



Forestry, Wildlife and Fisheries Update Newsletter

Department of Forestry, Wildlife and Fisheries
George Hopper, Professor and Head

August 2003

Home Page - <http://fwf.ag.utk.edu>

Fisheries/Aquaculture - <http://www.utextension.utk.edu/aquafish>

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Calendar of Events – 2003

Sept. 4	Master Logger Course Begins	PCA Training Center, Counce <i>(Every other Thursday for 10 weeks)</i>
Sept. 16	Log Grading Workshop	Harrogate
Sept. 18	Wildlife Damage Mgmt. Workshop	Washington County
Sept. 19-20	The American Paulownia Assoc. Conference - Paris, TN <i>Contact - Pat Estes 731-593-567</i>	
Sept. 30	Timber Tax Workshop	Holiday Inn/Cedar Bluff, Knoxville
Oct. 1	Timber Tax Workshop	Ellington Ag Center, Ed Jones Aud., Nashville
Oct. 2	Timber Tax Workshop	Doubletree Hotel, Jackson
Oct. 16 – 17	Annual Prawn Conference	Bio-Tech Bldg, Knoxville
Oct. 16	Master Logger Continuing Ed.	PCA Training Center, Counce
Oct. 30	Master Logger Continuing Ed.	Bowater Credit Union, Calhoun

Faculty

*Wayne Clatterbuck, Forest Management
Craig Harper, Wildlife Management
Thomas Hill, Fisheries Management
Sam Jackson, Web Coordinator*

*George Hopper, Natural Resources
David Mercker, Forest Management
Larry Tankersley, Forest Management*

Notes from the Web.....

Samuel Jackson, Web Coordinator, Extension Forestry

For a regular feature in our monthly updates, I have decided to begin reviewing websites that may benefit you and your clientele. Websites and web-based information is an excellent method by which to develop programs as well as allow our clientele to get valuable information. I hope these reviews will be beneficial to you.

August 2003 Feature Website: <http://www.timbertax.org>.

In an era of increasing land values, property taxes, and income taxes, it is very important that landowners understand how to deal with income earned from their timber resources and how to plan for the future. Timber taxes and estate planning are increasingly the topic of discussion in landowner meetings around the country.

The National Timber Tax website, <http://www.timbertax.org>, has been developed by Purdue University in cooperation with the United States Forest Service to help the general public understand the current tax laws and how they apply to forest resources. The site has various options that are available for estate planning. There is a large amount of background information found on the site covering everything from Tax Tips for 2002 to Tax Strategies and Timber Appraisals. This will provide information to decipher the complicated web of tax information for our landowners.

In addition to the background information about taxes and planning, the website has several unique features. The first of these is the "My NTTW," a feature that allows a landowner to register and maintain forest management records, including timber sales and other expenses, online in an automated form. This may help some landowners keep their records organized so that when tax season rolls around, they are prepared! Another feature is that the site can link you to the appropriate forms and information in each state. A person from Tennessee can visit the site, learn about timber taxes, and then find the specific state laws and forms that apply to them.

These features and others help make the site very easy to navigate, interactive, and full of valuable information. This would be a good site to refer to landowners and then recommend that they share it with their accountants. Many accountants also need this type of information and it can help solve some paperwork headaches in the long run by helping them to understand the timber tax laws. Encourage your clientele to visit the site and learn about their options.

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Bacterial Diseases and Use of Antibiotics in Channel Catfish Production

Tom Hill, Professor, Fisheries Management

Bacterial diseases are a serious problem in channel catfish production. The problem has escalated through the years as stocking densities have increased. More feed is required causing water quality to deteriorate which results in more stress on the catfish.

Fortunately, Terramycin and Romet are antibiotics that are available for producers to use legally for bacterial infections in their catfish ponds. Both of these antibiotics can be bought in medicated feeds. Of course, a correct diagnosis of the bacteria involved is needed so that the proper medication can be used at the recommended dosage.

The goal for treating sick fish with an antibiotic is to get the level high enough to stop bacterial growth

sufficiently to allow the immune system to function properly. Any feeding regimen that does not accomplish this is doomed to failure. Additionally, feeding an antibiotic at a level too low to inhibit growth of the targeted bacteria may help select for bacteria that are resistant to that antibiotic.

Follow directions provided with the medicated feed. A certain number of days will be recommended in order to get the antibiotic concentration in the fish high enough. Do not try to shortcut the process by feeding the medicated feed every other day or for fewer days than recommended. This procedure is a waste of money and, also, may help in the development of resistant strains of bacteria.

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Oak Seed Orchards are Coming!

David Mercker, Extension Assistant, Forest Management

For the past five decades, genetic improvement research on softwood tree seedlings lead to tremendous gains in their survivability and growth. Softwood seed orchards have been established throughout the South producing millions of seeds, becoming millions of seedlings, planted over millions of acres, all leading to a degree of confidence that those seedlings will perform in the field.

