

# GREEN HORIZONS

A Monthly Newsletter from MU Forestry Extension and The Center for Agroforestry in association with the Forest and Woodland Association of Missouri

Vol. 16 No. 1

Winter 2012

## Miller FFA Wins National Forestry Contest

Frances Main, for Missouri FFA Southwest District



National Champions! Left to right, Mr. Lyle Whittaker, FFA Advisor, Rhen Garner, Shane Gumm, Garrett Jester, and Landon Steele.

The little town of Miller (pop.793) in Southwest Missouri produced the top Forestry team in the United States at the 2011 competition. The National FFA Forestry Career Development Event was held Oct.19-22 in Indianapolis, Indiana with 143 students from 37 states participating. Missouri has always been strong in FFA Forestry contests at the national level (four national winners over the past ten years), but this year's win was especially satisfying for Miller students. This is the first national title ever won by the Miller High School in any type of school competition.

Team members Garrett Jester, Shane Gumm, Rhen Garner and Landon Steele were tested in skills and knowledge in the area of forest management. Event components included a general knowledge exam, tree and equipment identification, tree/forest disorders and diseases, a chainsaw practicum, forestry issues interview, and a team activity. Team advisor Lyle Whittaker spent more time gathering resources and instructing the students as they moved from the district contest in Springfield, (cont. on page 3)

## Six Ozark Schools Successfully Complete Woody Biomass Projects

Jason Jensen, Missouri Department of Conservation

As winter approaches and a new heating season begins, six Missouri schools will keep students warm using a non-traditional and renewable heating system. In 2009 the Missouri



Ellington Fuels for Schools project. All projects are equipped with electrostatic precipitators (unit between building and smoke stack) to reduce particulate matter.

Department of Conservation was awarded a \$6 million dollar grant through the American Recovery and Reinvestment Act (ARRA). This money was used to fund six new biomass thermal heating systems known as the Missouri Fuels for Schools projects.

“Missouri’s schools, children, and forests will see lasting benefits from these Recovery Act projects,” said U.S. Forest Service Chief Tom Tidwell. “Jobs, education, and healthy landscapes are what this work was all about.”

**(cont. on page 7)**

### In this issue:

Miller FFA Wins National Forestry Contest	1
Ozark Schools Biomass Project	1
Common Woodland Trees: Northern Red Oak	2
Reducing Your Risk	4
Forestry 101	5
Promoting Healthy Forests	6
Portable Sawmill on a Tree Farm	8
Master Loggers - A Cut Above	9

# Common Woodland Trees: Northern Red Oak

Hank Stelzer, MU Forestry Extension

Northern red oak (*Quercus rubra*) is a large tree, with a straight, columnar trunk and large, spreading branches forming a round-topped crown. Like the white oak, it is widespread across eastern North America. The uses of red oak are numerous. Almost anything made of wood at one time or another has been made from northern red oak; furniture, veneer, molding and trim, flooring, railroad ties, farm lumber, even pallets and crating. Its pleasant, uniform color and grainy texture make it an excellent wood for home workshops. Like the white oak, red oak acorns are an important food for many kinds of wildlife.

Like all oaks, the leaves are alternately arranged on the twig. Northern red oak leaves are simple, 5 to 8 inches long, roughly egg-shaped in outline with the broadest part above the middle; with 7 to 11 upward-pointing, bristle-tipped lobes. The sinuses (indentations between the lobes) typically extend half-way down to the central leaf vein. The upper leaf surface is smooth and yellow-green and the lower surface is somewhat paler in color and smooth except for occasional tufts of hair in the intersections of the veins. The fruit is an acorn, one inch long, somewhat hairy at the cup end. The acorn cup is saucer-shaped, enclosing about  $\frac{1}{4}$  of the nut; cup scales are numerous and not warty. One tell-tale trait for northern red oak is the broad, smooth ridges of bark extending great lengths down the trunk. Some say they resemble tracks made by snow skiers.

