

Maintenance of St. Augustinegrass

Proper lawn maintenance practices are the best means for avoiding pest problems and obtaining a high-quality lawn. St. Augustine grass 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.

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, non-point source pollution can result and this can have a direct effect on surface and ground water quality. Maintaining a good-quality lawn requires a properly planned fertility program. An acceptable-quality St. Augustine grass 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 $\frac{1}{2}$ (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.

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 $\frac{1}{2}$ lb. of N per 1,000 square feet. 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. 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 (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. Augustine grass cultivars ('BitterBlue', 'Classic', 'Floratom', '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 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 $\frac{1}{2}$ to $\frac{3}{4}$ 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. 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.

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.

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. 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.

Other insect pests, including webworms, armyworms, grass loopers and mole crickets can damage St. Augustine grass. 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 1½ 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. Augustine grass. 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.

Diseases

[Brown patch](#) and [gray leaf spot](#) are two major disease problems of St. Augustine grass. 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 primarily a problem on new growth. Both diseases can be controlled with fungicides. 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.

Nematodes

Several types of nematodes infest St. Augustine grass 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.

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 over-fertilized, over-watered, 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. 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. Augustine grass. *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 ¼ 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.

Location	North Florida Fertility Guideline										
North Florida	2-4 Fertilizer Applications Per Year										
Maintenance Level	January	February	March	April	May	June	July	August	September	October	November
Basic			C			Fe			C		
Moderate			C		SRN		Fe		C		
High			C		SRN	Fe	SRN		C		

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

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