

## St. Augustinegrass for Florida Lawns<sup>1</sup>

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St. Augustinegrass (*Stenotaphrum secundatum* [Walt.] Kuntze.), is widely adapted to the warm, humid (subtropical) regions of the world. It is believed to be native to the coastal regions of both the Gulf of Mexico and the Mediterranean. In Florida, St. Augustinegrass is the most commonly used lawngrass throughout the state. It can grow satisfactorily in a wide variety of soils.



Figure 1. St. Augustinegrass.

### Advantages

St. Augustinegrass produces a green to blue-green dense turf that is well adapted to most soils and climatic regions in Florida. It has relatively good salt tolerance and certain cultivars possess good shade tolerance. Establishment of St. Augustinegrass from sod is quick and easy. There are several cultivars commercially available.

### Disadvantages

St. Augustinegrass, like most turfgrasses, has certain cultural and pest problems. It does not remain green during drought conditions without supplemental irrigation. It produces thatch under high fertilization and irrigation regimes. It has poor wear tolerance and will generally not stay green throughout the winter months in many parts of the state. The coarse leaf texture of most cultivars is objectionable to some people. The major insect pest of St. Augustinegrass is the chinch bug, and there are currently no chinch bug resistant cultivars available. Grubs can also be a major insect pest. Some cultivars are also susceptible to diseases such as gray leaf spot, brown patch, take-all patch, and root rot. Additionally, there are no herbicides available to control hard-to-kill grass-type weeds that may become established in the turf.

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## Cultivars

There are several cultivars of St. Augustinegrass available for lawn use in Florida. The different cultivars vary in their tolerances to environmental stresses and susceptibility to pests. Table 1 lists some relative growth characteristics for currently available cultivars.

### 'Amerishade'

'Amerishade' is a true "dwarf" cultivar of St. Augustinegrass, with a very slow and prostrate growth habit and a lower mowing height (1.5 to 2 inches) than standard cultivars. Its mowing frequency is less than those of most other St. Augustinegrass cultivars, with research showing that it can go for just over two weeks even in the summer months before needing mowing. Like the other dwarfs, it has an increased tendency to produce thatch and is very susceptible to disease. It does not perform well in the northern parts of the state and can experience winterkill during cold years. Due to its slow growth habit, it also has greater difficulty recovering from damage or injury in comparison to other St. Augustinegrass cultivars. It maintains a deep green color and has good shade tolerance.



Figure 2. 'Amerishade' is a slow-growing "dwarf" cultivar.

### 'Bitterblue'

'Bitterblue' is a variety that was selected in the 1930s. Although 'Bitterblue' is marketed as a certified cultivar, there is no certified 'Bitterblue' germplasm maintained by turfgrass breeders at this time. What is typically sold as 'Bitterblue' has a fine, dense texture and dark blue-green color. It has good

cold and shade tolerance, but is not resistant to chinch bugs or gray leaf spot disease. It is also susceptible to the herbicide atrazine, making weed control difficult. It is what is referred to as a "standard" cultivar, with a mowing height of 3.5 to 4 inches.

### 'Classic'

'Classic' is a proprietary cultivar released in the early 2000s by Woerner Turf. It has good cold tolerance and is being used in north Florida and other states. The grower claims it has good shade tolerance, but this has not yet been verified by university research and there is no evidence that it is superior to other cultivars. It is a "standard" cultivar and should be mowed at 3.5 to 4 inches. It has a dark green color.

### 'Delmar'

'Delmar' is a dwarf cultivar that is often sold as sod or plugs. It has good shade tolerance and also does well in full sun. It has short internodes, a dark green color, and good cold tolerance. It should be mowed at 1.5 to 2.5 inches. 'Delmar' is susceptible to chinch bugs, sod webworms, and brown patch disease. Like the other dwarfs, it has a tendency to become thatchy.