A major difference occurs when seedlings of heavy-seeded hardwood species, e.g., oaks, are instead chosen for reforestation projects. Unlike softwoods, where seeds originate from seed orchards, hardwood seed orchards are rare. Seeds are collected from various locations under various methods (in both wild and urban areas). State and private nurseries normally specify that hardwood seeds be collected locally, but little consideration is given to the genetic traits of the parent trees.

Supported by the Margaret Finley Shackelford Trust, The University of Tennessee's Tree Improvement Program, under the leadership of Drs. Scott Schlarbaum, James R. Cox, and Allan Houston, have initiated a massive hardwood seed orchard effort at the Ames Plantation in West Tennessee. Their intent is to establish seed orchards of various oaks and other hardwood species to provide locally adapted seeds for state nurseries. Species selected for the Shackelford seed orchards will not be strictly limited to timber species. Hardwood trees and shrubs important to wildlife, both game and non-game species, will be included as well. Seed produced by the orchards will be phenotypically improved for growth in nurseries as well as important field characteristics, e. g., form or mast production.

Hardwood seed orchards are nothing new to the Ames Plantation. Currently, there are orchards of yellow-poplar, northern red oak, cherrybark oak and white oak, which were constructed in cooperation with the Tennessee Division of Forestry's Tree Improvement Program. The University and Divisions' Programs have worked with the Ames Plantation for just under four decades to genetically improve various hardwood and softwood species.

As noted in the Forest Landowner magazine (March 2003) regarding the work:

“A combination of research on seedling production and acorn production in orchards and plantings, coupled with traditional tree improvement efforts are demonstrating that oak improvement and artificial regeneration can follow the path blazed by the softwood industry.”

Although the development of hardwood seed orchards has been limited, the demand for locally adapted acorns is increasing. In time, forest restoration efforts will be enhanced to include prize examples of hardwood species to meet the demands of timber and recreational industries. Tours of the Margaret Finley Shackelford Orchard Complex will eventually be available for public group viewing.

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Artificial Regeneration of Oak Seedlings

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture Specialist

The increasing difficulty of regenerating oaks in natural and cutover stands has led to renewed interest and research in planting oaks. Planting provides a means of supplementing natural regeneration with oak prior to or following stand removal (enrichment plantings). Reforestation of old fields, introducing genetically-improved individuals and increasing species diversity are other reasons for artificial regeneration of oaks. However, planting oaks in plantations or as enrichment plantings has been largely unsuccessful, especially on the better sites. The slow initial growth of planted seedlings and the fast growth of competition usually inhibits oak growth and development. Thus, research in artificial regeneration of oak has been directed toward increasing the initial growth of oak seedlings and better methods of competition control.

This article focuses on the regeneration and planting of oaks through the use of bareroot nursery stock. Another artificial regeneration alternative is the out planting of containerized seedlings. However, because of high costs of production, containerized seedlings are not used commercially in reforestation of hardwoods.

Growth of Oak Seedlings

Three factors have been shown to increase the initial growth of oak seedlings: matching the species to the site, nursery protocols to produce large seedlings and genetic improvement.

Site Specificity

Most oaks are site specific. The common usage of *oak* as a generic term often masks specific site requirements of individual species. More than 30 oak species are considered of commercial importance in forest and wildlife management in the eastern United States, each with specific site and silvical (growing) requirements. For example, cherrybark and swamp chestnut oaks do best on well-drained terraces. Willow, water and pin oaks do best on poorly-drained flats. Overcup oak tolerates more flooded conditions. Northern red oak prefers well-drained, but moist sites on northern exposures without a fragipan. Often practitioners tend to plant the same oak species over a range of sites. Plantings single species over large expanses is usually unsuccessful because of site differences. Match the oak species to the site!

Nursery Protocols

Most forest tree nurseries produce oak seedlings in a similar fashion as pine seedlings. Oak seedlings are routinely root- and top-pruned to facilitate handling, producing small seedlings. This severe pruning is counterproductive to growth of newly-planted seedlings, especially when competing against a faster growing species. The Institute for Tree Root Biology, an USDA Forest Service research facility in Athens, GA has

used nursery protocols (spacing, irrigation and fertilization schedules) to insure that seedlings being planted have the best chance of enhanced growth and survival. Field trials have shown that initial height, root caliper diameter, number of flushes and number of first-order lateral roots (large lateral roots branching from the tap root) are essential to the growth and survival of oak seedlings. Bigger seedlings are better!

