

CU IN THE WOODS

Clemson Extension Forestry and Wildlife Newsletter



ASIAN LONGHORNED BEETLE DETECTED IN SOUTH CAROLINA

By Dave Coyle

The Asian longhorned beetle has been found near Hollywood, SC. This invasive tree pest primarily attacks maples (especially red maple) but also elms, willows, birches, and several other tree species. Clemson Regulatory Services, Clemson Extension, and USDA APHIS need your help in detecting this beetle, which is currently found only in Charleston County. Adults are large (up to 1 ½” long) black beetles with white spots, black and white striped antennae, and bluish feet. Signs of ALB include large, pencil-sized holes on trees, bleeding from wounds on the trunk, and conical, chewed-out marks on the trunk. There are several native beetles that look similar to ALB, and Clemson Extension has prepared several fact sheets and blogs to help you identify ALB. If you think you’ve seen ALB, please contact the Clemson Department of Plant Industry at invasives@clemson.edu or by calling 864-646-2140.



Figure 1. Picture of Asian Longhorned Beetle. Photo credit: Dave Coyle, Clemson Extension



Figure 2. Picture of Asian Longhorned Beetle damage. Photo credit: Dave Coyle, Clemson Extension

Additional Resources

Clemson HGIC fact sheet:

<https://hgic.clemson.edu/factsheet/asian-longhorned-beetle/>

Clemson HGIC blog post:

<https://hgic.clemson.edu/asian-longhorned-beetle-a-new-invasive-tree-pest-in-south-carolina/>

Clemson Regulatory services:

<https://www.clemson.edu/public/regulatory/plant-industry/plant-pest-regulations/state-plant-pest-information/pest-alerts/alb.html>

Video from Don’t Move Firewood on ALB:

<https://www.youtube.com/watch?v=BbxsJj68Ezc>

Don’t Move Firewood program:

<https://www.dontmovefirewood.org/>

UPCOMING EVENTS

MASTER TREE FARMER COMING IN 2021

We are currently working hard on revamping our well known Master Tree Farmer program. We will provide more information in our next quarterly newsletter- Fall 2020 edition that will come out in October.

Two-Part Longleaf Flora and Fauna Webinar

Part 1- July 21 from 11am-12pm

Longleaf Flora and Fauna Diversity – learn the functional importance of native plants and animals in the longleaf ecosystem.

Part 2- July 28 from 11am-12pm

Promoting Native Species Through Management – Learn how modifying and implementing practices such as the application of herbicides and the use of prescribed fire can enhance longleaf stands.

Registration is free with no credits or \$20 for 2hrs Cat. 1 CFE and 1hr Core Pesticide Recertification credit
[Click Here to Register](#)

Due to COVID- 19, all of our currently planned workshops are being postponed or moved to an online format. We hope to be able to offer our great in-person workshops again soon.

Find more events:

www.clemson.edu/extension/forestry

CLEMSON
COOPERATIVE EXTENSION

PRE-COMMERCIAL THINNING- AN ANSWER TO TOO MUCH SUCCESS

By Tom Brant

Many forested properties have changed ownership in the last decade. With ownership changes, management strategies and intensities can change too. One outcome of this, impacting the yellow pine forests of the Southeastern US, is an increase in the number of naturally regenerated timber stands. Regardless of the reasons an owner may choose to regenerate stands naturally, an old problem can occur: too many seedlings germinate causing overstocked tree densities. When overstocking occurs, tree growth slows prematurely leading to a risk of increased disease and insect attack. Longer rotations are also needed to produce mature and merchantable timber. This delay in harvest and reduction in stem quality can reduce the stands' economic return. Thankfully, landowners can do a pre-commercial thinning of these overstocked stands to get back on track.

Pre-commercial thinning reduces competition around an individual or small grouping of seedlings or saplings. This allows those remaining to obtain more water, nutrients, and sunlight needed to grow better.



Figure 1. Overstocked naturally regenerated loblolly pine stand with more than 2000 stems to the acre. Photo Credit: Tom Brant, Clemson Extension.

