

## Lowcountry Lawn Care 101

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### A Caution

The first thing to understand about lawn care is that you should treat lawn problems only when there are actually problems. If you apply fungicides when there is not a fungus problem, insecticides when there is not an insect problem, and herbicides when there is not a weed problem, you are causing more harm than good. A sterile soil is an unhealthy soil that is begging for problems. The reality is that we do not want a soil to be free of insects, fungi, or random plants. It is also a reality that we cannot (and should not) ever completely eradicate these "pests." Rather we can try to manage them at levels we can live with. That said, let us continue.

### Taking a Soil Test

- a. A soil test is the single most important thing you can do in terms of taking care of your lawn or garden. As an example, if you are accustomed to lawns in other parts of the country, you are probably familiar with lime. In this area, lime is seldom needed. A soil test will provide that kind of information.
- b. If your lawn has unique sections, you will want a sample for each section. There are lots of web sites that describe the process of taking a soil test. Here is a link to the instruction leaflet at Clemson's web site: <https://hgic.clemson.edu/factsheet/soil-testing/>. A particularly useful "how to" video is available on YouTube at <https://www.youtube.com/watch?v=3YuA20kZ1EA>. Be sure to let the sample dry out before bagging it.
- c. Take the soil sample (or multiple samples), and a CHECK for \$6 for each sample payable to Clemson University to the Extension Office at 18 John Galt Circle in Beaufort. You should get your results back in 2-3 weeks.

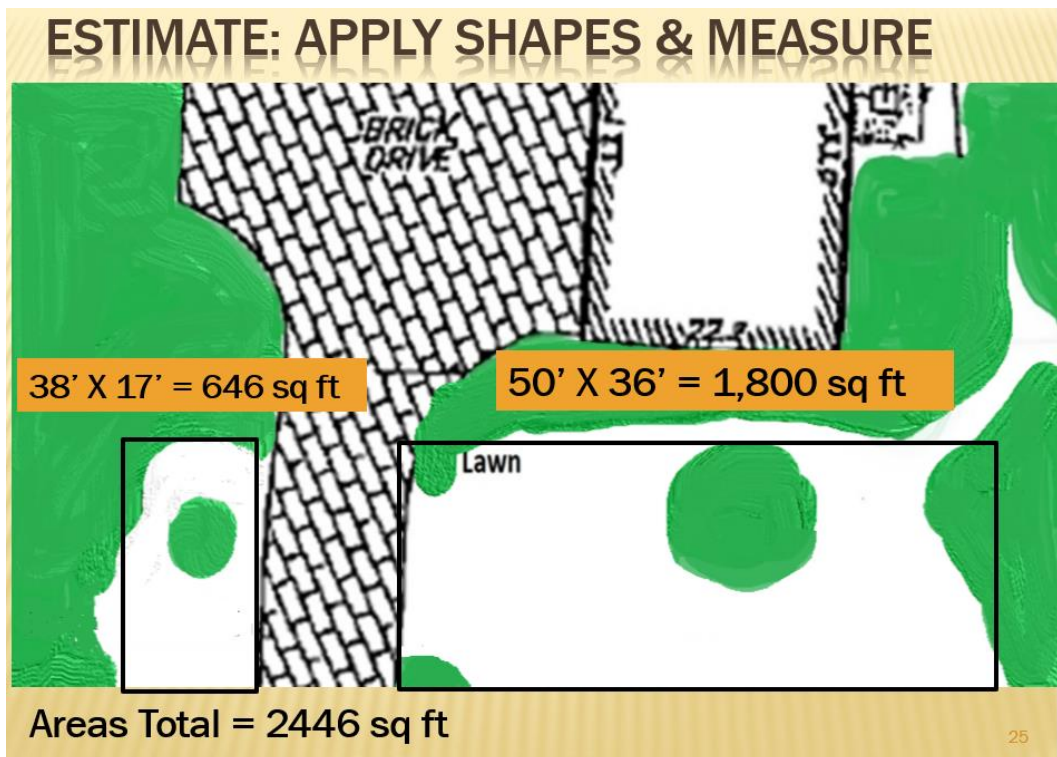
### Locating Proper Maintenance Calendar