Northern red oak grows in soils ranging from clay to loamy sands, and from deep, stone-free to shallow, rocky soils. The species is most frequently found on northerly and easterly aspects, lower and middle slopes, coves and ravines, and valley floors. Aspect and position on the slope are important factors affecting red oak site quality. The best sites are characterized by the presence of fine-textured soil and topography that favors a high water table.

The major tree associates of northern red oak in Missouri include white, black, and chinkapin oak; white and green ash; sugar maple; black cherry; shagbark and mockernut hickory; American basswood; sycamore; cottonwood; black walnut; and hackberry. Some of the more important understory associates are flowering dogwood, pawpaw, hornbeam, hophornbeam, redbud, and serviceberry.

Northern red oak begins to bear acorns when about 25 years old. Good seed crops are produced every two to five



*A northern red oak leaf is 5 to 8 inches long, with 7 to 11 upward-pointing, bristle-tipped lobes. The sinuses typically extend half-way down to the central leaf vein.*

years. As with white oak, there is great variation in acorn production among individual trees within stands and from year to year. Unlike white oak, acorns take two years to mature and germinate in the spring after seed fall.

Small white oak trees sprout prolifically and vigorously when cut or damaged by fire. Northern red oak stump sprouts are subject to decay from the parent stump, especially if they originate high on the stump. Sprouts arising at or below ground level will be the least likely to decay. Northern red oak is classed as intermediate in tolerance to shade. Among

the oaks, it appears to be less tolerant than white oak but more tolerant than black or scarlet oak. The species responds well to crop tree release. **(cont. on page 3)**

*A northern red oak acorn is about one inch long, somewhat hairy at the cup end. The acorn cup is saucer-shaped, enclosing about  $\frac{1}{4}$  of the nut; cup scales numerous and not warty.*



# Common Woodland Trees: Northern Red Oak cont.

Hank Stelzer, MU Forestry Extension



*Left: One tell-tale trait for northern red oak is the broad, smooth ridges of bark extending great lengths down the trunk. Some say they resemble tracks made by snow skiers.*

The principal threat to northern red oak is the oak wilt fungal disease. Usually it kills individuals or small groups of trees in scattered locations throughout a stand. The fungus can be passed tree-to-tree by way of root grafts, or fungal spores can be carried greater distances by sap-feeding insects or on the blades of pruning saws and shears. Because of this latter pathway, northern red oak (and actually all oaks) should not be pruned during the growing season.

## Tree Identification References

**Trees of Missouri Field Guide** by Don Kurz. Missouri Department of Conservation. \$7.50 [www.mdcnatureshop.com](http://www.mdcnatureshop.com)

**Trees of Missouri** by Carl Settergren and R. E. McDermott. University of Missouri Extension Publication SB-767. \$8.00 [www.extension.missouri.edu/publications](http://www.extension.missouri.edu/publications)

**A Key to Missouri Tree in Winter** by Jerry Cliburn and Ginny Wallace. \$3.00 [www.mdcnatureshop.com](http://www.mdcnatureshop.com)

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## Miller FFA Wins National Forestry Contest (cont. from front page)

to the State contest in Columbia, to the national contest in Indiana.

“By mid-August, we were spending one day a week working on the knowledge part, and by September, we were spending about 10 hours each week practicing”, says Whittaker. Each of the students put even more effort into understanding aspects of forestry as they advanced each level. By the week of the contest they were putting in 16-hour days. Whittaker believes “what really did it is that we spent the four days prior to the contest in Indiana...I think we measured every tree in Indiana”.

It paid off - literally. Not only do they have the honor of being number one in the nation, but they each also received a \$1,000 scholarship to further their education

at a post-secondary institution of their choice. Three of the team members have already started college-level courses, and two of them have said they are changing their major to forestry. The team also received a Husqvarna chain saw.

A couple of other interesting facts from Miller’s win – Shane Gumm earned second place (and a gold emblem) in the individual contest at the national level, and advisor Lyle Whittaker was a student member of the very first FFA Forestry team Missouri ever sent to the national competition. That means there is A LOT of forestry knowledge in a very small Lawrence County town. “I never thought our little school would win a national contest” says the advisor of the First Place team. Congratulations Miller FFA Forestry Team!