### 'DeltaShade'

'DeltaShade' is a proprietary release from Environmental Turf in 2005 and is currently in production in sod fields. It is a "standard" cultivar and should be mowed at 3.5 to 4 inches. University research shows that 'DeltaShade' has good shade tolerance, but not as good as the dwarf varieties. It appears to have good cold tolerance, although no university studies have been done to verify this. In some landscapes, it tends to have a lighter green color than some cultivars.

### 'Floralawn'

This cultivar was released in 1986 by the Florida Agricultural Experiment Station. It has poor shade and cold tolerance and has a coarse leaf texture. 'Floralawn' performs best in mild environments in full sun to moderate shade. It is not widely grown or used but is one of three cultivars currently available as a certified variety.



**Figure 3.** 'Deltashade' (left) and 'Florataam' (right) growing in pots in the greenhouse.

### 'Florataam'

'Florataam' is an improved St. Augustinegrass that was released jointly in 1973 by the University of Florida and Texas A & M. 'Florataam' is the most widely produced and used St. Augustinegrass in Florida. It is a coarse-textured cultivar that has poor cold and shade tolerance relative to other St. Augustinegrass cultivars. It will not persist well in environments that receive less than 6 hours of sunlight daily. It grows vigorously in warm weather, but has a relatively long period of dormancy in north Florida and greens up more slowly in the spring than some cultivars. When first released, it had UF-documented chinch bug resistance, although that has largely been lost over time and chinch bugs are now a major pest of 'Florataam'. It is also susceptible to gray leaf spot and other diseases. 'Florataam' is intolerant of atrazine herbicides when temperatures are above 85°F. It is a "standard" cultivar and should be mowed at 3.5 to 4 inches. 'Florataam' is available as a certified cultivar.



**Figure 4.** 'Florataam' in the landscape. This is the most commonly used lawngrass in Florida.

### 'Floratine'

This is an improved selection that was released in 1962 by the Florida Agricultural Experiment Station. It has a finer leaf texture and a denser and shorter growth habit that allows closer mowing than other standard St. Augustinegrass cultivars. It is not resistant to chinch bugs but tolerates light to moderate shade. 'Floratine' is similar to 'Bitterblue' in many characteristics and the two are difficult to distinguish.

### 'Palmetto'

'Palmetto' was a selection found by a Florida sod grower in 1988 and was released in the mid 1990s by Sod Solutions. It is of intermediate growth, with shorter leaf blades and internodes than many other cultivars, but is slightly larger than the dwarf St. Augustinegrass cultivars such as 'Seville' and 'Delmar'. It has a nice growth habit and does well in full sun or partial shade, but not in dense shade. It is sometimes referred to as drought-tolerant, but research has not shown that it has any greater degree of drought tolerance than other St. Augustinegrasses. It often has problems with disease, particularly in Florida's humid environment. It tends to have a lighter green color than many other cultivars.

### 'Raleigh'

'Raleigh' is a cold-hardy cultivar released by North Carolina State University in 1980. It has a medium green color with a coarse texture. It is susceptible to chinch bugs and brown patch disease, but can be planted in northern Florida due to its tolerance to lower temperatures. During peak summertime heat, 'Raleigh' has been noted to yellow and to grow less aggressively than it does at cooler temperatures. Supplemental iron applications can reduce this yellowing tendency. 'Raleigh' is best adapted to the heavier, organic, clayey soils with medium to low soil pH in north and northwest Florida.

### 'Seville'

'Seville' is a dwarf, fine-leaved variety with a dark green color and a low growth habit. It is susceptible to chinch bug and webworm damage. Like the other dwarf cultivars, 'Seville' tends to be



thatch-prone. 'Seville' performs well in both shade and full sun, but is cold-sensitive. 'Seville' should be mowed at 2 to 2.5 inches. It is not as common as 'Delmar', but is also a good choice for shady sites.

### Other Varieties

Several other lesser-known and available St. Augustinegrass varieties have been released. These include 'Mercedes' and others. Research performed on these varieties has been limited, and generally they have not proven superior to older varieties that are currently available.