Pre-commercial thinning is easier to achieve and more effective if done in the first 3-4 years after regeneration establishment. This is usually before stems reach a merchantable size which is under 5 inches in diameter at DBH (diameter at breast height is the tree diameter measured at 4.5 feet above the ground line). It can be done later but the logistics are more demanding and the actions are more



Figure 2. Loblolly stand after pre-commercial thinning, approximately 538 stems per acre remaining. Photo Credit: Tom Brant, Clemson Extension.

difficult to complete. For loblolly pine, when stocking exceeds 2000 stems per acre a pre-commercial thinning should be considered to reduce the stocking to within a 450 – 750 stems per acre range.

The goal of a pre-commercial thinning is to remove competing seedlings by cutting them below their lowest branch, as close to the ground as possible. Many methods

can be used to implement a pre-commercial thinning. These range from manual applications to the use of small machines or large machines. Manual methods can include using machetes, bush axes, small power tools with brush cutting heads, chainsaws, or backpack herbicide sprayers. Manual methods are best used when the seedlings are still relatively short, at or below chest height.

Small machinery, such as ATVs or small tractors, can be used if they can traverse the stand. These machines can be equipped with mowing attachments or herbicide spray tanks but must be used before the seedlings are too tall for the equipment to pass over. Once saplings are above head height, or over about 5 years old, larger machines will be needed to accomplish the pre-commercial thinning. These larger machines include large tractors, converted tree skidders, or small to medium dozers. The machines will have to pull heavy duty brush mowers, disc harrow plows, or rolling drum choppers through the stand to remove the extra stems.

Since pre-commercial thinning is controlling stems that are not yet of commercial size, the landowner has to pay to have this completed. The earlier the thinning is prescribed and conducted in the management cycle, the less costly it will be to the owner. Using manual control methods, either by the owner or contractors will be the least costly, but as stem size and size of machinery needed for control increase, so does costs. The early implementation of pre-commercial thinning also enables the desired crop trees, which are being left, to have the full benefit of the site for their growth and development.



Figure 3. Notice heavy fire fuel load after thinning. Wildfire protection is an important consideration the first year after pre-commercial thinning. Photo Credit: Tom Brant, Clemson Extension.

Natural regeneration methods can be useful for a landowner, but there are times the result can be too successful with many more stems growing than the site to support. Also, there can be the occurrence that a planted site has seed already in place or seed blown in from adjacent timber stands that create an overstocked

situation. In these instances, pre-commercial thinning can provide the control needed to develop a productive stand for the landowner.

TREE DECLINES

By Dave Coyle

Decline is a generic term used when tree health is getting worse and trees are dying. It is an unfortunate term in that it tells us very little – yes, trees are looking poor, and yes, some are dying. But why? That’s the important question we need answered so we can properly manage the stand.

Declines happen in all different types of trees, including pine, oak, ash, and cypress. In South Carolina, the two most common types of decline are pine decline and oak decline. Pine decline typically appears as yellowing or discolored needles, canopy loss, and branch dieback, and may end with tree mortality. It can appear in any southern pine, though it is most common in loblolly pine stands. Stands on steeper slopes are more susceptible, as are those on poor soils. Drought is often a contributing factor. The truth is, except for southern pine beetle infestations, we often don’t know exactly what causes pines to die. We do know that management plays a very important role, however – particularly when it comes to maintaining proper basal area or stocking in your pine stand. Overstocked stands are stressed stands, and stressed stands are more susceptible to pine bark beetles. Several pine root weevil species have previously been implicated as causing pine decline, but this is not true – there are no root-feeding weevils that can kill healthy, mature pine trees (though the pine reproduction weevils can kill seedlings – that’s a completely different issue!). When these root- feeding weevils are present

they’re just a sign that trees are in poor health – the key to successful management is to figure out what made them in poor health in the first place.

The same goes for oak decline – we usually see oak stands with sparse canopies, dying branches, and sometimes dead trees. Often there will be wood-boring beetles present, such as bark and ambrosia beetles. These didn’t cause the poor tree health, they’re just responding to the chemical signals given off by dying trees. Again, site factors and drought are common culprits, as is poor stand management – especially overstocking.

To prevent decline of your stands, practice good silviculture. Keep stocking and basal area within advised ranges and control competing vegetation and invasive species. Plant the right tree species in appropriate sites. A soil test can help diagnose any soil fertility issues that may be contributing to tree health. Your Clemson Extension County Agent and the specialists can help you diagnose any forest health issues you may have.