# Reducing Your Risk: Maintaining Your Chain Saw

Hank Stelzer, MU Forestry Extension



*Heading to the woods to do some management activities, maybe a thinning? Then make sure your chainsaw is as ready as you are.*

Chainsaw inspection and maintenance are critical to its mechanical integrity and safety. The following checklist is designed to help you operate your chainsaw properly.

- Make sure fasteners on your chainsaw are snug.
- Check the anti-vibration system and ensure the buffers are in place and not worn, broken or damaged.
- Check your air filter often. If your filter is dirty,

clean the filter according to manufacturer directions or replace the filter.

- Check the chain on your saw when on idle. If the chain moves when the saw is idling, adjust the saw's idle using the proper adjustment screw on the carburetor.
- Check your muffler and spark arrestor according to your saw's maintenance schedule.
- Inspect the bar, chain and sprocket frequently. Remember: install a new sprocket after every two chains wear out.
- Keep your saw chain sharp. File the chain with a few light strokes on each tooth using a file and guide each time your refuel, even if you think the chain is already sharp.
- Replace worn, cracked or damaged chains immediately.
- Check and maintain your bar. Inspect the guide bar body, grooves and rails for damage, wear and debris. Repair minor nicks with a flat file.
- When reinstalling your guide bar, always place the bar with the opposite side up from when you last took it off.
- Finally, check your chain brake to make sure it engages and disengages appropriately.

Most owner's manuals feature a chart detailing the maintenance you should perform and at what intervals. If you are unable to perform any of these functions, return your chain saw to an authorized dealer for inspection and maintenance.

## Additional Chain Saw Resources

MU Forestry Extension has just released a series of new guide sheets relating to chain saw safety.

- G1954 – Selecting and Maintaining a Chain Saw
- G1958 – Felling, Limbing and Bucking Trees
- G1959 – Operating a Chain Saw Safely

PDF files can be downloaded at <http://extension.missouri.edu/main/DisplayCategory.aspx?C=79>.

In addition, STIHL® has an excellent video on chain saw safety, maintenance and operation available online: <http://www.stihldealer.net/videolibrary/>. For those who prefer a DVD of their own, you can call STIHL at (800) 732-0054. Cost is \$4.99, plus shipping.

# Forestry 101: It's a New Year - Time to Review Your Forest Management Plan

Hank Stelzer, MU Forestry Extension

Your woods are constantly changing. Seasons come and go, trees grow and die, weather and timber markets vary, and natural disasters or invasive species can take their toll. And just as your forest changes, you and your family do too: a major life event, such as a birth, death or illness, can alter your relationship with your woods.

A new year means taking the time to reflect on what happened last year, how your woods were affected, and what you may choose to do differently in the future. This review of your management plan and goals does not have to be daunting or difficult. It can mean adding just a few handwritten notes to your plan, and it can start with a simple walk in your woods.

## Take a walk in your woods

Look for signs of stress, like unnaturally yellowing or browning leaves, as well as damage from summer storms. Check the condition of all your natural resources – not just the trees themselves, but the soil, vegetation, water sources and drainages, and wildlife as well.

Ask yourself these questions:

- Is my forest progressing the way I want it to?
- How many trees did I harvest last year? How many trees did I plant? Keeping track of your harvests and the maturity of your trees will help you plan for future harvests.
- Have I properly planned for and protected the wildlife habitat?

- How have I handled threats to my forest? If you battled pests or invasive plants last year, revisit treated areas to take stock of their recovery. Make note of pruning, herbicide applications and other vegetation control methods used and how your woods responded, so you know what has worked for you and what has not.
- Are my roads and trails adequate and in good condition? Road access is critical for harvesting, maintenance and for fighting fires. If building or repairing roads and trails needs a place on your list of activities planned for the year, it's better to know sooner rather than later.
- Are my property boundaries clearly marked? Are there signs of trespass? Keep fences and boundaries in good shape to protect your resources and keep out unwanted visitors. If you have acquired or parted with property, you will need to update your management plan map and inventory information.
- Am I up to speed on permit requirements and regulations?

