

GREEN HORIZONS

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

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Fall 2011

Thinking About a Timber Sale? *Call Before You Cut*

Brian Schweiss, Missouri Department of Conservation



Caring for your woodland is a long-term proposition where one decision can have impacts for decades. A new outreach effort, *Call Before You Cut*, is one way several forest resource agencies and organizations in Missouri are striving to help Missouri landowners who are interested in harvesting trees and ensuring a healthy forest legacy.

The *Call Before You Cut* campaign features a toll-free phone number (1-877-564-7483) landowners can call to receive free information. A live operator is available from 8 a.m. to 5 p.m. on weekdays, except holidays. Callers will receive a packet of information to assist them in understanding the steps involved in a timber sale and other management information for their woodlands.

“Woodland owners know a lot about their woods, but often don’t have the critical information they need before selecting someone to harvest their trees,” said Brian Schweiss, Conservation Department Forestry Field Programs Supervisor. *Call Before You Cut* gives landowners the tools needed to make informed decisions about their woods.” (cont. on page 3)

Baker Products Loans Sawmill to MU Forestry

Hank Stelzer, MU Forestry Extensions

Through a generous, long-term loan of a portable band sawmill by Baker Products of Ellington, Missouri, the University of Missouri’s Forestry Department is now able to demonstrate sawmilling techniques at education events across the Show-Me State. (cont. on page 4)



Photo: Mike McNail, CEO, and David Frances, sawmill fabricator (facing left) talk with forestry students before the mill’s inaugural run at the MU field camp at University Forest.

In this issue:

Call Before You Cut	1
Baker Products Loans Sawmill to MU Forestry	1
Agroforestry Case Studies to be Developed	2
UMCA Roasts Chestnuts at Local Events	2
Forestry Health Update	3
Forest and Woodland Association of Missouri	5
Bob Ball Named First Executive Director of FWAM	5
Forestry 101: Break Down Your Forest into Stands	6
Do-It-Yourself Den Trees	8
Common Woodland Trees	9
MU Awards Biomass Supply Contract	10

Agroforestry Case Studies to be Developed

Hank Stelzer, MU Forestry Extension

Many small farms and woodland owners are reluctant to produce tree-based products using traditional forestry practices because of the long time between planting and income generation. Incorporating agroforestry practices, such as alley cropping, silvopasture, and forest farming into overall farm operations have the potential to provide a more regular flow of income. However, the application of agroforestry practices is still limited in many states because farmers do not have the tools to help them decide if these practices are financially viable. Relevant case studies, coupled with realistic financial decision support tools, are needed to train natural resource professionals and convince landowners.

To that end, the University of Missouri's Center for Agroforestry economist, Larry Godsey, has received funding from the USDA National Agroforestry Center to develop the necessary case studies and associated financial decision support tools.

In the first phase of the project, case studies for all five agroforestry practices (alley cropping, riparian corridor management, silvopasture, wind and/or odor breaks, and forest farming) will be derived from selected landowners

or land managers that are currently using agroforestry technologies as part of their land management strategy. Through a series of open- and close-ended questions, the individuals will describe the challenges and considerations that formed the basis of the adoption decision, and identify any incentives that aided in the decision-making process. In addition, key economic information will be collected for incorporation into the financial analysis tools.

In the second phase of the project, Godsey's team will use the data collected in the case studies to build Excel-based financial decision support models that will incorporate multiple sources of revenue along with growth and yield tables for long- and medium-term horticultural enterprises. They will allow a farmer or land manager to identify the impact their management decisions will have on predicted growth and yield of the agroforestry crop and various financial indicators, such as net present value (NPV), annual equivalent value (AEV), internal rate of return (IRR), and payback period (PBP) of the agroforestry enterprise.