Large seedlings are also more costly to produce in the nursery and to out plant. These additional costs can be alleviated somewhat by planting fewer seedlings per acre. Larger seedlings have a better chance for survival and growth so fewer are required for reforestation. Considering that most forests are not composed of pure oaks, approximately 80 large oak seedlings per acre are sufficient to have a substantial component of oaks in the future forest.

Genetic Improvement

Oak species exhibit a wide range of genetic variability. Studies at the University of Tennessee with a northern red oak seedling orchard have indicated that certain families have a higher proportion of seedlings with a greater than average number of first-order lateral roots and a larger than average root collar diameter. Therefore, mother trees can be selected for producing a higher proportion of progeny with desirable characteristics and low variability. Unfortunately, genetic studies with oaks are few. The best guideline is to use local seed sources that are best adapted to the sites in your area.

Control of Competing Vegetation

Even with the enhanced growth of oak seedlings, species such as yellow-poplar grow faster than oaks. Control of competing vegetation is necessary to ensure that oaks are not inhibited and affected by other trees. This control can be accomplished by adequate site preparation before planting, vegetation control after planting and minimizing animal predation. Both mechanical and/or herbicide treatments can be used to control vegetation.

Site Preparation

Annual and perennial vegetation should be treated before planting. Control of vegetation is much easier before the seedlings are planted than afterward. A typical herbicide site preparation application is the use of glyphosate (Accord) and/or trichlopyr (Garlon 3A). Discing and subsoiling on appropriate soils can promote rapid root development in oak seedlings.

Competition Control

Once residual woody competition is controlled during site preparation, continued herbaceous weed control is necessary. A single application of sulfometuron (Oust) is recommended before leafout of planted oak seedlings. After budbreak, directed sprays of Accord are used to control competition. Make sure that the herbicide application does not get on the leaves of the oak seedlings. A dye should be used to see where the spray is going. Herbicide (Accord) treatments for herbaceous weed control will probably need to be applied annually for at least 2 or 3 years. Mechanical cultivation can be used, but expect to disk and hoe around seedlings at least 3 to 4 times a year. Mechanical cultivation for several years usually results in damage to seedlings with 5 to 20 percent mortality. Frequent mowing is generally not acceptable because it favors grass, one of the worst competitors for soil moisture.

Animal Predation

Newly planted oak seedlings with high nutrient contents resulting from fertilization in the nursery are highly sought by wildlife, particularly deer. Generally, seedlings escape deer browse once they are 5 to 6 feet in height. Rapid, early seedling growth is critical to oak establishment to minimize seedling predation by deer, rabbits and rodents. Measures should be taken to protect seedlings from predation during the first year of establishment. One low cost method being investigated is encircling the planting area with nylon ropes drenched in commercial deer repellents. Although, many unforeseen circumstances can occur such as insect outbreaks from Japanese beetles or cicadas, protection from browsing should be considered essential in areas with high deer populations.

In summary, artificial regeneration of oaks is a process, not an event. Planting seedlings and expecting them to grow without further attention is erroneous. Adequate planning is necessary to ensure success. A general prescription for successfully planting oaks is that large healthy seedlings should be properly planted on appropriate sites where competing woody and herbaceous vegetation is controlled for at least 2 to 3 years.

To protect people and the environment, herbicides should be used safely. This is everyone's responsibility, especially the user. Read and follow label instructions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Use of trade or brand names is for clarity and information; it does not imply approval of the product to the exclusion of others, which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

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Guidelines for Oak Plantings

Wayne K. Clatterbuck, Associate Professor, Forest Management and Silviculture Specialist

Match the appropriate oak species to the site being planted. Avoid using generic planting prescriptions or the desire to plant a particular species regardless of the site requirements of the species.

Plant large seedlings for best success. Oak seedlings at least 2.5 feet tall with root collar diameters of at least 3/8 inch and 5 or more first order lateral roots are preferred.

Site preparation by mechanical and/or herbicide treatments before planting is necessary to control both woody and herbaceous competition.

Control competing vegetation with annual treatments for 2 to 3 years after planting. Competition control is key to keeping oaks dominant and free-to-grow.

Protect seedlings from animal predation. Take chemical or physical measures to minimize animal predation until seedlings are large enough to escape browsing.

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Now is the Time to Kill Tall Fescue for Wildlife

Craig A. Harper, Associate Professor, Wildlife Management

If you are interested in improving habitat for bobwhites, rabbits, deer, turkeys, and grassland songbirds, please continue reading! Fields not hayed or grazed any longer can be “renovated” for wildlife and now is the time to get started. Cool-season grasses come out of dormancy as cooler weather approaches, making fall an excellent time for herbicide treatment. Non-native perennial cool-season grasses (e.g., tall fescue and orchardgrass) do not provide suitable structure, cover, or food resources for wildlife. Without question, tall fescue has displaced more nesting habitat for quail than any other plant across Tennessee. Fescue also suppresses the germination and growth of a host of forbs that provide seed and forage for many birds and mammals.