Walking through your woodland as you consider these basic questions is the easiest and most effective way to update your management plan. The experience should give you a sense (a year-end snapshot) of how your forest is doing and how far it has come since you last reviewed your property and your goals for its progress. Knowing where your woods are now will help you plan for where you want them to be.

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## Selling Timber: What the Landowner Needs to Know

MU Forestry Extension has just published a new guide for forest landowners considering selling their timber. It's G5051, "Selling Timber: What the Landowner Needs to Know" and is available online at <http://extension.missouri.edu/p/G5051>. While not intended to be a Do-It-Yourself guide, it is designed to explain all the relevant steps you need to consider before the first tree is cut. More importantly, it stresses the need for you to consult a professional forester to ensure you obtain the highest dollar for your timber and that the harvest is conducted in a sustainable manner.



# Promoting Healthy Forests for Generations to Come

Bob Ball, Executive Director



The ability of FWAM to provide support to woodland owners and information to all Missouri citizens interested

in promoting healthy forests is coming together!

With the start of the New Year, the Association will assume the administrative support for the Missouri Tree Farm Program. This support is transitioning from the Missouri Forest Products Association (MFPA) where the Missouri Tree Farm Program has called home for many years. Routine contacts previously made with Tammy Homfeldt, MFPA Communications and Membership Manager should be directed to my attention starting January 2, 2012.

On behalf of the Board of Directors of FWAM, I want to express our “thanks and gratitude” to Tammy, Steve Jarvis, Executive Director, and to the Board of Directors of the Missouri Forest Products Association for their support to Tree Farm over the years and for their continuing support to our fledging Association!

FWAM is now online at <http://www.forestandwoodland.org>. Thanks to a grant from the USDA Natural Resources Conservation Service to the Conservation Federation of Missouri, CFM was able to contract with Matt Arndt, Quality Forest Management, LLC, to develop the website. Our Internet users will have at their disposal:

- Up-to-date information of any important forestry-related issues and requests for action.
- Notice of upcoming events and links to photos of recently held events.
- Links to our supporting partners and other organizations where you can find helpful information for managing your property.
- “I would Like Help With...” A decision matrix that will guide you through a series of easy questions you might be asking yourself, so that in the end you will have links to relevant information AND someone who can help you!
- A “Contact Us” link for more specific questions or to voice your concern on a forestry-related topic.
- New and renewing members will also have the ability to SECURELY pay their dues.

Check in frequently to see how the Association is growing and improving to serve you! To our members and interested

individuals who are against the needless waste of electrons, never fear! At the end of this article you will find all the necessary contact information to either call or write and request we keep you informed via the US Postal Service. We will do our part to keep the Post Office in business!

The NRCS grant also included funds to develop a tabletop display that will help us promote the Association at county fairs, conferences and other regional events. Have an event in mind? Let us know. We would love to promote healthy forestry in your community!

Another grant in cooperation with the Missouri Tree Farm Program allowed us to produce a brochure promoting FWAM and Tree Farm, and a pocket-size “Forestry Management Card”

showing how timber stand improvement pays. We have also started publishing “The Canopy”, a bi-weekly newsletter, designed to keep Association members informed and provide meeting reminders between the quarterly issues of Green Horizons. Again, this will be mailed to members without access to electronic mail.

Before I forget, FWAM members, Tree Farmers, and anyone requesting materials via the Post Office can contact the Association at:

Forest and Woodland Association of Missouri  
503 E. Nifong, #215  
Columbia, MO 65201-3717  
(573) 268-7262 (C) or 855-THE-FWAM  
(573) 875-0580 (F)  
email: [fwam.trees@gmail.com](mailto:fwam.trees@gmail.com)  
website: [www.forestandwoodland.org](http://www.forestandwoodland.org)

When folks ask me “Why should I join this organization?”, my response can best be summarized by McDonald County woodland landowner, Dwight Ittner, when I asked him, “Why is FWAM important to you as a landowner?”. Dwight replied, “FWAM not only represents forest landowners, it also speaks for the trees in our forest. It can serve to educate our lawmakers and to inform regulators about how their actions can benefit or harm our forest resources.”