To participate in this timely research effort, contact Larry Godsey (573) 884-3216, godseyl@missouri.edu

UMCA Roasts Chestnuts at Local Events

Paige Pritchard, MU Center for Agroforestry

The last chestnuts have been harvested at the MU Horticulture and Agroforestry Research Center (HARC). Some will be collected for research, but many pounds will either be sold at Clover's Natural Market in Columbia, MO, and many other businesses in the Midwest, or roasted over an open fire at the MU Center for Agroforestry (UMCA) roasting booth.

The roasting booth has already proven to be a success in Columbia. On Saturday, Oct. 1, UMCA faculty handed out free roasted chestnut samples at the 46th Anniversary Party for Clover's Natural Market. Later in the day, the booth moved downtown to the Columbia Center for Urban Agriculture's (CCUA) Harvest Hootenanny Fundraiser. Bags of freshly harvested chestnuts were sold for \$5. UMCA faculty also travelled to Elsberry, MO to roast chestnuts on Oct. 8 at Forrest Keeling Nursery's Great River Chestnut Roast. Samples were also handed out along with UMCA informational brochures and popular chestnut recipes.



UMCA Associate Director Mike Gold roasts chestnuts over an open fire at the Columbia Center for Urban Agriculture's Harvest Hootenanny which was held at their urban farm near downtown Columbia.

UMCA faculty will also be roasting and selling chestnuts at the Columbia Farmer's Market the first two weekends of November and at the Living Windows Festival in downtown Columbia on Dec. 2.

Forestry Health Update

Hank Stelzer, MU Forestry Extension

EAB

The Illinois Department of Agriculture confirmed the presence of the emerald ash borer (EAB) just outside of the village of Salem. Salem, IL is about 70 miles straight east of St. Louis and much farther south than previously detected. For more information on EAB, go to www.eab.missouri.edu.

TCD

Thousand cankers disease (TCD) was recently detected on black walnuts in Bucks County, Pennsylvania, north of Philadelphia. The person who reported the suspect trees is an arborist and also a woodworker. He recognized that the trees had potential TCD symptoms. And he also reported that he

had received walnut from California a few years ago for his woodworking! The Pennsylvania Department of Agriculture has enacted a quarantine and a delimit survey has begun. This means TCD has now been confirmed in three eastern states within the native range of black walnut (TN, VA and PA) as well as nine western states.

Visual surveys for TCD at high risk sites across Missouri are nearing completion. The Missouri Department of Agriculture is surveying sawmill sites and urban areas and the Missouri Department of Conservation is surveying campgrounds, high-risk natural forested areas and plantations. Both agencies are also following up on reports of declining walnut from the public. Branches are being examined from any suspect trees. So far, TCD has not been detected in Missouri.

Call Before You Cut

(cont. from front page)

State Forester Lisa Allen says the *Call Before You Cut* campaign isn't about not cutting trees – it's about how and when you cut them. The program puts landowners in touch with professional foresters who can tell them how much their trees are worth, trees that should be harvested soon and those that can be grown for greater profits later. *Call Before You Cut* gives landowners options they may not have considered.

“Over the years, I've learned a lot about how to keep my woods healthy and beautiful, but I'm smart enough to know that I don't know everything,” says Dave Murphy, a landowner from Clark County. “I didn't want to make any mistakes with my own land. By working with a professional forester, I was able to make money, maintain healthy woods,

and improve food and cover for turkeys, one of my favorite wildlife to view and hunt.”

Private landowners own 83 percent of Missouri's 14 million acres of forest, which covers roughly one-third of the state. They are key providers of trees that produce some of Missouri's most sought-after wood products such as flooring, white oak for wine barrels, and eastern black walnut products. *Call Before You Cut* can help ensure healthy, productive woodlands for landowners and a healthy forest industry for years to come.

Additional information is available on the campaign's website, www.callbeforeyoucut.com. Call the toll free hotline to get your packet 1-877-564-7483.

Sobering Statistics

- One-third of Missouri is forested; ~14 million acres
- 85% of Missouri forest land is privately owned
- Only 1 out of 20 private forest landowners actively manage their forests!