- a. Maintenance calendars from Clemson for our warm season grasses can be found at the Home and Garden Information Center web site for the common lawn grasses grown in the Lowcountry.
- b. We recommend that you download, print, and study the appropriate document for your lawn.
  - Bermuda <https://hgic.clemson.edu/factsheet/bermudagrass-maintenance-calendar/>
  - Centipede <https://hgic.clemson.edu/factsheet/centipedegrass-maintenance-calendar/>
  - St Augustine <https://hgic.clemson.edu/factsheet/st-augustinegrass-maintenance-calendar/>
  - Zoysia <https://hgic.clemson.edu/factsheet/zoysiagrass-maintenance-calendar/>

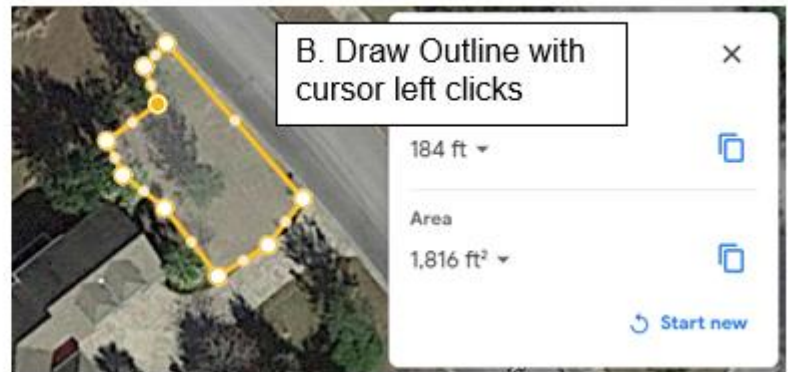
## Measuring Your Lawn Area

This might be intimidating, but it is absolutely essential for almost everything that will follow in later lawn tips. **DO NOT SKIP THIS STEP!!** If you don't know your lawn area, you cannot know how much fertilizer, herbicide, insecticide, and other chemicals you will need to apply. If you have trouble with the measurements and calculations, ask for help from a friend with math skills. Detailed instructions can be found at <https://hgic.clemson.edu/factsheet/measuring-the-area-of-a-home-lawn/>. A simplified set of directions follows:

- a. Draw a sketch of your lawn and shade out areas in shrubbery or mulch. ideally, start with a copy of the plat of your lot that you should have received when you purchased your home. If that is not available, a hand drawn sketch is OK. Shade in the mulched areas and structures such as your house and driveway. My front yard is shown in the graphic with the mulched areas colored in green so you can get an idea of what I am talking about.
- b. Divide the sketch of the lawn area into geometric shapes and measure each one in feet. For people with strong math backgrounds, use circles, triangles, and and rectangles. For less math-savvy people, lawns can be roughly approximated as a series of rectangles. Calculate the area of each rectangle in square feet (sf) using this simple formula: Area = length x width in feet. The graphic shows a hypothetical front lawn with driveway and mulched areas shown.



- c. For computer-savvy people, an even easier method is to use the ruler tool on the web version of Google Earth.
- Go to <https://earth.google.com/web/>. Search for the address of your house and go to that location.
  - Click on the ruler icon (see image A, below). A dialog box will appear to select the unit of measure you want. Select feet.
  - Use your cursor to click repeatedly around the perimeter of the yard. The last click must be on top of the first click to close the figure (see image B below).
  - In the dialog box select square feet.
  - The area in square feet appears almost instantly. You will notice that the Google Earth measurement is 1,816 sq ft for that portion on the yard compared to 1,800 sq feet for the “eyeball and tape measure” measurement shown above. That is certainly close enough and the Google Earth measurement took less than 2 minutes.
  - Repeat this procedure for each section of the yard.