*Show-Me Healthy Forests!  
The display is available to  
FWAM members to help us  
promote good forestry!*

# Fuels for Schools

(cont. from page 1)



*Wood chips are augured from a storage bin onto a conveyor (lower left) to the combustor which sits beneath the boiler (right).*

Recipients of Fuels for Schools grants included Gainesville R-V School District, Mountain View-Birch Tree Liberty High School, Eminence R-I Elementary School, Southern Reynolds County R-II School District, Steelville District, Steelville R-III School District, and Perry County School District 32.

Ribbon cutting ceremonies were recently held to celebrate the completion of the six projects. Students were involved in many of the ceremonies, and Missouri's State Forester, Lisa Allen took advantage of the opportunity to explain the importance of forests to the state and how this new use of woody materials could enhance the benefits provided by forests such as clean air and water, wildlife habitat, scenic beauty and recreation.

“Healthy woods require care to maintain their growth and productivity. However, historically it has been difficult for Missouri’s woodland owners to economically thin young trees because the trees being cut and removed had little commercial value,” Allen said. “It is our hope that woody biomass burning boilers like the ones installed by the Fuels for Schools program will create a market that will entice landowners to improve their woodlands by thinning the trees. Such actions will also enhance wildlife habitat, potentially expand the forest products industry and support the local economy.”

Five of the six projects will utilize wood chips as the primary feed stock. Wood chips are fed by auger and conveyor into a combustor. The combustor burns the chips which heat water in the boiler. The hot water is then piped throughout the school where heat is dispersed using heat exchangers. Eminence is the smallest of the systems and will utilize cordwood due to its smaller size.

The woody biomass boiler systems burn at over 80% efficiency, which helps to minimize emissions. To further reduce particulate matter emissions, electro-static precipitators (ESP's) were installed. The ESP's will essentially eliminate any particulate matter emissions.

In addition to utilizing a renewable fuel, the new heating systems are expected to save the schools money. On average the schools are expected to save 67% of their annual heating costs. According to Jason Jensen, the Forest Products Program Supervisor, wood chips are the cheapest fuel per Btu. Compared to other fuel sources on a per million Btu basis, wood chips cost only \$5.00 compared to fuel oil at \$22.64, propane at \$25.44, and electric at \$26.38. Wood chip markets have been much more stable over time when compared to other fuels such as propane. Schools are required to track and report heating costs so that more accurate cost estimates can be developed over time.

Another positive attribute is that wood is renewable and sourced locally. This provides jobs to local loggers and provides markets for sustainably harvested woody biomass. Markets for woody biomass can help ensure the health and productivity of our forests in Missouri.

A final benefit of the six projects is that they have set a precedent in Missouri. While other biomass projects exist in the state, none are as visible or accessible as the six school projects that were completed with this grant. Hopefully, other businesses and facilities will choose renewable energy to power and heat their facilities after they've seen the benefits to the schools. “The greatest accomplishment of this project is that schools are now using a local fuel source that is harvested in a local forest, by a local logger, transported and processed in a local mill then delivered to the school,” Jensen said. “It’s a success story in promoting the self-sustainability of the schools.”



*Heat exchangers like this one at Gainesville help to distribute heat evenly throughout the school.*

School administrators see the value and are proud of their completed projects. “We’re proud to be piloting this program as an example to other schools across Missouri,” said Charles James, Principal of Eminence Elementary School. “If other schools want to know where to go, well they can just follow us.”