### Maintenance of St. Augustinegrass

Proper lawn maintenance practices are the best means for avoiding pest problems and obtaining a high-quality lawn. St. Augustinegrass will require inputs of fertilizer to maintain a nice green color and healthy growth characteristics. During certain times of the year, it may require irrigation, however, this may not be the case year round. Pesticides may be needed periodically, but their use can be minimized if other cultural practices (mowing, irrigation, fertilization) are done correctly.

### Establishment

Although St. Augustinegrass can be planted year-round in warmer sections of Florida, the best time to plant is when environmental conditions allow for rapid establishment. Allowing the grass to establish and develop a deep root system before it experiences temperature extremes will help it establish more quickly and with less water. In south Florida, the optimal time for establishment is during late fall, winter, or spring. In central and north Florida, avoid establishment during cold winter or hot summer months.

It is important to provide frequent irrigation when grass is establishing. Multiple, short irrigations throughout the course of the day for 7 to 10 days following planting will help the grass establish. After the roots have pegged down, cut back frequency to once a day and increase the time to 1/4 to 1/2 inch for another 7 days. After this, reduce frequency to 2 to 3 times weekly, again applying 1/4 to 1/2 inch of water. Three to 4 weeks after sodding, the grass should be

fully established and irrigation can begin on an "as-needed" basis. For more information on this, see ENH 860 "Irrigation and Fertilization Requirements of Lawns and Landscapes."

Do not mow the lawn until the roots have had a chance to peg down into the soil, generally about 10 to 14 days after planting. Pegging means that the sod cannot be lifted without appreciable force. For more information on preparing the site and establishment, refer to ENH03 "Establishing Your Florida Lawn."

St. Augustinegrass is established by vegetative propagation such as sod, plugs, or sprigs. Vegetative propagation means that instead of seeds, plant parts with growing points are used for planting. St. Augustinegrass has stolons (above-ground stems) that have areas of actively dividing cells at the nodes. These areas are capable of generating new shoot growth and are responsible for lateral growth of St. Augustinegrass along the ground.

### Sodding

Sodding is the instant method of establishment because it will produce an instant lawn. Although covered, the grass is still perishable at this stage. It is not yet safe for play or other activities and still needs to knit-in and root into the soil. Sodding reduces potential weed competition that is observed when using other planting methods that leave bare ground. Sod should be laid over bare moist soil with pieces laid in a staggered bricklike pattern and the edges fitted tightly together to avoid any open cracks. Rolling and watering thoroughly will ensure good contact with the soil for fast rooting.



**Figure 5.** Sodding produces an instant lawn.

## Sprigging

Sprigging is less expensive than sodding, but does not produce an instant lawn as does sodding. Sprigs contain nodes on stolons, which are planted end-to-end in furrows 6 to 12 inches apart. Stolons should be covered with soil, but leaf blades should be left exposed. The soil should be tamped and thoroughly saturated. Soil needs to be kept moist until growth of shoots and roots begins.

## Plugging

A number of St. Augustinegrass cultivars are available commercially in garden centers as plugs. Sod also can be made into plugs by cutting it into small squares. Spacing of plugs varies from 6 to 24 inches. The closer spacing provides full coverage more quickly. Plugs are placed in holes of the same size or in open furrows and tamped into place. A thorough watering completes the installation. The turf should then be cared for like a sprigged lawn.

## Fertility

Proper fertilization of any lawngrass is an important component of the best management practices for your home lawn. Fertilization and other cultural practices influence the overall health of your lawn and can reduce or increase its vulnerability to numerous stresses, including weeds, insects, and disease. If you apply your own fertilizer to your lawn, please note that any fertilizer that is over-applied or does not get to the target has the potential to move as either leachate through the soil or as runoff on top of the soil. When this happens, nonpoint source pollution can result and this can have a direct effect on surface and ground water quality. Refer to ENH979 “Homeowner Best Management Practices for the Home Lawn” for more information on how to properly apply fertilizer.