- d. Regardless of how you do the measurements, add all of the areas together and divide the result by 1,000. The result is the lawn Area in thousands of square feet (tsf).
- e. Make a record of the lawn area in each section of your lawn. In the hypothetical lawn in the graphic, the area would be shown as Front Yard area = 2.5 tsf. The back yard and side yards would be measured and recorded similarly. Keep these records where they can be located next year so it will not be necessary to do the measurement again.

### **Applying Pre-Emergent Herbicides for Weed Management**

- Weed has been defined as a plant out of place. A rose growing in a bed of hostas would be considered a weed.
- How many weeds is too many? Your lawn has weeds - it always will. Accept it. If you see a weed or two in your lawn, pull them up and forget about it. It is only when the density of weeds begins to interfere with the normal functioning of the lawn grass, that more drastic weed control measures become necessary.

- c. Pre-emergent herbicide is essential for most Lowcountry lawns because we have so many annual seed-producing weeds. A very well managed zoysia lawn might make do without pre-emergent, but other warm season grasses grown here leave enough open space that weeds are inevitable. Pre-emergent herbicides prevent seeds from germinating and taking hold in the soil. They do not actually kill existing weeds.
- d. Clemson recommends applying pre-emergent herbicide around March 1 for spring weeds and again around October 1 for fall weeds. We suspect that march 1 recommendation is no longer early enough for the Lowcountry. Our warmer weather is causing an earlier beginning of annual weed germination so we suggest that you apply pre-emergent herbicide no later than mid-February. Think Valentines day.
- e. A number of pre-emergent herbicides are available. For smaller lawns, products such as Scotts Halts or Lesco 0-0-7 are suitable. Be sure not to confuse pre-emergent with "weed and feed" fertilizer products that also contain weed control. The pre-emergent herbicide application dates are completely out of sync with dates for fertilizer application. As examples, Scotts Halts does not contain fertilizer and Lesco 0-0-7 contains no nitrogen, which makes it suitable to apply any time.
- f. Most pre-emergent herbicides packages indicate something like "Covers 10,000 square feet" or "Treats 5,000 square feet." If you know your lawn area, a little simple math should tell you how much of the package you should use for your lawn for each application. In applying any lawn chemical, read the label and follow the instructions carefully.
- g. You can find detailed recommendations at <https://hgic.clemson.edu/factsheet/managing-weeds-in-warm-season-lawns/>.
- h. For those who prefer to avoid synthetic herbicides Corn gluten can be used as a pre-emergent herbicide. According to the Iowa State Extension Service, the application rate for corn gluten as a pre-emergent herbicide is 20 pounds/tsf. See <https://www.extension.iastate.edu/news/2005/mar/mar0522.htm#:~:text=Spread%20it%20evenly%20over%20the,control%20late%2Dseason%20annual%20weeds.>

## **Fertilizing Your Lawn**

People typically want to fertilize their lawns as soon as the grass starts to "green up." That is a mistake. Clemson recommends that you fertilize our warm season grasses in mid to late April. Think Tax Day.

### **Option 1, Synthetic Fertilizer**

- a. After you download and read the instructions for your lawn grass, there are two critical decisions: Selecting your fertilizer and determining how much to apply. The documents shown above and your soil test will provide the information you need to make those decisions.