To renovate these fields, consider the following. If the vast majority of plant cover in the field is tall fescue, or if orchardgrass is growing with the fescue, spray the field with glyphosate (e.g., Roundup[®]) to kill all existing vegetation and sow native warm-season grasses (nwsg) and associated forbs next spring. If the field contains many plants other than tall fescue (e.g., broomsedge, blackberries, beggarlice), spray imazapic (Plateau[®]) to kill the fescue and allow many of the other plants to remain in the field and increase upon germinating next spring. When spraying fields in the fall, always mow and remove debris from the field prior to applying herbicide (you might have to mow the field twice to “clean” the field of debris). To kill tall fescue in the fall, apply 1.5 quarts per acre of glyphosate plus surfactant when fescue is 8 – 10 inches tall. Remaining dead grass cover should be burned in spring. Nwsg then can be sown at a rate of 5 pounds pure live seed (PLS) per acre. To control unwanted plant growth, spray field with 6 ounces of imazapic per acre soon after planting (pre-emergence application).

If you do not plan to sow nwsg, but wish to create an “oldfield” habitat for wildlife, fields should be sprayed with 12 ounces of imazapic (plus surfactant) per acre. Again, mowing fields

and removing cut grass prior to spraying is strongly recommended. By using this selective herbicide, you can eliminate tall fescue and allow the myriad of seeds waiting in the seedbank just below the ground surface to germinate. Burning the remaining cover off the field in late winter, followed by discing, will stimulate the seedbank to germinate and create excellent brood rearing habitat with higher-quality forage for deer and rabbits.

It is important to realize that fields renovated for wildlife may not be “pretty” to some people. Wildlife need cover — something not present in a field that is mowed regularly. Once renovated, fields should be burned every 2 – 3 years in late winter, just prior to spring green-up. If you wish to improve your fescue fields and want to see them come alive with wildlife, “renovate” them and remember — *if you build it, they will come!*

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Timber Tax Workshops

Larry Tankersley, Extension Specialist, Forest Management

We are back on line with Timber Tax Workshops. We have moved from spring to the fall of the year so that tax preparers and accountants might join us.

The workshops will be from 8:00 a.m. - 4:30 p.m. There is a \$100 registration fee which includes breaks, lunch and instructional materials. Pre-register by contacting Larry Tankersley in Knoxville at (865) 974-7977 or Candace Dinwiddie at the TN Forestry Association in Nashville at (615) 883-3831.

The workshops are on the following dates and locations:

September 30, Holiday Inn at Cedar Bluff and I-40, in Knoxville

October 1, Jones Auditorium, at the Ellington Ag Center in Nashville

October 2, Doubletree Hotel (fmr. Garden Plaza) in Jackson.

Please spread the word. This is a good opportunity for a comprehensive coverage of the subject.

We look forward to hearing from you!

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Tennessee Forest Products Market Report

1st Quarter 2003

	East <u>Tennessee</u>	West <u>Tennessee</u>	Statewide <u>Average</u>
<u>Stumpage</u>			
Pine Sawtimber \$/MBF Doyle	245	292	268
Oak Sawtimber \$/MBF Doyle	326	358	342
MXD HDW Sawtimber \$/MBF Doyle	232	179	205
Pine Pulpwood \$/Ton	7.27	9.02	8.14
HDW Pulpwood \$/Ton	6.73	6.98	6.85
 <u>Delivered</u>			
Pine Sawtimber \$/MBF Doyle	349	500	424
Oak Sawtimber \$/MBF Doyle	482	447	464
MXD HDW Sawtimber \$/MBF Doyle	298	275	287
Pine Pulpwood \$/Ton	21.09	23.44	22.27
HDW Pulpwood \$/Ton	21.12	25.25	23.18

Note:

This information is for educational use only by the University of Tennessee Agricultural Extension Service. Price information is adapted by permission from *Timber Mart-South*, a copyrighted publication by F.W. Norris, Highlands, NC. and is not to be copied for public distribution.

Explanatory Notes:

Prices: Prices given in this report are average prices in the current issue of *Timber Mart-South*. Prices for specific timber stands or products may vary significantly from the average prices listed due to location and accessibility of the timber, volume per acre, area included in the sale, restrictions placed on the harvest, size, quality and species of the stand or delivered product, and local demand.

Stumpage price is the price of timber standing in the woods.

Delivered price is the price of harvested products paid at the mill or the loading point (with no freight included).

Prices for sawtimber are given in dollars per thousand board feet (\$MBF) based on the Doyle log rule. The Doyle rule is the predominate rule for measuring tree and log volume in Tennessee. To convert prices to International rule, multiply the price by .61. This rule is for average values and cannot be used to convert individual log or tree volumes.

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