Baker Products Loans Sawmill to MU Forestry

(cont. from front page)

Hank Stelzer, MU Forestry Extensions



MU forestry students learn how to scale and grade logs and lumber, and understand the relationship between log and lumber quality.

The mill is Baker's top of the line Blue Streak™ Model 3665D powered by a 65-HP Cummins® diesel engine that effortlessly processes 36-inch diameter, 20-foot logs. Logs are hydraulically loaded, rotated and clamped. Hydraulics raise and lower front and back toe rollers and move the fence arms. It also comes with a debarker to prolong blade life and programmable computer networks enabling the production of uniform, dimensional lumber.



Dusty Walter, MU Center for Agroforestry, talks to some of the 1,500 FFA students that observed the mill in operation at the MU Bradford Research Center in Columbia

Since receiving the mill this past June, it has been used to train forestry students at MU's summer field camp in understanding the link between log quality and lumber quality. This fall over 4,000 FFA high school students and 1,000 Missouri citizens watched the mill in operation and came away with a better appreciation for all the quality wood products that come from the forest. Later this fall the mill will serve research efforts underway by Dr. Rich Guyette's research team to document what effects fire at various stages in the life of a forest has on lumber yield and quality.



Hank Stelzer, MU Forestry Extension, reveals the inner workings of the Baker mill to the 800 FFA students who saw the mill at the MU Southwest Research Center in Mt. Vernon.

The University is also working on an agreement with the Missouri Department of Conservation that will allow their resource foresters the opportunity to use the mill for training and demonstration events.

This partnership with Baker Products is allowing MU Forestry Extension to do things we only dreamed about doing a few years back. Next on the wish list is a ¾-ton truck to transport the mill. We currently have to lease a vehicle from the College of Agriculture, Food and Natural Resources Field Operations. Any GH reader out there willing to donate a ¾-ton truck?

Forest and Woodland Association of Missouri: Promoting Healthy Forests for Generations to Come

Mark Nussbaum, Forest and Woodland Association of Missouri



Missouri's 359,000 private landowners manage 83 percent of the woodlands in Missouri. This management takes on many forms; from letting woodlands grow naturally to thinning trees for improved growth and better conditions for desired wildlife.

Although there are a number of forestry organizations in Missouri, a citizen advocacy group for forestry issues did not exist. Many issues are on the horizon like bioenergy and water quality, but no statewide spokes group, especially in areas of legislation, represented forest landowners. The Forest and Woodland Association of Missouri (FWAM) will strive to be that organization.

Field days will also be a focus for the Association. In conjunction with organizations like The Missouri Tree Farm Program, and University of Missouri Forestry Extension, landowners will have access to field days on woodland management for wildlife and timber production. Speaking of the Missouri Tree Farm Program, the Association will be the home of the program. One advantage that landowners interested in managing their

woods under the guidelines of the Tree Farm program will have is access to emerging markets for green certified wood products.

The Association is in its infancy, but is working hard to develop resources for landowners to reach their woodland goals. One such resource will be a website to connect landowners with resource managers and information that impacts their forests. The site is under development and we hope to announce the completion and address in the next *Green Horizons* newsletter.

To get the Association off on the right foot, the Missouri Department of Conservation, American Tree Farm System, Missouri Tree Farm Program and the Missouri Forest Products Association have committed financial resources for the first three years. Ultimately the organization will be member-driven, and members can expect to be alerted about hot issues. If a bill is going to the legislature that impacts forests, members will receive notices of who they can contact to share their views.

"It's all about growing a healthy, productive forest" says Brian Schweiss, Forestry Field Program Supervisor with the Missouri Department of Conservation. Schweiss says connecting landowners with resources they can use to manage their forests is a daunting task, but one the Association is committed to making easier.