Maintaining a good-quality lawn requires a properly planned fertility program. An acceptable-quality St. Augustinegrass lawn can be grown with a low to high level of fertility, depending on what the homeowner wants. First, decide how much time and effort can be spent on lawn maintenance. A lower-fertility lawn is best for those with little time to spend on lawn care. A high-fertility lawn may be

better suited to those who desire a manicured appearance for their yard. This type of maintenance will require more time and money for lawn care.

In general, two weeks following spring regrowth, apply a fertilizer at the rate of 1/2 (water-soluble) to 1 (slow-release) pound of nitrogen per 1000 square feet. Homeowners applying their own fertilizer should look for a fertilizer with at least some of the nitrogen in slow-release form. Nitrogen is the first number on the bag and you will find a wide range of variation in percentage of nitrogen among commercial fertilizers. What fertilizer you choose is up to you, but read the label to learn as much as possible about the nutrients in your fertilizer. Lower N analysis fertilizers mean that more material must be applied to provide the rate of N suggested above to the 1000 sq. ft area and may aid some people in distributing the material uniformly. Look at the label on the bag for a breakdown of nutrient sources and what percent is in slow release vs. quick release (also called water soluble) nitrogen. Also watch for low phosphorus (second number on the bag). Many Florida soils are high in plant-available phosphorus and your lawn may not require any additional phosphorus in the form of fertilizer. Look for a fertilizer with 0, 1, or 2% phosphorus unless you have done a soil test indicating that your lawn needs additional phosphorus. The third number on the bag is potassium. This may be present in levels equal to or less than nitrogen. Examples of good analyses for a turf fertilizer include 15-0-15, 15-2-15, etc.

GUARANTEED ANALYSIS	
<b>15-0-15</b>	
<b>Tallahassee Nursery</b>	
I.D. #: 16-354-02	PROD #: 9/77
TOTAL NITROGEN (N) .....	15.00%*
2.56% Ammoniacal Nitrogen	
1.38% Nitrate Nitrogen	
3.56% Urea Nitrogen	
7.50% Water Insoluble Nitrogen	
SOLUBLE POTASH (K <sub>2</sub> O) .....	15.00%
CALCIUM (Ca) .....	7.50%
TOTAL MAGNESIUM (Mg) .....	1.00%
1.00% Water Soluble Magnesium (Mg)	
SULFUR (S) .....	3.20%
3.20% Combined Sulfur (S)	
IRON (Fe) .....	0.12%

**Figure 6.** A fertilizer label tells you sources of nutrients and what percent of the nitrogen is in quick vs. slow release form.

It is important that any fertilizer be applied to supply the correct amount of nitrogen. Table 1 provides a breakdown of how much of many commonly available fertilizers should be applied to provide 1/2 lb. of N per 1,000 square feet. For more information on fertilizer, refer to ENH 962, "Figuring out Fertilizer for the Home Lawn."

University of Florida guidelines for lawngrass fertility show a range of fertilizer rates over which a particular species may be successfully grown for various areas of the state. These ranges are included to account for individual homeowner preferences for low-, medium-, or high-input grass. Additionally, localized microclimatic effects can have a tremendous effect on turfgrass growth, and a range of rates allows for these environmental variations. An example of this would be a typical home lawn that is partially shaded and partially sunny. The grass growing in the shade should receive lower rates of fertilizer than that growing in full sun. The guidelines are also separated into three geographical locations statewide as indicated in the table below. All rates are in pounds of nitrogen per 1000 square feet.

Fertilizer should be applied to St. Augustinegrass in 2 to 6 applications from spring green-up through fall. Do not apply nitrogen too early in the growing season, particularly in north Florida, or late-season frosts may damage the grass. Likewise, don't fertilize too late in the year because this can slow regrowth the following spring. If you use water-soluble forms at the lower application rate, it will take more applications to apply the total amount of fertilizer needed for the year than if you use a slow-release fertilizer form.