Figure 1. Picture of pine showing decline. Photo credit: Dave Coyle, Clemson Extension

County Forestry Associations

Abbeville County Forest Landowners Association
Contact: Tom Brant
jbrant@clemson.edu

Aiken County Forestry Association
Contact: Stephen Pohlman
spohlma@clemson.edu

Anderson Forestry & Wildlife Association
Contact: Carolyn Dawson
dawson4@clemson.edu

Calhoun-Orangeburg Forest Landowners Association
Contact: Janet Steele
jmwatt@clemson.edu

Chesterfield County Forestry Club
Contact: Ryan Bean
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Darlington/Florence Landowners Association
Contact: TJ Savereno
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Edgefield County Forestry Association
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Greenville Forestry & Wildlife Society
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Laurens County Forest Landowner Association
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Lexington County Forestry Association
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Lowcountry Landowners Association (Beaufort, Colleton, Hampton, Jasper)
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McCormick County Forestry Association
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Newberry County Forestry Association
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Salkehatchie Forestry Association (Allendale, Bamberg and Barnwell)
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Saluda County Forestry Association
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Sumter County Forest Landowner Association
Contact: Ryan Bean
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Tri-county Forestry Association (Berkeley, Charleston, Dorchester)
Contact: Parker Johnson
pdjohns@clemson.edu

Williamsburg County Forest Landowners Association
Contact: Sean Bowers
sbower3@clemson.edu

Contact the Association nearest to you to find out about upcoming meetings!

S.C. QUARTERLY STUMPAGE PRICE TRENDS AND POTENTIAL IMPACT OF COVID-19 ON FORESTRY

By Puskar Khanal

Many landowners have heard the term stumpage price but may not be sure about its meaning. Stumpage price refers to the price a timber buyer will offer landowners for standing trees.

Sawtimber stumpage price trends:

South Carolina statewide pine sawtimber prices were on average \$22.49/ton in the 2nd quarter of 2020. For mixed hardwood sawtimber, statewide prices, on average, were \$24.46/ton in this quarter. See figure 1 for a graph of SC sawtimber prices.

Pulpwood stumpage price trends:

South Carolina statewide pine pulpwood prices were on average \$9.08/ton in the 2nd quarter of 2020. For mixed hardwood pulpwood, the statewide stumpage prices, on average, were \$8.45/ton in this quarter. See figure 2 for a graph of SC pulpwood prices.

Overall economy and housing market conditions, as well as local environments such as accessibility, terrain, sale size, tree size and quality, and distance to the nearby mills, affect stumpage prices for both sawtimber and pulpwood. Properly managed trees in good health and condition would likely get paid more than unmanaged trees.

Potential Impact of COVID-19 on Forestry Market:

COVID-19 pandemic has required extraordinary responses from governments worldwide with nearly the entire world economy under some form of lockdown and unemployment rates skyrocketing. The pandemic's impact on forestry and forest-based industries will have consequences for the forest landowners due to its potentially negative influence on the overall economy and demand for wood products. Since demand for wood is derived from manufactured products, the pandemic's impact on regional stumpage markets should be more evident in the next quarter (3Q and 4Q) prices as this swift economic shock gets through the system.

A recent survey conducted between April and May 2020 by Timber Harvesting and Forest Operations found that 34% loggers reported lowered logging rates, 27% delayed equipment purchase, and other issues (employee layoffs, downsizing, longer hauls, and safety training delays). However, housing starts were up 4.3% in May and building permits were rising 14.4% over April in recent data released by Census Bureau.

The sawtimber and pulpwood price data are published with permission from TimberMart-South Athens, GA 30605 email tmart@timbermart-south.com.