*Photos courtesy of Peter Maki, Coordinator of Missouri Fuels for Schools*

# Portable Sawmills and Tree Farms: One Person's Perspective

David Boyt, Missouri Tree Farmer

*Editor's Note: We greatly appreciate contributions from woodland owners because real world experiences are always the best teachers. Owning and operating your own portable sawmill is not for everyone. But, it is something to consider, especially if you own a sizable tract of timber (say more than 80 acres) or you have several landowners in your area who are actively managing their woodlands. The sawmill mentioned in this article is what David uses and is not intended as an endorsement by Green Horizons or the University of Missouri. There are several manufacturers of portable sawmills on the market today and we encourage interested readers to do their homework as to which mill is best suited for their personal situation.*

Tree farming has been such a large part of my life for the last 30 years that sometimes I forget not everyone understands what it is and what it involves. If you tell someone you're a soybean or corn farmer, they nod respectfully. Tell them you're into beef cattle, and you'll likely find yourself in a lively discussion regarding the merits of one breed or another—or at least a debate as to whether Ford or Chevy builds better trucks. But when I tell someone I'm a tree farmer, I usually get a blank look and a comment to the effect "THAT's got to be the easiest job in the world." I might as well tell them that I work for the highway department watching center stripe paint dry!

While it is true that you won't find me out in a blizzard trying to deliver hay to a snowbound herd of cows, or desperately working to get a field of hay baled and in the barn before a thunderstorm rolls through, I don't spend much time with my feet propped up reading magazines, either. Tree farming can be as intensive or as hands-off as an individual chooses. With a full-time job, I am less involved than I'd like, but I do manage to do some planting, pruning, thinning, and even some salvage harvests. One of my more pleasant and productive tasks is running a small sawmill.

The idea of selling hardwood logs for \$0.18 per board foot on the stump, then paying \$0.70 per board foot for pine 2x4' at a big box store never did not appeal to me. Likewise, I don't like the idea of leaving usable logs in the woods or cutting them up for firewood because they are an undesirable species, too widely scattered, or otherwise of no value to timber harvesters. With my sawmill, any log that I can bring in from the woods goes for its best use, depending on size, species and defects. For example, our

16-foot flatbed trailer gets a lot of hard use. Pine boards from the lumber yard just don't stand up, and they're a little thinner than I'd like. With the sawmill, I was able to cull out some post oak trees, mill the logs to lumber exactly 1-7/8" thick, and install trailer flooring that will probably outlast me!

Unlike the older circle mills most people are familiar with, small band saw mills move the blade through the log. The blade is well guarded, the engines range from 16 to 25 horsepower, and one or two people can easily operate them. Over the past dozen years, I have owned a chain saw mill and several band saw mills.

Presently, I operate a Norwood MX34™ band saw mill. This is a manual sawmill. All the engine does is power the blade. Log handling (loading logs on the mill bed, turning the logs, clamping) and pushing the blade through the wood are all done with muscle power. With the help of a hand winch, a good cant hook, and a little practice, it is much easier than you might think. The 23-horsepower Briggs & Stratton™ engine automatically throttles down and the blade brake engages when not cutting wood. Besides the safety factor, this feature helps bring fuel consumption down to around five gallons for a good day's work.

By a good day's work, I mean about a 1,200 board feet, if the logs are all arranged and ready to go. If I decide to go portable with the mill, I can add a trailer package which lets me tow the 1,800-pound machine behind my truck. Norwood also offers track extensions for cutting long timbers. **(cont. on page 10)**



*With no hydraulic assist, Boyt wrestles a post oak log around for the next cut. These logs were salvaged from the May 22, 2011 Joplin tornado.*

# Master Loggers - A Cut Above

Tammy Homfeldt, Missouri Forest Products Association

Landowners have changed. Timber markets have changed. Landowners are interested in managing their timberland for long-term sustainability and consumers are demanding products made from timber harvested in a sustainable manner.

Many loggers were witnessing this change, and in 2008, a small group of loggers approached the Missouri Forest Products Association (MFPA) about implementing a Master Logger Program in Missouri. “We wanted something that verified we were voluntarily doing things right,” says Shannon Jarvis, the first logger to be certified. “We wanted to raise the bar for the logging profession, and this was a way to achieve it.”