- b. We offer the following simple and generic recommendations based on the Clemson factsheets previously shown:
- Bermuda. 24 lbs/tsf of 16-4-8 fertilizer in 3 equal applications of 8 lbs/tsf each in mid-April, mid-June, and late-July.
  - Centipede. 12 lbs/tsf of 15-0-15 fertilizer in 3 equal applications of 4 lbs/tsf each in mid-April, mid-June, and late-July.
  - St Augustine. 12 lbs/tsf of 16-4-8 fertilizer in 3 equal applications of 4 lbs/tsf each in mid-April, mid-June, and late-July.
  - Zoysia. 24 lbs/tsf of 16-4-8 fertilizer in 3 equal applications of 8 lbs/tsf each in mid-April, mid-June, and late-July
- c. How much do you need? Multiply the area of your lawn in of tsf by the pounds per tsf recommended above. That is how much fertilizer is needed per year. Then divide that amount into either 3 equal applications and that is how much you need to measure out for each application. If you don't want to actually weigh the fertilizer, as a rule of thumb, 1 cup of typical granular fertilizer weighs about 1 pound, so if you need 30 pounds, you can measure out 30 cups and that will be close enough.
- d. Again, it is important to note that these ARE NOT weed-and-feed products. They are actual fertilizer containing NO weed control products. We recommend against using weed and feed products.

### **Option 2, "Organic" fertilizer**

- a. Many people prefer to use organic fertilizers, such as Milorganite. Milorganite is really just a brand name for treated sludge from the Milwaukee Metropolitan Sewerage treatment system. There are other sewage treatment systems that sell similar products with about the same nutrient analysis that may be less expensive. Technically, treated sludge is not "rated" organic, for you purists, but it is made from bio-solids, so it is organic enough for use on a lawn. Milorganite is available at most garden centers and big box stores. Lesco 6-3-0 is available locally at SiteOne landscape supply at 24 Sheridan Park in Bluffton.
- b. How much is needed? The Milorganite and Lesco bio-solid fertilizers are rated at 5% to 6% nitrogen, so substitute 3.2 pounds of those for each pound of synthetic fertilizer in the previous recommendation. Once you figure out how much you need to apply per tsf, multiply that by the area of your lawn in tsf and that is how much you need to apply per year. Then divide that amount into 2 or 3 equal applications and that amount is what you should apply at each application. Weigh out the amount needed for the application and spread that evenly on your lawn.

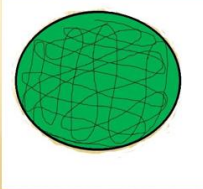

### **Regardless of Option, Applying Fertilizer**

- a. People always ask us what setting to use for their fertilizer (and other granular chemicals) spreaders. That is not really the right question. Once you determine HOW MUCH FERTILIZER to apply, the setting is not the real key.
- b. We recommend using a cyclone spreader instead of a drop spreader.

- c. Use the instructions in the graphic for applying your fertilizer. In fact, all granular lawn chemicals should be applied using the same technique.

**APPLYING DRY CHEMICALS**

- Determine Rate/tsf
- Calculate Amount Needed  
Rate X tsf
- Weigh or Measure that amount
- Pour into spreader
- Set spreader at lighter setting than needed
- Apply in criss-cross pattern until all is gone
- Stop and clean up



### **Applying Post-Emergent Herbicides for Weed Management**

- a. Typically, the pre-emergence herbicide applied in February, June, and September help but will not solve all lawn weed problems. Some annual weed seeds will get through the pre-emergent and perennial weeds are not controlled by pre-emergents.
- b. Scout your lawn regularly. Check carefully to see whether you actually have a weed problem bad enough to make an herbicide necessary. Manual weeding may be all you need for light weed problems. Try to identify the weeds your lawn has. An excellent site for lawn weed identification is located at <http://www.weedalert.com/index.php>.
- c. Decide the kind of herbicide to use. There are a number of organic herbicides on the market that claim to be effective against broadleaf weeds and safe for use in lawns. In general, we recommend use of selective herbicides that are manufactured for use in lawns. Many products are available. When used according to label instructions, these are certified safe by EPA standards. Regardless of the type of herbicide you use, the measurement, mixing, and application processes should be the same.
- d. Use spot treatments for minor problems. Selective "weed killers" that are safe for use on lawns are available at most garden centers and large box stores. You can mix a small batch of herbicide in a hand pump sprayer or purchase "ready-to-use" pre-mixed herbicide for lawns. Spray directly on the weeds to minimize the amount you apply to your lawn.
- e. Broadcast application for More Severe Problems.
- Identify the problem. READ the label to be sure the herbicide you use at least claims to be effective against your target weeds. Also be sure it is safe to use on your lawn grass. Herbicides that are effective on cool season grasses like fescue can be toxic to warm season grasses like centipede.
  - Post-emergent herbicides come in granular, liquid, or wettable powder form. We generally recommend a liquid or wettable powder post-emergent because