S.C. Statewide Sawtimber Stumpage Price

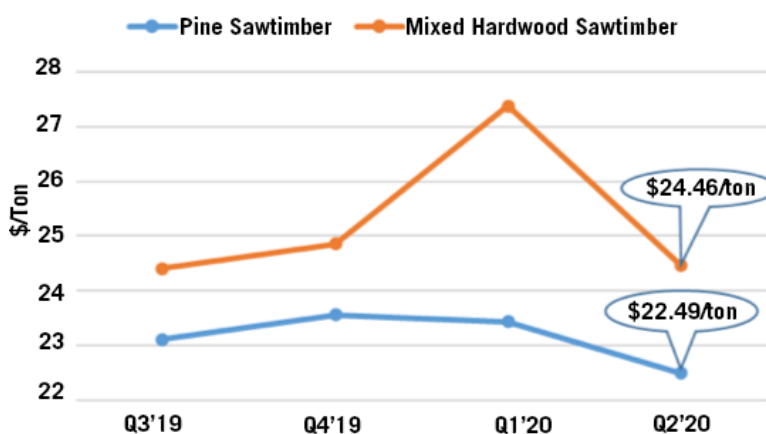


Figure 1. Graph of SC sawtimber prices.

S.C. Statewide Pulpwood Stumpage Price

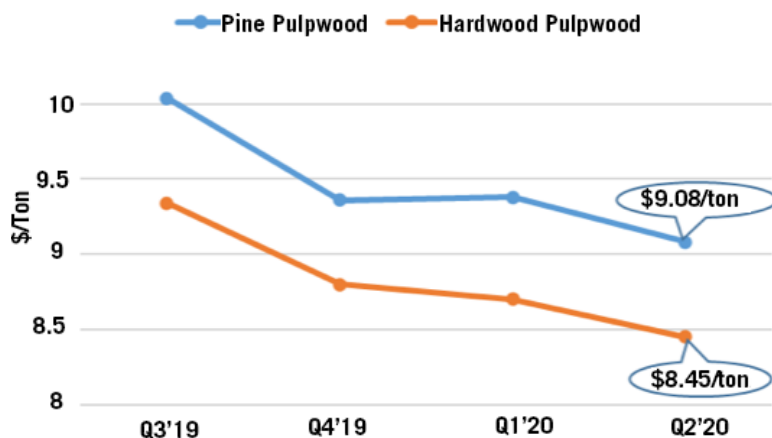


Figure 2. Graph of SC pulpwood prices.

SEEDLING SELECTION GUIDELINES FOR FOREST LANDOWNERS

By Janet Steele

The selection of tree seedlings for reforestation or the conversion of open land to woodlands is often only done a few times over ownership of a property. Therefore, making sure that the right seedlings are purchased is a very important step in woodland management. The factors to consider when selecting seedlings are landowner objectives, soils and other site characteristics, seedling sources and availability, and budget.

Landowner Objectives

Landowner objectives should be the foundation for any management decisions that are made on a forested property. When selecting tree seedlings to purchase and plant, species options can be limited by site characteristics, but landowners usually have some choices they can make among species to meet their management objectives. These objectives can include producing timber income, enhancing wildlife habitat, reintroducing native species, improving aesthetics, stabilizing soils due to water or wind erosion, increasing stocking of desired species within an existing stand, or providing an additional source of income such as pine straw production.

Often the selection of single species can meet multiple objectives. For example, the recent emphasis on the reestablishment of longleaf pine within its natural range has led to an increased interest in planting longleaf seedlings. Longleaf is a pine species which provides timber income and income from pine straw production, is aesthetically unique, and planted stands, especially with management that includes prescribed fire, can enhance wildlife habitat. Hardwood seedling selection can also meet multiple objectives. Planting oaks in pure stands or underplanting an existing stand to increase regeneration stocking before a final harvest can establish a future source of income from timber, improve aesthetics on a property, and provide additional sources of mast for a wide variety of wildlife species.

Soils and Other Site Characteristics

One of the most important factors in seedling selection is the site characteristics where they will be planted. These include soil types (sand/clay), soil pH, past management history, hydrology, flooding or drought potential, slope and aspect (especially in more hilly or mountainous terrain), and impacts from existing vegetation or nuisance wildlife. Identifying the tree species that occur naturally and are thriving on adjoining acreage is often a good place to start in considering seedlings for planting. Generally, pine species can grow on a range of

acidic soils (pH of 4.5 to 6.5), while most hardwoods are adapted to slightly acidic (pH of 6) to neutral soils (pH of 7). Selecting a species that is adapted to the pH of the soil where it is to be planted is a better option than trying to augment soils to adjust the pH.

