $3.70; Soybeans $8.40; Grain sorghum $3.95, Wheat $5.50. As of this writing, projected prices for corn and grain sorghum will trigger PLC payments for the 2014 crop.

The level of risk protection, a.k.a. government support, from either ARC or PLC depends on what happens with future crop prices which is unknowable. However, there is excellent educational assistance available to help make an informed business decision.

We strongly recommend that producers use at least one of the two online calculators to evaluate the programs for each of their farms. Find the tools and program details at http://www.fsa.usda.gov/FSA. Many MU Extension Ag Business Specialists are prepared to help you understand these decisions.

Scientists Question If Meat Cooking Methods May Increase Cancer Risks
By: Dr. Lydia Kaume

High temperature methods, such as charbroiling, grilling over open flame, broiling and pan frying used to cook meats including beef, pork, fish, and poultry, produce good enjoyable meals. Unfortunately these methods especially if the temperature is above 300°F also cause the formation of certain undesirable chemicals, says Dr. Lydia Kaume, a Nutrition and health Education Specialist. These chemicals are known as heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs).

The HCA’s are formed as a reaction of meat proteins, sugars and muscle creatinine to the high heat. Longer cooking times and heat influence the number of HCA’s formed. For example, well done, grilled or barbecued chicken and steak all have high concentrations of HCAs. On the other hand, PAHs are formed in open fire grilling as fat and juice drip from meats and other charred foods resulting in flames. These flames contain PAHs that adhere to the surface of the meat. In general, cooking methods that expose meat to smoke or charring contribute to PAH formation. PAH’s also found in smoked meats, cigarette smoke and ear exhaust fumes.

These chemicals are of concern because when we consume foods containing HCAs and PAHs, certain body enzymes will process these chemicals through a process known as “bioactivation” making them capable of damaging our DNA. Researchers have used animals to study the effects of HCA’s and PAH’s in the body and found that their exposure causes tumors of breast, colon, liver, skin, lung, prostate and other organs. Similar studies are difficult to conduct in humans as it is difficult to control for individual differences, exact levels of these chemicals consumed and capture detailed cooking methods.

Therefore scientists have used numerous epidemiologic studies utilizing questionnaires to examine participants’ meat consumption and meat cooking methods to estimate HCA and PAH exposures. These studies have found that high consumption of well-done, fried, or barbecued meats is associated with increased risks of colorectal, pancreatic, and prostate cancer. An interesting fact to note is that, different individuals have different bioactivation levels, which mean that, cancer risks associated with exposure to HCAs and PAHs may vary from one person to another.

While researchers continue to study this subject, concerned individuals are advised to reduce exposure by:

- Avoiding prolonged cooking time at high temperatures as well as direct exposure of meat to an open flame.
- Using a microwave oven to cook meat prior to exposure to high temperatures which lowers the time for HCA formation.
- Regularly turning meat over on a high heat source lowers HCA exposure.
- Getting rid of charred portions of meat or other foods.
- Avoiding to use gravy made from meat drippings lowers HCA and PAH exposure.