It is advisable for homeowners to have soil tests done annually. Your local cooperative extension service office has instructions and supplies for taking soil samples and submitting them to the Extension Soil Testing Laboratory for analysis. In particular, phosphorus levels are best determined by soil testing. Since many Florida soils are high in phosphorus, little or no phosphorus may be needed for satisfactory lawn growth.

On high-pH (>7.0) soils or where high-pH water is applied, yellow leaf blades may be an indication of iron or manganese deficiency. For iron deficiency,

spray ferrous sulfate (2 ounces in 3 to 5 gallons of water per 1000 square feet) or a chelated iron source (refer to the label for rates) to temporarily enhance color. Iron applications every 6 weeks will help maintain green color and, unlike nitrogen, will not promote excessive top growth. On high-pH soils (>7.0) or where high-pH (>7.0) water is applied, manganese deficiency may also become evident. Lower the soil pH by applying 15 pounds of elemental sulfur per 1000 square feet prior to grass establishment. Once the grass is established, up to 5 pounds of elemental sulfur may be added per 1000 square feet, if it is immediately irrigated into the soil to prevent burn. Using ammonium nitrate or sulfate as a fertilizer source will also help to temporarily reduce soil pH. Apply manganese as a fertilizer with micronutrients or as straight manganese sulfate ( $\text{MnSO}_4$ ) bimonthly at 0.41 pound per 1000 square feet (18 pounds per acre) to relieve deficiency symptoms, if present.

### Mowing

Proper mowing practices are necessary to keep any lawn healthy and attractive. Standard St. Augustinegrass cultivars ('BitterBlue', 'Classic', 'Floritam', 'Floratine', 'Palmetto', etc.) should be maintained at a height of 3.5 to 4 inches. Repetitively mowing at lower heights reduces overall stress tolerance of the lawn, discourages deep rooting, increases the chance for scalping if a mowing event is missed or postponed due to weather, and may increase susceptibility to pest problems. To obtain the correct height with most home rotary lawn mowers, use the highest wheel height setting. Maintaining the right height will help the grass develop a deep root system and give a better appearance to the turf. No more than a third of the leaf blades should be removed with any mowing. If possible, increase mowing height during periods of moisture stress or if the grass is growing in shade. Newer semidwarf varieties have a lower growth habit, and should be mowed at 2 to 2.5 inches for optimum quality. Mowing too infrequently and watering improperly can cause a thatch buildup.

A rotary mower can be used on St. Augustinegrass. It is important to keep the blades sharp and well-adjusted to get a clean cut. Dull blades





**Figure 7.** "Scalping" or mowing grass too short can injure your lawn. Always mow at the highest recommended height for your cultivar and species.

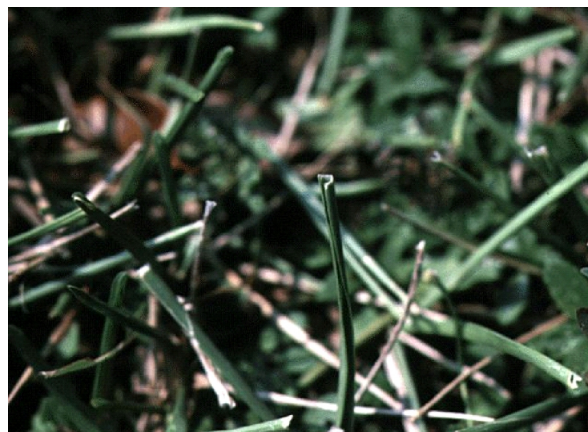
will give the lawn a brownish cast, because a ragged cut shreds the leaf blades rather than cutting them. During the growing season, blades should be sharpened monthly. St. Augustinegrass will require mowing weekly during the growing season and less often during cooler months of the year. In north Florida, mowing may not be required during winter months.