Bob Ball Named First Executive Director of FWAM

Mark Nussbaum, Forest and Woodland Association of Missouri

Bob Ball, 61, of Columbia, has been selected as the Executive Director of the Forest and Woodland Association of Missouri. Ball recently retired from the USDA Natural Resources Conservation Service (NRCS) with more than 42 years of federal service working in Ohio and Missouri. He had most recently served as the State Resource Conservationist with NRCS overseeing their field technical services and plant materials program.

Ball has a B.S. in Agriculture majoring in Agronomy from The Ohio State University, and he attended graduate school at the University of Dayton majoring in Public Administration. He is vice-chairman of the Missouri

Forest Resources Advisory Council and Vice President of the Missouri Walnut Council. In addition, he is an active member of the Ohio Forestry Association and the National Woodland Landowners Association. Ball is a Past President of the Missouri Show-Me Chapter, Soil and Water Conservation Society and received the Fellow award from the society in 2008.

Bob will be working from a home office in Columbia and can be reached by calling (573) 268-7262. His email address is bob_ballosu@hotmail.com. The Association has a website in progress at:
<http://www.forestandwoodland.org>

Forestry 101: Break Down Your Forest into Stands for More Effective Management

Hank Stelzer, MU Forestry Extension

To manage your forest effectively, it should be divided into compartments called stands. Stands are areas of the forest that have similar species composition, soils and topography. Often the term “stand” is used flippantly to describe an entire forest or boundary. But this broad use of the term indicates a misconception that can seriously impact the effectiveness of any prescribed forest management activity.

Silviculture refers to the care and cultivation of forest trees. The stand is the basic unit of silviculture; much like a field is the basic unit on the family farm. Silvicultural prescriptions should be developed at the stand level, not for the entire forest that is normally a collection of stands.

However, silviculture is also one of the most abused terms, especially when it comes to hardwood management. To ease management decisions and silvicultural prescriptions, it is common to lump a number of stands together and write a single prescription for the entire area. This approach can easily lead to misapplication of treatments over a significant number of acres. The loss of potential future timber values and subpar regeneration can be so subtle that the landowner may never even realize the loss!

Foresters who are good silviculturists recognize the need to analyze a forest thoroughly and clearly define stands. Only after stands are properly delineated can prescriptions be developed to meet the needs of each stand.

Good stand delineation is particularly important in naturally regenerated hardwood stands because many are highly diverse topographically and historically. Issues such as high-grading (harvesting the best trees and leaving low-quality junk trees to populate the next forest), fire and grazing all may combine to create a number of different stands with varying species, age and quality. Often, each stand will need a different silvicultural prescription to optimize owner objectives.

Variables that should be considered when delineating stands in hardwood forests include:

- Soil characteristics (generally determined from soil maps)
- Topographic or landscape position
- Species composition of the overstory

- Species composition of the midstory and understory
- Presence of advance regeneration (when required for preferred species)
- Size and age of the overstory
- Timber quality and value

Soil and topographic position determine the potential productivity for tree growth. Topographic position affects soil moisture available for tree growth and, in the case of bottomlands, excessive moisture that can hinder tree growth. Soils and topography are generally related, but this is not necessarily always the case.

All of the other variables are biological and relate to the character of the trees and forest. It is easy to delineate stands that are dramatically different in age or species composition. The acid test for the professional forester comes when, everything else being equal, they can determine the difference between sites with regard to other variables.

Stand Delineation Example

Figure 1 shows a topographic map of a 115-acre hardwood forest at the MU Wurdack Research Center in Crawford County, Missouri. As with reading all maps, north is assumed to be at the top of the map. The following provides information on each stand and a harvest prescription specific for that stand. The silvicultural harvest prescription was founded on ownership objectives for immediate income while improving the ability of the forest to maximize incomes in the future and increase the diversity of wildlife habitats.

Stand 1. This stand is characterized by large white oaks with very sparse understory. A fence extends along the west side of the stand allowing cattle to have access to the stand where it joins a fescue pasture to the east. The fescue ground cover and the grazing have prevented the development of oak reproduction and other native woody vegetation. The stand represents an opportunity to demonstrate how forested areas that have been used to pasture cattle can be put into a silvopasture program. The larger diameter white oaks have value if cut as stave logs, thereby providing a return for restoring the understory or developing a silvopasture demonstration area.