it is applied directly to the foliage and you can control where the spray goes to prevent unintended damage to annuals and perennials.

- For liquid post-emergents, use a separate hose attachment sprayer (see photo below) rather than the kind that comes on the "ready to apply" herbicide. This is for two reasons. First, you have to measure out the herbicide instead of relying on the manufacturer to "guess" how much you will need. Second, the built-on sprayers tend to break and increase the likelihood that you will spill herbicide.
- For wettable powder herbicides, use a hand pump sprayer because these are more accurate.
- Spray on a calm, cool day. Wind will carry the droplets onto your landscaping or onto you and either of these outcomes is bad. Applying some selective herbicides when daytime temperatures will be above 90 degrees might damage your lawn grasses.
- Read the label. Follow the directions. (Just to be clear: ACTUALLY READ THE LABEL and FOLLOW THE DIRECTIONS.). Ignoring the directions may be OK when assembling kids toys but it is not ok when using toxic chemicals.
- Now for the hard part. Calculate the amount of herbicide you need. Most post-emergent herbicides packages indicate something like "Covers 3,500 square feet" or "Treats 5,000 square feet." If you know your lawn area, a little simple math should tell you how much of the package you should use for your lawn. One common herbicide contains 32 ounces and the label says it covers 3,720 sq ft (or 3.7 tsf). Divide 32 ounces by 3.7 tsf to determine how many ounces are needed to treat one tsf. For this herbicide,  $32 \text{ oz} / 3.7 \text{ tsf}$  means 8.6 ounces are needed per tsf. Then multiply that number by the tsf in your lawn to determine how much herbicide is needed. WARNING: If you can't handle the math, get help from somebody who can. Otherwise, hire a landscape company to apply your lawn chemicals. Pesticides are serious business, even the so-called "natural" ones.
- Measure out that amount into your hose end or hand pump sprayer. Apply that amount then stop.
- Caution, when applying lawn chemicals, wear protective clothing (not shorts and sandals) while you work. We recommend wearing goggles, gloves, long sleeve shirts and pants, and enclosed leather shoes. Apply on a calm (not windy) day when the high temperature will not exceed 90 degrees F. Apply starting at one end of the lawn and back away spraying behind you.
- For more details, see <https://hgic.clemson.edu/factsheet/managing-weeds-in-warm-season-lawns/>.

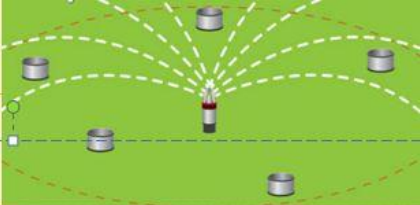


### **Irrigating your lawn**

- a. Irrigating mistakes are a very common source of lawn problems. Too much water applied at the wrong time of day can lead to fungus problems. Sporadic watering

or shallow watering can lead to shallow root systems that make the grass plants susceptible to all kinds of problems.

- b. Most people irrigate too often and too shallow. During the hottest weather, warm season grasses need about 1 inch of water per week and that includes rain. The water is needed throughout the root zone, which is about 3-4 inches deep. If you irrigate lightly for only a few minutes every day or every other day, the water does not penetrate to the bottom of the root zone. That promotes a shallow root system leaving the lawn very susceptible to drought damage if the irrigation fails for even a few days. Instead use the irrigation system only two times a week and apply a total of about 1 inch of water per week during hot weather. On a really sandy lot with little organic matter, 3 times a week is probably better.