Grass clippings should be left on a lawn that is mowed at the proper height and frequency. Under these conditions, clippings do not contribute to the thatch layer. Clippings put nutrients back into the soil system and may reduce turf fertilization requirements by up to 25%. If clippings are excessive (e.g., clumping occurs), let them dry out and then disperse them over the lawn.

### Watering

The best way to irrigate an established lawn is on an as-needed basis. Grass blades will begin to wilt (e.g., fold, turn bluish-green in color, and not recover from traffic or footprints) as the moisture begins to be depleted in the soil. If the lawn shows signs of slight wilting, it is time to irrigate with 1/2 to 3/4 inch of water. Do not water again until the lawn shows signs of wilting. The amount of water applied should not vary, but the frequency with which your lawn needs water can vary due to season, soil type, grass species, temperature, etc. For further information on recommended watering practices, refer to ENH9 "Watering Your Florida Lawn" and ENH63, "Let Your Lawn Tell You When to Water."

Proper watering practices will help maintain a lawn that requires less mowing and has little thatch buildup. Proper watering will also help develop a deep root system and make the lawn less susceptible to damage by pests and environmental stresses. If the diseases brown patch or gray leaf spot are a continuous problem, excessive watering and nitrogen fertilization may be responsible. Certain weeds, such as dollarweed and sedges, also thrive in soils that are continuously wet.



**Figure 8.** Let your lawn tell you when to water. Look for folded leaf blades as seen here.

### Pest Problems

Other factors can also decrease the quality of a lawn. Excessive shade, compacted soils, overwatering, improper mowing, traffic, and high or low pH can all cause a lawn to perform poorly. It is important to recognize what the source of the problem is and to correct it if possible. For more information on these types of stresses, refer to ENH153, "Environmental Stresses and Your Florida Lawn."

### Weeds

The best approach to weed control is a healthy, vigorous lawn. Weed problems in a lawn indicate that the turf has been weakened by improper management practices or damage from pests. Proper management practices can eliminate most weed problems. If weeds are a persistent problem, herbicides labeled specifically for St. Augustinegrass should be used. If an herbicide is needed, apply preemergence herbicides (i.e., pendimethalin, benefin, bensulide, atrazine, or others) to control crabgrass if it was

present in previous years. Timing is critical for successful control. As a general rule, apply Feb. 1 in south Florida, Feb. 15 in central Florida, and March 1 in north Florida. *Note: Preemergence herbicides will not control weeds that are actively growing.*

Apply postemergence herbicides (e.g., atrazine) as needed for control of summer annual and perennial broadleaf or grassy weeds. Do not apply these materials if the turf is under moisture stress or if air temperatures exceed 85°F. Check with your local county cooperative extension office for positive weed identification and latest recommendations.

Many commercial “weed-n-feed” formulations will provide control, but they should be used with caution because certain plant materials may not be tolerant. These herbicides can damage landscape plants whose roots may extend far under the lawn. Carefully read the label before use and follow all label directions. Refer to ENH884, “Weed Management in Home Lawns” for more information.

## Insects

The major pest of St. Augustinegrass is the chinch bug. These are foliar-feeding insects that suck plant juices through a needlelike beak, causing yellowish to brownish patches in turf. Injured areas are usually first noticed as the weather begins to warm, in areas along sidewalks, adjacent to buildings, and in other water-stressed areas where the grass is in full sun.



**Figure 9.** Chinch Bug Damage. Credits: Eileen Buss, UF/IFAS

Check for chinch bugs by removing the ends of a coffee can, inserting one end into the soil at the

margin of suspected damaged areas, and filling with water. Chinch bugs will float to the water surface within five minutes. In areas where chinch bugs are a serious problem, a single, thorough insecticide treatment may offer only temporary control. Therefore, repeat applications may be required. Some populations of this insect have become resistant to synthetic pyrethroid insecticides.