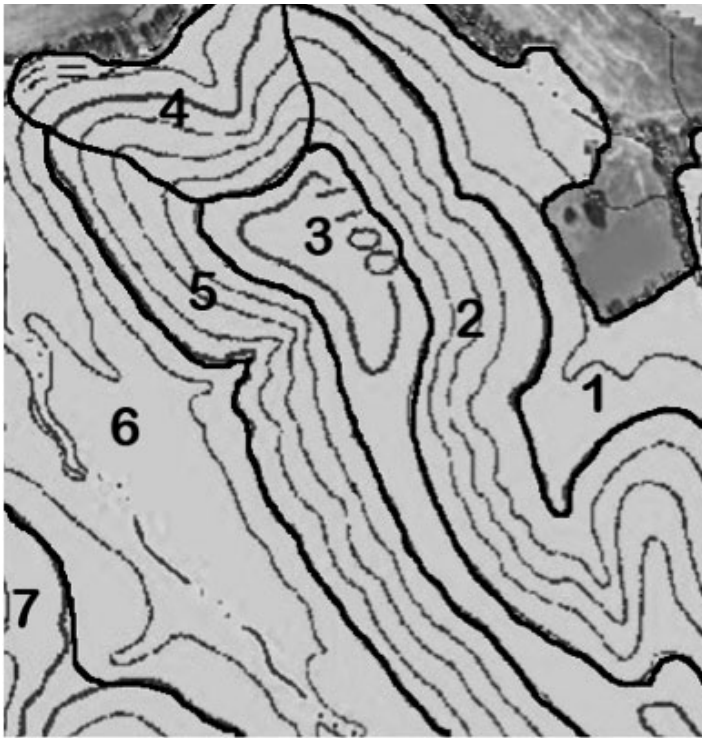


Figure 1. Topographic map of a 115-acre section of hardwood forest at the MU Wurdack Research Center.

Stand 2. The results of a recent (1998) timber harvest is most evident here as there are ¼- to 2-acre patches of seedling- and sapling-sized oaks. Pole-size trees are the most common. In five years, the sapling oaks in the openings should be thinned down by favoring those with the best stem quality. It would be a good place to demonstrate how growth can be focused on the better-quality trees by reducing competition.

Stand 3. This stand is composed of black oak poles and small sawtimber-sized trees growing along a long, narrow rocky ridge. There is evidence of red oak borer damage in many of the trees. It might be well to harvest all of the trees because of the borer damage and the poor growing conditions for oaks and convert the stand to shortleaf pine by planting. The returns from the harvest could be used to defray the cost of site preparation and planting. Shortleaf seems to do well on these narrow ridges as evidenced by the pole-sized stand of shortleaf growing on ridges just north and east of the Center.

Stand 4. This stand is on a northwest-facing “cove-like” landform with higher soil moisture levels which provides an excellent site for the growth and development of white and northern red oak. Stand density is good and composed of medium- and large-sized sawtimber white oaks. There are some pole-sized and larger pine trees (white, shortleaf and Scotch) at the northeast corner of the stand. This

stand demonstrates how good sites provide excellent opportunities to grow quality grade white and northern red oaks. Scheduled harvesting could begin when the stand’s stocking level reaches 80 percent; estimated to occur in the next five years.

Stand 5. The stand is growing on a poor, rocky, dry, moderate- to steep-facing southwest slope. Exit holes made by red oak borers are evident on the trunks of many black oak trees. This is a marginal site for timber production because of poor site quality and steepness of slope. Removal of saleable black oaks would terminate red oak borer activity. This harvest could be in conjunction with the harvesting of the black oaks in Stand 3. As with that stand, Stand 5 should be converted to shortleaf pine.