For landowners who are not familiar with the soils they have on their property, an online mapping application called Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) can be used to determine soil series, soil properties, soil suitability for management practices such as site preparation and planting, and even the risk of seedling mortality based on soil characteristics. The soil properties listed on Web Soil Survey include flooding and erosion hazard, drought potential, and other characteristics of soil which could affect seedling suitability. Sites that have been in agricultural use may also need to have a soil sample taken and analyzed to see if there are residual effects from past practices that could negatively impact seedling establishment. This could include high levels of residual fertilizers or insufficient pH.

Another site characteristic that should be evaluated before selecting and ordering seedlings is existing vegetation in the area to be planted. Adequate site preparation should be planned before planting any area, whether a recent clearcut or an old field or pasture. Competition from grasses, herbaceous vegetation, or natural hardwood and pine regeneration can drastically reduce the survival rate of planted seedlings, requiring replanting at an additional expense.

Finally, impacts from wildlife can reduce seedling survival success. Feral hogs and white-tailed deer are usually the most destructive to newly planted pine and hardwood stands. Containerized longleaf seedlings are a favored food for feral hogs and can be destroyed by rooting and consumption. This can lead to complete planting failures if seedlings are not protected in areas where there are high feral hog populations. White-tailed deer will browse on hardwood seedlings and the buds on pine seedlings. Normally, the use of fencing or other exclusion devices such as tree shelters can be cost-prohibitive on larger reforestation areas.

Seedling Sources and Availability

Purchasing either pine or hardwood seedlings that

Continued on page 6

Seedling Selection Guidelines for Forest Landowners Cont.

come from a seed source that is fairly local to a planting area is one of the keys to a successful planting. South Carolina landowners are fortunate to have access to pine seedlings which are grown from genetically improved seed that was sourced from within the region, as well as a wide variety of native hardwood species. The decline in forest industry operated seedling nurseries in recent years has reduced the number of companies offering seedlings, but seedling availability has remained fairly consistent with other private nursery companies purchasing former industrial facilities.

The availability of seedlings can be a factor when ordering species or varieties that are in high demand. As the demand for containerized pine seedlings has grown, most producers recommend ordering as soon as a reforestation or afforestation plan is finalized for the coming planting season. Popular hardwood species, such as those planted for wildlife benefit, can also sell out quickly. See table 1 for commonly available tree species sold in South Carolina.

Budget

The final consideration when deciding what seedlings to order is how much is budgeted for this expense. Keep in mind that there will also be an expense for planting. The price per pine seedling will vary greatly with the genetics of the seedlings ordered, and whether they are bareroot or containerized. Landowners should do some research into the potential productivity of the different varieties of seedlings that fit their reforestation budget and determine if the added expense of the superior genetics will provide them a greater economic return.

The options in genetics for pine seedlings continues to increase. Selecting from clonal seedlings, controlled mass pollinated, or open pollinated is a decision landowner now have to make when placing a seedling order. Clones, which are identical replications of a superior genetic stock, are the most expensive pine seedlings available. They are usually at least 3 times more expensive per thousand seedlings than controlled mass pollinated seedlings. Controlled mass pollinated seedlings are produced from female cones that have been fertilized with specific pollen from a known genetic source. These seedlings are about 2 times more expensive than open pollinated (OP) seedlings. OP seedlings come from a known seed source that is fertilized by windblown pollen. Therefore, only one-half of the genetic stock can be controlled. These are the most inexpensive pine seedlings to purchase.

The decision to order containerized or bareroot seedlings can be based on several factors. One of the primary reasons that containerized seedlings are chosen is due to their increased survival rate over bareroot seedlings. Other benefits of containerized pine seedlings are they extend the planting window and are easier to store for longer periods than bareroot seedlings. However, bareroot seedlings cost about 1/3 to 1/4 of what containerized seedlings and can be shipped and planted more cheaply. Therefore, they are a good choice on sites of moderate to high productivity and when planting will occur within the normal range of months (late November to mid-March). When planting hardwood seedlings, bareroot seedlings can be planted more easily than those that are potted, but potted seedlings tend to have better survival. It is best to avoid mail-order bareroot hardwood seedlings that come from rootstock outside of the region.