**Figure 10.** Adult chinch bugs. Credits: James Castner, UF/IFAS

Other insect pests, including webworms, armyworms, grass loopers and mole crickets can damage St. Augustinegrass. Mole crickets damage turfgrass areas primarily by creating tunnels or soft mounds while searching for food. Additional damage may result from small animals digging through the soil profile in search of the mole crickets as food. Check for mole crickets by (1) examining an area for the tunnels, or (2) applying 2 gallons of water mixed with 1 1/2 ounces of detergent soap per 2 square feet in suspected damaged areas. Mole crickets will surface in several minutes.

White grubs are another pest of St. Augustinegrass. These can be found by lifting the grass to a depth of about two inches. Grubs will be seen feeding on the roots at this level. For more information on insect control, refer to ENY300, “Insect Pest Management on Turfgrass.”

## Diseases

Brown patch and gray leaf spot are two major disease problems of St. Augustinegrass. Brown patch occurs in warm, humid weather and is encouraged by excessive nitrogen. Brown patch is generally most noticeable during spring and fall months. Gray leaf spot occurs during the summer rainy season and is





**Figure 11.** Brown Patch symptoms on St. Augustinegrass. Credits: Phil Harmon, UF/IFAS

primarily a problem on new growth. Both diseases can be controlled with fungicides.



**Figure 12.** Grey Leaf Spot symptoms on St. Augustinegrass. Credits: Phil Harmon, UF/IFAS

Other St. Augustinegrass disease problems originate in the root system. Take-all root rot (*Gaeumannomyces graminis* var. *graminis*) occurs under high moisture or stress conditions. When symptoms are noticeable aboveground, the disease is usually in an advanced state. Following proper cultural practices is the best defense against this disease. Refer to SS-PLP-14, “Turfgrass Disease Management” for more information.

### Nematodes

Several types of nematodes infest St. Augustinegrass lawns. Population peaks of nematodes typically occur in late April to early May and again in late August to early September. Damage symptoms include thin stand density, less vigorous growth, a weakened root system, slow recovery

following rain or irrigation application, and certain weed invasions (e.g., prostrate spurge and Florida pusley). Soil nematode levels can only be positively identified through laboratory procedures. Your local county Extension service office can provide information on submitting soil samples to the University of Florida Nematode Assay Laboratory. There are currently no effective nematode controls for use in the home lawn. Cultural controls include encouraging deep turfgrass rooting by raising the mowing height, irrigating less frequently but more deeply, and providing ample soil potassium. For more information on nematodes, refer to ENY006, “Nematode Management in Residential Lawns.”



**Figure 13.** Signs of nematode damage in St. Augustinegrass. Credits: William Crow

### Other Problems

Many other factors can decrease the quality of a lawn. To ensure a good St. Augustinegrass lawn, refer to other sections of this publication for recommended management practices, and follow label directions when applying fertilizers and pesticides.

### Thatch Removal

Thatch is the layer of undecomposed leaf blades, stolons, roots, and crowns intermingled with soil. Leaving mowing clippings on the lawn does not cause thatch because clippings are readily broken down by microbes in the soil. Thatch development is greatest in grass that is overfertilized, overwatered, and improperly mowed. An excessive thatch layer will reduce water penetration and can bind up fertilizer or pesticides. In severe cases, you may see roots actually growing above ground and rooting into the thatch layer. This is a very unhealthy condition and leaves a lawn vulnerable to many stresses.



**Figure 14.** Thatch layers can develop in St. Augustinegrass, especially when fertilization or irrigation rates are high.