Stand 6. This stand represents a large, flat drainage where post oak is the predominant species in the overstory. There is a deep gravel underlayment that makes the area drought-prone during the summer months. The upper soil layer has an accumulation of organic materials as a result of periodic heavy spring rains. This combination of a thin layer of fertile soil over a well-drained gravel underlayment supports a variety of plant species, including 14 tree species in the overstory. This stand falls below the site quality considered suitable for managing a timber resource. Removing most woody species while maintaining the post and white oaks along with the hickories should provide enough light to the forest floor for the development of native forbs and grasses. This activity in conjunction with periodic prescribed fire should make this area highly desirable to wildlife.

Stand 7. This stand is on the northeast-facing slope on the main ridge that borders the west and south side of the Center. This is primarily a white oak sawtimber stand with small pockets of regeneration that have filled in canopy openings following the 1998 harvest. There are some live large cull white oaks that were not removed during the harvest. There is little need to carry out any further activities within the next 10 years as stocking is just above the minimal level. If anything, removal of large culls for firewood would improve growing space and release advanced white oak regeneration.

The result of proper stand delineation is prescribing the right management activity(ies) on the right area(s) of your forest, thereby saving time and money! So, work with your professional forester to develop a plan that takes into account the characteristics of all the stands within your forest.

Do-it-yourself Den Trees

Jeff Jackson, Georgia Tree Farmer

Den trees tend to be rare or absent in forests managed for timber. That's because diseased and dying trees are often the first to be felled and sent to the mill. Even in wild forests, den trees may be scarce because it may take decades for a tree to develop a useful cavity. Why wait for a den tree to develop naturally when you can make one today? A stumphouse is one such invention. It is easy to make. You can make one as a byproduct of cutting firewood. Here's how.

Step 1



Choose a firewood tree and fell it. Sever the trunk as high as you conveniently can. How high? It's up to you. But, be careful – work at safe height. How about using a ladder to make a high cut? **Don't even think about it!** If you did not cut at an angle, you may wish to do so to provide a pitch to the top of the stumphouse.

Step 2



Next make a vertical cut down the center of the stump - about 12 inches should do it. Then make a horizontal cut to remove the half-section of wood..

Step 3



Now create the cavity by making two vertical cuts at right angles to the first cut followed by a crosswise plunge cut at the bottom. **Be careful!** Plunge cutting is a hazardous technique that should only be used by experienced sawyers. If you are a casual chain saw user, seek the help of a more experienced person.

Step 4



Reassemble the stumphouse by replacing the half-section of wood that you cut out and secure it to the side walls with screws or nails.

Step 5



Make the roof out of a slice from the end of the felled tree or use a board. Adding a hinge will make it easy to look inside. If you wish, you can provide a vent by notching out one or both of the side slabs

What animals will move in? A low stumphouse will make a home for snakes, lizards, mice, treefrogs and perhaps certain birds. Many cavity-nesting birds prefer a nest hole high above the ground. Plan to make some very high stumps during your next timber harvest. If your logger has a mechanical harvester capable of making high stumps, mark your den trees so he can cut them during the harvest. How high? It's up to you. Have him snip off a foot or so

from the tall stump and leave it on the ground. You can use it to build a new cavity. Use a climbing deer stand to haul your new den up and set it on top. Nail it in place. And there you have it – instant den tree.

Editor's Note: Adapted with permission from the May/June 2007 issue of Tree Farmer magazine

Common Woodland Trees

Hank Stelzer, MU Forestry Extension

Note: This is a new GH series designed to acquaint forest landowners with those tree species they are most likely to encounter in their woodlands. We will kick off the series with one of the most common Midwestern species, white oak.

White oak (*Quercus alba*) is an outstanding tree among all trees and is widespread across eastern North America. Its high-grade wood is useful for many things, an important one being staves for barrels. The acorns are an important food for many kinds of wildlife.



A white oak leaf is widest above the middle with 6 to 10 rounded lobes.