*Shannon Jarvis was the first Missouri logger to be certified a Master Logger.*

MFPA then sought funding to implement this program and put in place the structure to operate the program. The oversight entity for the Missouri Master Logger Program is the Missouri Logging Council. A nine-member Master Logger Certifying Board represents various forest stakeholders and areas of expertise. Their job is to review and approve all applications.

The Master Logger certification process is detailed and rigorous. First, applicants must complete MFPA’s five-day Professional Timber Harvester Education Program. Then, the applicant provides a list of five past and current harvest sites, along with three professional references. The Master Logger Certifying Board checks references to ensure the applicant’s compliance with business and natural resource laws.

At least two field verifiers visit the applicant’s logging sites to ensure compliance with Best Management Practices

(BMP) taught in the Professional Timber Harvester Education course. Sixty-eight specific measures are checked.

If their work passes these tests, the applicant signs a code of ethics, and his application goes to the Board for a final vote. Certification requires a unanimous vote of all nine members.

Master Loggers must be recertified every two years. Failure to follow specified safety, environmental, forest management or business practices can result in decertification.

There is even a hotline to report any substandard practices 1-800-568-4916.

Landowners can be assured they are working with the best of the best. This certification provides customers and the general public assurances that the person or company performing the job has the education, training, and experience to do the job correctly and that appropriate practices are being implemented.

Certification pays dividends for the loggers, too! “The Master Logger Certification has helped me get two tracts of timber from landowners who were not interested in any harvest, they did not want anyone on their land,” said Matt Layman, a Master Logger in Mountain View, MO. “Different loggers approached these landowners over the years, but the answer was always no. I went back after becoming certified and explained that it is “verified” I was harvesting correctly and they agreed to let me harvest their timber.”

To view a list of current Master Loggers or to learn more about the certification visit [www.moforest.org](http://www.moforest.org) or contact Josh Stevens at 573-634-3252 or [josh@moforest.org](mailto:josh@moforest.org).



*Missouri Master Logger; a ‘cut above’ the rest!*



## Portable Sawmill on a Tree Farm (cont. from page 8)

Let's do a little math to see how running a small mill comes out. Assuming you already have the other equipment you need, I'll base the figures on cost per thousand board feet:

Labor: 8 hrs @ \$25/hr	\$200.00
Logs <sup>1</sup>	\$180.00
Harvest/transport	\$50.00
Fuel: 4.5 gallons @ \$3.50 per gallon	\$15.75
2 blades resharpened @ \$8.00 ea.	\$16.00
.5 blades replaced <sup>2</sup> : @\$30.00 ea.	\$15.00
Maintenance	\$2.00
Repairs	\$5.00
Amortization <sup>3</sup>	\$1.70
Taxes/insurance	\$2.00
<b>Total</b>	<b>\$487.45</b>

In other words, the cost comes to less than fifty cents per board foot. Compared to that 2x4 from the lumber yard, sawing the lumber would generate a net profit of \$0.20 per board foot, or \$240 per day.

What if the logs were free? What if you set your best lumber aside to sell for \$1.40 per board foot? What if you're

1 Assuming logs could have been sold on the stump.

2 Blades can be resharpened three or four times before they need to be replaced.

3 Assuming an initial investment of \$8,500 amortized over five years and a production rate of 100,000 board feet per year

selling cherry or walnut for \$2.20 per board foot? What if you kiln dry and plane the lumber to double its value? What starts out as a practical way to cut lumber for my own projects has become a part-time business.

Local farmers have hired me to mill lumber for barn siding, chicken coops, and fencing. Other jobs include cutting "urban logs" from yard trees that have died or blown down. Some of these trees had sentimental value to the owners, and they just wanted to make some furniture from them.

To be realistic, this assumes that you can sell all the lumber you cut for the same price as the lumber yard. The potential will only be realized if hard work is combined with good business sense, including marketing. While I believe that my mill was a very good investment for me, it is worthwhile to get other opinions. A couple of good web forums are woodweb.com and forestryforum.com. Foresters, sawyers, and woodworkers from around the world participate to ask questions and offer their opinions. If you see any posts from "Post Oakie", you've found me!