### CALIBRATE ZONES

- + Collect 5-10 flat cans
- + Tuna cans work great
- + Place randomly in zone
- + Check time until average of 1/2 inch in cans
- + Water that long twice weekly in hot weather for total 1"
- + More often in very sandy soil, still total of 1"
- + Rain counts

- c. To gage the water output for an irrigation zone, cut the tops out of a few cans and place them around the area covered by a given zone, as shown in the graphic. Start the irrigation for that zone and check the time. Let it run until an average of 1/2 inch of water collects in the cans and check the time again. (See graphic.) That is how long that zone should be run - twice a week. Note that each zone will have its own run time. Remember rainfall counts in that total so turn off the irrigation for a few days after a good rain.
- d. If you want to be more precise, water the lawn only when it needs water. You can buy an inexpensive moisture meter (see graphic) and use that to determine when water is needed. You can also use the footprint method. Walk across the lawn and look behind you. If your footprints spring back up quickly the lawn does not need watering yet. Personally, I just set my irrigation system for twice a week and turn it off for a day or two when there is a good rain.
- e. Finally, irrigate early in the morning, before daybreak. Daytime watering is less effective because of increased evaporation in the Lowcountry heat. It also extends the time that the leaf blades are moist, encouraging fungus problems. Watering too early in the evening will cause the leaf surfaces to be moist during the cool of the night, again encouraging fungus problems. Set the irrigation system to start so that the last zone is finished shortly after dawn. You minimize evaporation and the sun will dry the leaves quickly to discourage fungus growth.





- f. One last suggestion: Even though our warm season grasses "go dormant" during the winter, the roots still need moisture. During long dry spells, even during the winter, an occasional light irrigation might be necessary to keep the lawn healthy. If the lawn appears to be getting too dry, use the moisture meter discussed earlier and if it reads "Dry," run the irrigation for a few minutes.
- g. Clemson's fact sheet on watering lawns can be located at <https://hgic.clemson.edu/factsheet/watering-lawns/>.

### **Managing Lawn Fungus Diseases**

- a. All healthy soils have a wide range of fungi growing in them and our sandy Lowcountry soils are no different. Not all soil fungi affect plants and those that do affect plants typically only become a problem when warm, moist conditions encourage fungus growth.
- b. The best advice is don't treat for fungus in your lawn if there are no signs that disease is present. If you see signs, treat right away at the curative rate and then treat at the preventive rate for the rest of the season. If your lawn had disease problems last fall, treating at the preventive rate once in early spring is probably a good idea.
- c. There are any number of good lawn fungicides available and they come in either liquid or granular form. Starting in mid-May through mid-September, we suggest that you monitor your lawn every few days for the appearance of yellowing spots or spots that appear to be dying. That can indicate fungus problems and would indicate that a fungicide treatment at the curative rate is needed.
- d. Even under a regular preventive regimen, fungus outbreaks are possible. A tell-tale sign of a breakout is yellow or brown spots appearing in the lawn and ranging from a couple of inches across to several feet across. Two photos of typical fungus damage are shown below. Keep a bottle of liquid fungicide on hand and apply it right away to any affected areas using the curative rate.



Dollar Spot



Brown Patch (Large Patch)