Planning for the reforestation or afforestation of a site should include careful consideration of seedling options available to a landowner. For assistance with seedling selection or for information on seedling nurseries, contact your local Clemson Extension Forestry and Natural Resources Team agent.

Resources:

Barry J. Making Sense of Loblolly Pine Seedling Varieties. Fayetteville (AR): University of Arkansas Cooperative Extension Service; 2011. [13 July 2020]. <https://www.uaex.edu/publications/PDF/FSA-5030.pdf>.

Radford A, Ahles H, Bell C. Manual of the Vascular Flora of the Carolinas. Chapel Hill (NC): The University of North Carolina Press; 1968.

South Carolina Department of Natural Resources. Columbia (SC): 2014. [13 July 2020]. <http://dnr.sc.gov/wildlife/hog/damage.html>.

USDA, NRCS. The Plants Database. Greensboro (NC); 2020. [13 July 2020]. <http://plants.usda.gov>.

SC Forestry Commission/ArborGen

- 5 million seedlings grown for SC landowners at greatly discounted prices
- Individual orders limited to 100,000 seedlings at discounted price
- After sales cap reached, seedlings sold at normal ArborGen pricing
- Containerized longleaf; other southern pines are bareroot
- Also sell variety of hardwoods and Christmas tree species
- Price guide available at:
<https://www.state.sc.us/forest/pubs/2020seedlingpriceguide.pdf>

International Forest Company (IFCO) – Moultrie, GA

- Sales made through seedling advisors -
<https://www.ifcoseedlings.com/advisors/>
- Bareroot and containerized southern pines
- 1-800-633-4506

Weyerhaeuser – Aiken, SC

- Bareroot loblolly and slash pine
- <https://www.weyerhaeuser.com/timberlands/seedling-sales/southern-seedlings/>
- Call Katie Vann for seedling availability and pricing – 252-633-7165

Private Nurseries – South Carolina, Georgia and North Carolina

- Bareroot and containerized loblolly and longleaf
- Bareroot and potted hardwood

Table 1. Commonly available tree species sold in South Carolina.

Commonly Available Native Species	Best Growth (Soils/Sites)	General Native Range in SC
Baldcypress	Very wet soils and tolerates standing water	Coastal Zone, Coastal Plain
Black Walnut	Deep, well-drained bottomland soils; north & east slopes and in coves on upland sites	Coastal Zone, Coastal Plain, Piedmont & Blue Ridge
Chickasaw Plum	Sandy soils but tolerates heavy clays and clay-loams	Statewide except eastern Coastal Zone and Coastal Plain
Dogwood	Range of soils except extremely dry or extremely wet	Statewide
Eastern Red Cedar	Dry soils to moist, well-drained loamy soils	Western Coastal Plain, Piedmont, Blue Ridge
Oak, Cherrybark	Loamy, well-drained bottomland soils but low tolerance for saturated soils or standing water	Southern Coastal Zone and Southern Coastal Plain; northern Pee Dee River basin
Oak, Live	Moist, well-drained sandy and clay soils; tolerant to occasional flooding and drought	Coastal Zone, Coastal Plain, and Sandhills
Oak, Red	Well-drained sandy-loam and clay -loam soils on middle and lower north and east-facing slopes	Piedmont and Blue Ridge
Oak, Shumard (Swamp Red Oak)	Moist, well-drained loamy soils along streams and on river terraces; low tolerance for flooding	Minor species
Oak, Swamp Chestnut	Well-drained, silty clay and loam soils	Coastal Zone and Coastal Plain
Oak, White	Deep, moist, well-drained soils but can tolerate droughty soils and occasional saturation	Statewide
Oak, Willow	Moist, well-drained soils; in drier regions of state found in low areas along creek drains	Statewide except western Piedmont
Persimmon	Moist, well-drained soils but can tolerate droughty, poor soils	Statewide
Pine, Loblolly	Broad range of soils except in very wet or highly eroded shallow soils	Coastal Zone, Coastal Plain, Sandhills, Piedmont
Pine, Longleaf	Broad range of soils except poor drained or saturated; productive on deep sands	Coastal Zone, Coastal Plain, Sandhills, Eastern Piedmont
Pine, Shortleaf	Broad range of soils except those that are excessively drained	Statewide except northern Sandhills and northern Coastal Plain
Pine, Virginia	Well-drained clay and sandy loam soils; can tolerate poor, severely eroded sites	Piedmont & Blue Ridge
Pine, White	Range of well-drained soils, from light sand to heavy clays	Blue Ridge
Southern Crabapple	Well-drained, moist soils; in drier regions of state found in low areas along creek drains	Southern Coastal Zone and Southern Coastal Plain; Sandhills
Sycamore	Wide range of soils, including upland sites, but best growth on bottomland or riverine sites; can tolerate prolonged flooding	Statewide
Yellow Poplar (Tulip Poplar or Tulip Tree)	Well-drained, deep, moist soils; intolerant of heavy, droughty or wet soils	Southern Coastal Zone and Southern Coastal Plain; Sandhills, Piedmont, and Blue Ridge