If the thatch layer exceeds 1 inch, remove by vertical mowing, or “verticutting” in early spring to mid summer. Verticutting uses vertical blades that slice through the thatch and slightly into the soil, which results in much of the dead material being removed to the top of the lawn. A 3-inch spacing between the de-thatching blades is best for St. Augustinegrass. *Caution: Vertical mowing may result in damaged turf that will require a period of recuperation. Do not attempt vertical mowing unless the grass is actively growing. Verticut in an east to west or north to south pattern but not in all four directions. A professional landscaping maintenance service or the local county cooperative extension service office should be consulted before attempting lawn renovation.* Remove debris by raking, sweeping, or vacuuming, and follow with a conventional mowing to improve turf appearance. Immediately irrigate to prevent root zone dehydration. One week after vertical mowing, apply 1/2 pound of soluble nitrogen per 1000 square feet to encourage recovery. This material must be watered into the soil immediately following application to prevent plant burn. Periodic topdressing (adding a uniform layer of soil on top of the grass) with 1/4 inch of soil similar to that underlying the turf is the best method to alleviate thatch accumulation; however, the physical labor required limits the practicality of this method for most homeowners. If topdressing, be sure to use soil that is free of weed seeds and nematodes. Do not exceed recommended topdressing rates, as this encourages brown patch disease.

## Renovation

Replant large, bare areas by broadcasting sprigs (1 bushel per 1000 square feet), by planting 2-inch plugs every 12 inches, or by sodding. Keep these areas continuously moist with light, frequent irrigations several times daily until runners develop or sod is well-rooted. Over time, gradually reduce irrigation frequency but increase irrigation duration to apply 1/2 to 3/4 inch of water. Refer to ENH03 “Establishing Your Florida Lawn” for more information.

**Table 1.** Relative growth characteristics for St. Augustinegrass cultivars

Cultivars	Mowing Ht. (in)	Cold Tolerance	Shade Tolerance	Chinch Bug Resistance	Green Color	Texture	Density
Normal Growth Habit							
Common/Roselawn	3-4	poor	poor	poor	light	coarse	poor
Bitterblue	3-4	good	very good	slight	dark	coarse	good
Floratine	2-3	fair	good	slight	dark	fine	good
Floritam	3-4	poor	fair	good*	dark	coarse	good
Floralawn	3-4	poor	poor	good*	dark	very coarse	good
FX-10	3-4	poor	poor	good	medium	coarse	good
Raleigh	3-4	very good	good	poor	medium	coarse	good
Semi-Dwarf Growth Habit							
Delmar	1- 2	very good	good	poor	dark	fine	good
Jade	1- 2	good	good	poor	dark	very fine	good
Palmetto	3-4				dark	coarse	good
Seville	2-2	good	very good	slight	dark	fine	good
*Isolated evidence of a new chinch bug has been reported, which can feed on these cultivars.							

**Table 2.** Recommended Fertility Rates for St. Augustinegrass throughout Florida

Location <sup>1</sup>	N Fertility Guideline
North Florida	2-4
Central Florida	2-5
South Florida	4-6
<sup>1</sup> North Florida in this example is considered to be anything north of Ocala. Central Florida is defined as anything south of Ocala to a line extending from Vero Beach to Tampa. South Florida includes the remaining southern portion of the state.	



**Table 3.** Calendar Guide to Annual St. Augustinegrass Fertilization<sup>2,3</sup>

Maintenance Level	January	February	March	April	May	June	July	August	September	October	November
<b>North Florida</b>											
Basic			C			Fe			C		
Moderate			C		SRN		Fe		C		
High			C		SRN	Fe	SRN		C		
<b>Central Florida</b>											
Basic			C				Fe		C		
Moderate			C		SRN		Fe	SRN		C	
High		C		N	SRN		Fe	SRN		C	
<b>South Florida</b>											
Basic			C		SRN		SRN			C	
Moderate		C		N		SRN		SRN			C
High		C		N	SRN		SRN		SRN		C

<sup>2</sup>For initial spring application, particularly in north Florida, the recommended time to fertilize is after the last frost rather than on a specific calendar date.

<sup>3</sup>C=complete fertilizer application (NPK); N=nitrogen application only; SRN=nitrogen only in a slow-release form; Fe=iron application only.