White oak is a large tree, up to 120 feet tall, with a long, straight trunk, and a broad, rounded crown. Leaves are alternately arranged on the twig, and are 5 to 9 inches long and 2 to 4 inches wide (usually widest above the middle) with 6 to 10 lobes with rounded tips. The upper leaf surface is bright green and the lower surface is whitened lacking hairs. The fruit is an acorn $\frac{3}{4}$ to 1 inch long, with a cup covering up to $\frac{1}{4}$ of the nut; cup scales numerous and warty.

White oak acorns are $\frac{3}{4}$ to 1 inch long with a warty cup enclosing about $\frac{1}{4}$ of the acorn.



Mineral nutrition is not limiting to white oak growth except on very sandy soils where moisture is also a limiting factor. White oak has the ability to grow on all upland aspects and slope positions within its range except extremely dry, shallow-soil ridges; poorly drained flats; and wet bottom land. It grows best on north and east-facing lower slopes and coves and grows well on moderately dry slopes and ridges with shallow soils. White oak is more abundant, although smaller in size, on the drier west- and south-facing slopes than on the more moist sites.

White oak grows in association with many other trees, the more important of which are other upland oaks, hickories, yellow-poplar, American basswood, white ash, sweetgum, blackgum, sugar maple, shortleaf pine, loblolly pine and eastern white pine. The most frequent associates are other oaks and the hickories.

White oak can produce seeds prolifically, but good acorn crops are irregular and occur only every 4 to 10 years. Sometimes several years may pass without a crop. This great variation in acorn production exists not only among isolated stands of oaks but also among individual trees within stands and from year to year. Seeds germinate in the fall soon after dropping, requiring no pretreatment for germination.

Small white oak trees sprout prolifically and vigorously when cut or damaged by fire. The ability to sprout depends on the d.b.h. of the parent tree. One can expect 80 percent sprouting if the tree diameter ranges from 2 to 5 inches; 50 percent of trees 6 to 11 inches in diameter will sprout; and only 15 percent sprouting will be observed if tree diameters are 12 to 16 inches.

White oak is generally classed as intermediate in tolerance to shade. It is most tolerant in youth and becomes less tolerant as the tree becomes larger. White oak seedlings, saplings, and even pole-size trees are nevertheless able to persist under a forest canopy for more than 90 years.

Saplings and pole-size trees respond well to release. Other things being equal, however, the trees to release should be the large potential crop trees that show evidence of rapid recent growth.

For more information on white oak, as well as other common forest tree species, here are three excellent reference guides:

Trees of Missouri Field Guide by Don Kurz. Missouri Department of Conservation. \$7.50
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

A Key to Missouri Trees in Winter by Jerry Cliburn and Ginny Wallace. \$3.00 www.mdcnatureshop.com

MU Awards Biomass Supply Contract

Hank Stelzer, MU Forestry Extension



Woody biomass silos are being constructed alongside these newly-built coal storage silos at the MU power plant.

The MU Power Plant has awarded its biomass supply contract to Foster Brothers Wood Products, Inc. of Auxvasse, Missouri. Construction on the new boiler and fuel handling systems (for both biomass and coal) is on track. The facility should come online late summer 2012. Once online, the boiler will go through a six- to twelve-month commissioning period where all the systems are thoroughly tested before the unit is put to work supplying 25 percent of the campus' electrical, heating and cooling needs.

Between now and then, Foster Bros will be putting together their supply chain that, once in full operation, will be bringing 100,000 to 150,000 tons of biomass to the energy plant annually. The reason for the range in tonnage is due to the fact that the optimum operating level of the new biomass boiler is not yet known (every boiler has its unique personality) and the co-firing levels in the existing stoker boilers may vary.