HERBICIDE APPLICATION: LABEL IS THE LAW

By TJ Savereno

Phone calls from landowners having problems with aquatic weeds are pretty common for Extension Agents every spring, and this year has been no exception. Due possibly to the mild winter from which we just emerged, calls seemed to start earlier than normal and have been coming in steadily.

Some aquatic vegetation is beneficial to a healthy pond ecosystem. Plants attract small invertebrates that feed upon them. Predatory insect larvae and other invertebrates feed upon those insects. Little fish eat the insects and invertebrates, big fish eat the little fish, and so on. Vegetation can also provide shaded, cooler water during hot months, and some of the tangled stems provide escape cover for fish avoiding predators. However, vegetation should not cover more than about 15% of a pond's area, including below the surface. Most folks don't mind a few pond lilies around the edges of their pond, but when their fishing lures and line repeatedly get fouled by duckweed or filamentous algae, that's usually when our phones start ringing. Some calls are also from people who just don't like the looks of a pond full of plants.

While there are multiple strategies to eliminate aquatic weeds, or at least keep them manageable, one of the most popular and effective methods is the use of aquatic herbicides (herbicides labeled for use in systems where water is present). Often herbicides are an important part of an integrated pest management system, used in combination with cultural and biological control methods. One of the most important pieces of information we pass along to the public is that when using an herbicide, it is essential that the user read the entire product label and adhere to its instructions. Along with safety warnings, appropriate personal protection equipment, instructions for application, and much more information, you will find extensive descriptions of where the chemical can be used and for what purposes. If a particular use that you are interested in is not listed on the label, then it is not legal to use that chemical for that purpose. Labels carry the authority of Federal law, and penalties for misuse can be substantial. **THE LABEL IS THE LAW!**

Over the last couple of years, I have been getting more frequent questions from landowners about whether I think that a product called Karmex® DF would control the weeds

in their pond. Either they have used it before or know somebody who has used it, and "it did a real good job on their pond". The active ingredient in Karmex® DF is diuron, an herbicide commonly used in agricultural operations for control of weeds in a variety of terrestrial crops. Nowhere on the label is there information on using diuron for the control of weeds in aquatic systems. In fact, language on the label states specifically that, "Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark." Although some products containing diuron were once labeled for aquatic use, that label has since been revoked. Why is this? According to the PubChem Database of the National Center for Biotechnology Information, diuron is very toxic to aquatic life, both acutely and in the long-term (1). By choosing to apply an herbicide containing diuron, a person would not only be breaking the law, but they may also kill the fish and other aquatic invertebrates they are trying to encourage. Appropriately, there are no diuron products labeled for use in aquatic systems.

Fortunately, there are many other safe and effective herbicides available that are labeled for aquatic use. If you are unsure of the particular weed you are dealing with and/or the appropriate herbicide to use, contact your local Clemson Cooperative Extension office and ask to speak with one of our Agents. We will be glad to help! You can also find information in the Clemson Home and Garden Information Center publication, "Chemical Control of Aquatic Weeds" (2).