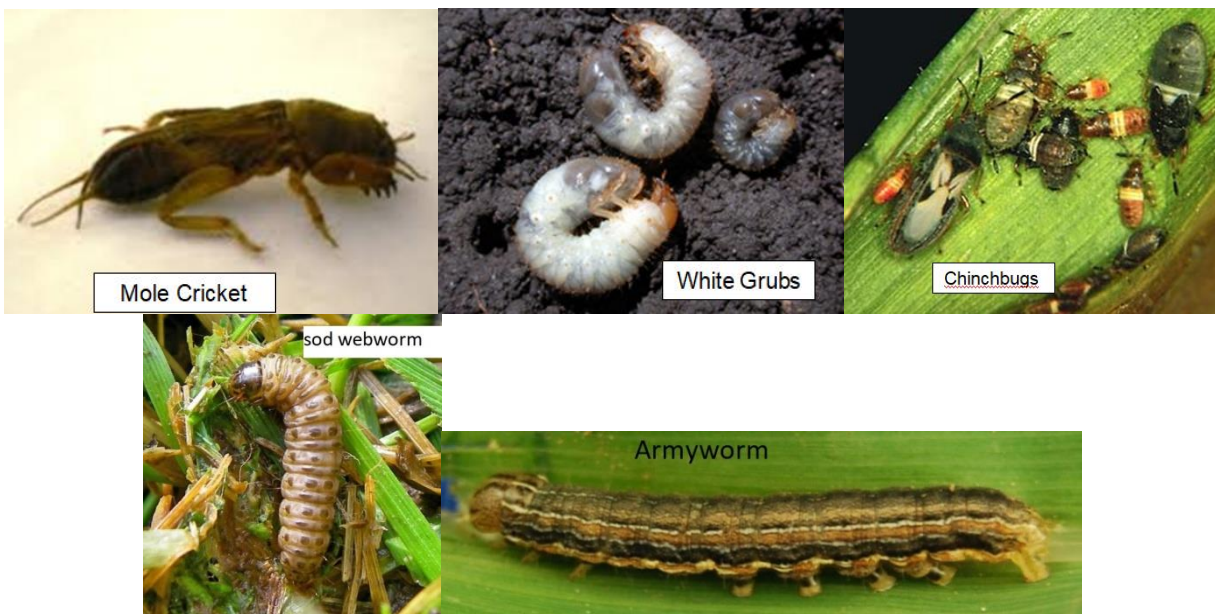
### **Mowing**

- a. Improper mowing is a very common source of lawn problems here. For those from northern areas, cool season grasses such as fescue and bluegrass are cut to 3 or more inches height. Most warm season grasses are cut considerably shorter.

- b. Mowing Heights:
- Hybrid Bermuda                     $\frac{3}{4}$ " to 1  $\frac{1}{4}$ "
  - Centipede                            1" to 2"
  - St Augustine                        2  $\frac{1}{4}$ " to 4"
  - Zoysia                                  $\frac{3}{4}$ " to 2"
  - The shorter you keep your lawn, the more often it will need to be mowed. Decide how high you want your lawn. Take a ruler and measure the height of your grass immediately after mowing. Adjust the mower height accordingly.
- c. How much to mow? Mow when the grass is 1.5 times as tall as your target height. Ex, if you want your grass 2" tall, try to mow it when it reaches 3" in height. Remove approximately 1/3 of the grass blade to get the height back down to your target height.
- d. Leave the clippings on the lawn unless thatch buildup becomes a problem. With Lowcountry lawns, this is rarely a problem because in our very hot, humid summers, the clippings usually decompose quickly. Clemson has a fact sheet on mowing lawns at <https://hgic.clemson.edu/factsheet/mowing-lawns/>.

### Managing Insects

- a. To begin, most lawn insects are actually beneficial and should be encouraged rather than exterminated. Beneficial insects improve the soil, control harmful insects, aid in pollination, and help humans in countless other ways. If you routinely apply insecticide to your lawn, you are routinely killing beneficial insects.
- b. The most common insects causing lawn problems in this area are white grubs, mole crickets, and chinch bugs, but you might also see sod webworms and army worms later in the summer, see photos below.