Initially, Foster Bros anticipates that 90 percent of the biomass will consist of non-forest derived residues (non-FDR) and the remaining 10 percent will be forest-derived residues (FDR). Non-FDR material includes sawmill residues consisting of slabs, edgings, end pieces of wood and low-quality log cores from the centers of trees; residues from woodworking shops, barrel factories, and truss and pallet manufacturing; and clean wood waste from right-of-way maintenance and urban areas. FDR material means tops, branches, crooks and other unused portions of trees resulting from commercial timber harvests and trees removed from the forest in timber stand improvement operations. Trees in this latter category are considered structurally weak or having low vigor and lacking any potential to yield a sawlog or survive for at least the next 10

years. The contract calls for Foster Bros to notify the power plant if FDR biomass exceeds their original estimate of ten percent.

While it is beyond the resources of the power plant to establish a chain of custody for non-FDR biomass (tracking biomass from a forest through the various mills and manufacturing facilities), the contract has set the bar very high when it comes to tracking FDR and ensuring the sustainability of our forest resources.

First, all land from which FDR is sourced, public or private, must be managed according to a written forest management plan prepared by a professional forester as recognized by the Society of American Foresters (SAF).

Second, all FDR must be harvested in accordance with the Missouri Woody Biomass Harvesting Best Management Practices Manual, published by the Missouri Department of Conservation, as may be amended during the contract period.



The economizer portion of the new biomass boiler (lower right) is nearing completion. Its job is to use recirculate waste heat from the boiler (to be erected in the open space in the top left) and pre-heat incoming water.

Third, each FDR harvesting team must include at least one logger that, as a minimum, has completed the Missouri Forest Products Association's Professional Timber Harvester Program or its equivalent from a neighboring state. Fourth, no FDR material will be allowed from any clearing operations unless either so prescribed in the written forest management plan for acceptable silvicultural reasons or deemed prudent as a result of a pest outbreak or natural disaster and approved by a professional forester.

(cont. on pg 11)

The Back Page

MU Awards Biomass Supply Contract

(cont. from page 11)

Under no circumstances will the power plant accept any woody material that was cut or produced in the process of converting forest land to agricultural row crops or pasture. Nor will they accept any woody material that was cut or produced in the process of converting forest land to commercial development unless the contractor can document through a zoning or building permit that such land use conversion was going to happen anyway.

To ensure these sustainability standards are met, the power plant will contract third-party audits conducted by an SAF-certified forester. These auditing procedures are in the process of being developed and will be shared in future issues of GH.

Deadlines for Newsletter Submissions

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

E-mail or Snail Mail?

Would you rather receive Green Horizons electronically? E-mail us at papxt4@missouri.edu or stelzerh@missouri.edu and we will add you to our listserv. Be sure and send your full name and address so we can take you off the snail mail list.

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

October 29: Tree Farm Workshop, Ironton, MO. What to do with Your Storm-Damaged Woodland. You will not only learn the in's and out's of claiming a casualty loss, but you will have the opportunity to visit a nearby Tree Farm and see how the landowner is rehabilitating his woodland. FREE LUNCH to the first 30 registrants. Contact Matt Jones matt-jones@mdc.mo.gov, 573-223-4525.

November 4-5, Fall Meeting of the Missouri Walnut Council, Southwest MO. Friday afternoon activities begin at 1 PM at the D&D Sawmill to see how logs are evaluated for defects and learn how management activities may help minimize these defects. Saturday activities start at 8 AM at the Jolly Mill Park in Pierce City and will visit nearby natural and planted walnut stands. For more information or to register, contact Dennis Evans bencom@sbcglobal.net

February 1-3, 2012: Missouri Natural Resources Conference, Tan-Tar-A Resort, Lake of the Ozarks. The Public Initiative – Celebrating 75 Years of Conservation. For more information go to www.mnrc.org

February 4, 2012: Missouri Nut Growers Association Annual Nut Show, Nevada, MO. The annual meeting will take place at the Nevada Community Center, 200 N Ash. Nut evaluations will begin Friday, February 4 with the annual meeting to follow on Saturday. Go to www.missourinutgrowers.org for more information.