Like a number of tree farmers who thought they'd sell their mill when they finished their house or barn, I did sell my first mill... to get a bigger one! Once I got started, I just didn't want to give it up. I call it "getting sawdust in your veins."



*Green lumber to be air-dried must have good air circulation under the stack as well as between each layer of boards in the pile. To prevent unnecessary warping the stack must also be properly supported. Lastly, roofing tin placed over the top helps keep rain and snow from excessive re-wetting.*

## Drying Lumber

Once Dave has cut his lumber, he stacks the green boards to begin the drying process. Fresh-cut lumber can start out with a moisture content above 70 percent (measured on a dry weight basis); way too high for any practical use. Properly air-dried lumber will have a moisture content around 20 percent; good for use around the farm for or in unheated structures, but still too green for use in heated buildings (like your home). For use in these latter situations, the lumber must be further dried in a kiln to reduce the final moisture content to below 8 percent.

Two excellent publications on drying lumber are:

University of Missouri Guide G5550: Air-drying Hardwood Lumber. Available online at <http://extension.missouri.edu/p/G5550>

Virginia Tech Guide 42-030: Design and Operation of a Solar-Heated Dry Kiln. Available online at <http://pubs.ext.vt.edu/420/420-030/420-030.html>

# The Back Page

## Deadlines for Newsletter Submissions

Spring Issue: March 15  
Summer Issue: June 15  
Fall Issue: September 15  
Winter Issue: December 15

**GH Online:** Find *Green Horizons* on the Internet at  
<http://agebb.missouri.edu/agforest/index.htm> or  
<http://snr.missouri.edu/forestry/extension/>

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## Calendar of Events

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**January 14, 2012: Timber and Yard Tree Casualty Loss Workshop, Springfield, MO.** This Missouri Tree Farm workshop, co-sponsored by MU Forestry Extension and the Missouri Department of Conservation, is designed to answer your questions about casualty loss claims as they relate to trees in both your yard and woodland. Workshop will be held at the MDC Southwest Regional Office, 2630 North Mayfair Avenue, in Springfield. Registration fee is \$10 and seating is limited. To register, contact Hank Stelzer at (573) 882-4444 or stelzerh@missouri.edu. Registration deadline is January 11th.

**February 1-3, 2012: Missouri Natural Resources Conference, Tan-Tar-A Resort, Lake of the Ozarks.** Conference theme is 'The Public Initiative – Celebrating 75 Years of Conservation'. For more information, go to [www.mnrc.org](http://www.mnrc.org).

**February 3-4, 2012: Missouri Nut Growers Annual Meeting and Nut Show, Nevada, MO.** The annual event will take place at the Nevada Community Center, 200 North Ash Street. Nut evaluations will begin on Friday, February 4 with the annual meeting to follow on Saturday. For more information, contact Jerry VanSambeek at (573) 875-5341 or go to the MNGA website [www.missourinutgrowers.org](http://www.missourinutgrowers.org).

**February 11, 2012: Forest Legacy Workshop, Springfield, MO.** This Missouri Tree Farm workshop, co-sponsored by MU Forestry Extension and the Missouri Department of Conservation, is designed to give forest landowners and their heirs the tools they need to ensure a successful transition of the family forest to the next generation. The workshop will be held at the MDC Southwest Regional Office, 2630 North Mayfair Avenue, in Springfield. Registration fee is \$10 and seating is limited. To register, contact Hank Stelzer at (573) 882-4444 or stelzerh@missouri.edu. Registration deadline is February 8th.

**Early Alert! May, 2012: Missouri Nut Growers Spring Grafting Meeting.** Date, time and location to be determined at the February 2012 Annual Business Meeting. Once meeting details are finalized, they will be posted on the MNGA website, [www.missourinutgrowers.org](http://www.missourinutgrowers.org).