- c. For other lawn insects, an excellent identification website is located at;  
<https://www.insectidentification.org/>.
- d. In general, most professionals recommend not applying insecticides without first scouting your lawn to determine that you actually have an insect problem and that it is severe enough that insecticide is needed.
- e. White grubs are the larvae of a number of different beetles. They damage lawn by eating the roots of the grass plants. That kills the plants and the lawn turns brown at the damage site. To check for grubs, peel back a square foot area of the sod to a depth of 3-4 inches with a shovel and look for white grubs. If you see more than 2-3 grubs, that may be your problem. See photo on previous page. Here is a good reference:  
<http://extension.uga.edu/publications/detail.cfm?number=C940>.
- f. Mole cricket adults do little harm to the lawn. If you are getting mole cricket damage, you will see tracks with the soil disturbed and the grass dried out. If you tug on the dried grass it will come up easily. Dig a shovel full of soil up and if you don't see a lot of white grubs, your problem may be mole crickets. The adult insect is 1 to 2 inches long but you will probably never see it because it lives under the soil surface and emerges usually at night. The adults cause little damage but they lay eggs in late winter or early spring and the larvae do the real damage in the early summer. The University of Georgia Extension Service publication on mole crickets is at  
<http://extension.uga.edu/publications/detail.cfm?number=C918>.
- g. Southern chinch bugs can also be a problem in this area. Examine the dead area closely. If chinch bugs are killing the grass, you should be able to see the small insects crawling around on the leaf blades near the soil surface. Clemson's publication on chinch bugs is at <https://hgic.clemson.edu/factsheet/chinch-bugs/>. UGA also has a good reference at  
[http://entnemdept.ufl.edu/creatures/orn/turf/southern\\_chinch\\_bug.htm](http://entnemdept.ufl.edu/creatures/orn/turf/southern_chinch_bug.htm).
- h. If digging to find white grubs or examining damaged grass for chinch bugs don't tell you what you need to know, you might try a drench test to find your problem. Put 4-8 tablespoons of liquid dish detergent in 2 gallons of water in a watering can and pour it onto a 3' by 3' spot in the affected area. If there are insects present, they should be irritated by the detergent and work up to the surface so you can see them. Here is a good reference:  
<https://ipm.ucanr.edu/TOOLS/TURF/PESTS/indrench.html>.
- i. If you want to avoid chemical insecticides:
- Grubs are the larvae of a range of different beetles. Milky spore (more properly, milky disease) is a disease that is caused by the bacterium *Paenibacillus popilliae*, which is lethal to certain grubs. The bacterium occurs naturally in the soil but is not normally present at levels needed to control grubs, thus it needs to be added. The bacterium can be applied in a powder or granular form and is available at many home improvement stores and garden centers and is readily available online. The bacterium is very species specific, so it will kill some grubs but not others. In order to survive in the soil, there must be an infestation of white grubs present. If there are no grubs, the

milky spore will have nothing to feed on and will die. It may take 3-4 years to reach effective levels. See <https://content.ces.ncsu.edu/white-grubs-in-turf>.

- Bacillus thuringiensis, also a soil borne bacterium and better known as Bt, is effective against many soil insects. I have used Bt to help control grubs in the past and I think it helped. A very informative and authoritative source on Bt is provided by Cornell University at <https://biocontrol.entomology.cornell.edu/pathogens/bacillus.php>.
- If I were going to try a biological control, I would inoculate my lawn with both organisms but still expect no results for a few years
- Both milky spore and Bt will survive for years in the soil. Once established the bacteria should provide some control for decades.
- For a safe insecticide that works on some insects, mix 1.5 ounces of dish detergent like Dawn with a gallon of water and spray directly on the insects. The detergent apparently suffocates the insects.
- For an organic insecticide that also kills on contact, mix 1.5 ounces of orange essential oil and 1 ounce of dish detergent (like Dawn) in 1 gallon of water and apply with a pump sprayer. The orange oil is actually toxic to insects. Orange oil is hard to find locally, but I found it online fairly easily. Amazon has a 32-ounce cold pressed orange oil for \$30.
- Clemson has an excellent factsheet on less toxic insecticides at <https://hgic.clemson.edu/factsheet/less-toxic-insecticides/>.