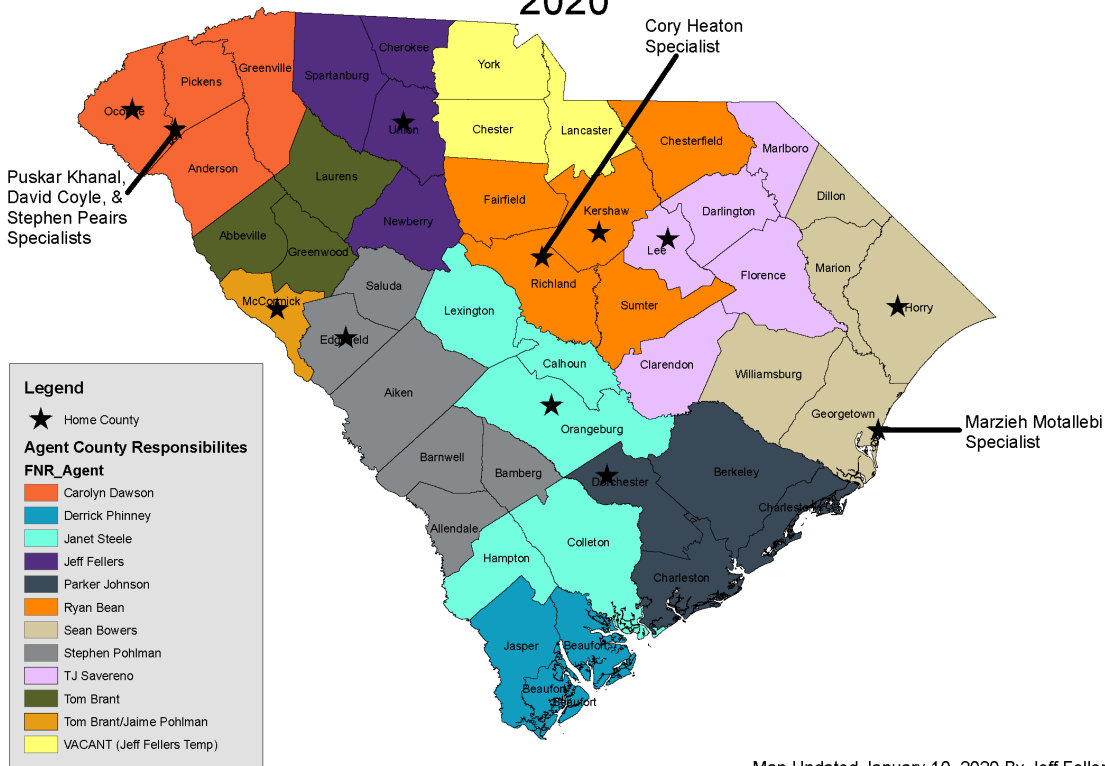
References:

1. National Center for Biotechnology Information. PubChem Database. Diuron, CID=3120, <https://pubchem.ncbi.nlm.nih.gov/compound/Diuron> (accessed on Mar. 23, 2020).
2. HGIC 1720- Chemical Control of Aquatic Weeds <https://hgic.clemson.edu/factsheet/chemical-control-of-aquatic-weeds/>
Originally published: <https://hgic.clemson.edu/herbicide-application-the-label-is-the-law/>



Figure 1. Recreational pond with blue-green algae, duckweed, and watermeal issues. Photo Credit: TJ Savereno, Clemson Extension.

Forestry & Wildlife Agent Coverage Across South Carolina 2020



Agent

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Background

Forestry, Cost Share Programs, Prescribed Fire, Soil Types
Forestry, Prescribed Fire, Herbaceous Weed Control
Forestry, Hardwood Management, Prescribed Fire
Forestry, Conservation, Forest Health, Firewise
Forestry, Geographic Information Systems
Wildlife Management
Forestry, Biomass, and Bioenergy
Natural Resource Education, 4-H
Forestry, Thinning, Hardwood Valuation, Food Plots
Wildlife Management, Native Vegetation, Invasive Species
Forestry and Wildlife, Ownership Transition, Longleaf Pine Management

Specialist

Dave Coyle
Cory Heaton
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Marzieh Motallebi
Stephen Peairs

Background

Forest Health and Invasive Species Specialist
Wildlife Management Specialist
Forest Economics Specialist
Ecological Economics and Carbon Credits Specialist
Forestry, Silviculture, and Hardwood Management Specialist

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