

St. Augustinegrass Lawns

St. Augustinegrass (*Stenotaphrum secundatum*), which is sometimes referred to as Charlestongrass, is a coarse-textured, warm-season turfgrass that is adapted to warm, humid regions (subtropical). This turfgrass is believed to be native to the coastal regions of the Gulf of Mexico and the Mediterranean. St. Augustinegrass spreads laterally across the soil surface by aboveground stems called stolons.

Advantages of St. Augustinegrass

In comparison to other warm-season turfgrasses, St. Augustinegrass is very shade tolerant and can produce a high-quality turfgrass in shady areas where other turfgrasses will not grow, but it requires irrigation and moderate fertilization. St. Augustinegrass can be grown in a wide variety of soils but grows best in soils that are well drained and fertile. Although St. Augustinegrass is less cold

tolerant than other warm-season turfgrasses, it stays green longer in the fall after the first frost. It is not unusual for St. Augustinegrass to still be green in the middle of winter in protected areas or under tree leaves. The use of St. Augustinegrass in Alabama is somewhat limited to the coastal areas due to its poor cold tolerance; however, cold tolerance does vary between the different St. Augustinegrass varieties. St. Augustinegrass has a high salt tolerance, which also makes it suitable for the coastal areas.

Disadvantages of St. Augustinegrass

St. Augustinegrass has certain cultural and pest problems that limit its use. Obviously, the lack of cold tolerance is one major drawback to the use of this turfgrass in areas that are exposed to freezing temperatures. St. Augustinegrass also has poor wear tolerance, and in some situations, its coarse leaf texture is

objectionable. Producing a high-quality St. Augustinegrass lawn requires irrigation and supplemental fertilization; however, too much fertilization can cause excessive thatch accumulation.

The major insect pest of St. Augustinegrass is the chinch bug, although certain cultivars, such as 'Floritam' and 'Floralawn', have resistance. A major disease problem with St. Augustinegrass is St. Augustinegrass decline virus (SADV).

St. Augustinegrass Varieties

Several cultivars of St. Augustinegrass are available, some of which are better for home lawns than others. Table 1 lists relative growth characteristics of some of these cultivars.

'Bitterblue'

'Bitterblue' is an improved variety selected from common St. Augustinegrass in the 1930s for

Table 1. Characteristics of St. Augustinegrass Varieties

Cultivar	Mowing Height (in.)	Cold Tolerance	Shade Tolerance	Chinch Bug Resistance	Green Color	Leaf Texture	Density
Bitterblue	3 to 4	Good	Very Good	Fair	Dark	Coarse	Good
Common	3 to 4	Poor	Poor	Poor	Light	Coarse	Poor
Delmar	1½ to 2 ½	Very Good	Good	Poor	Dark	Medium	Good
Floritam	3 to 4	Poor	Poor	Good	Dark	Very Coarse	Good
Floratine	2 to 3	Fair	Good	Fair	Dark	Coarse	Good
Floralawn	3 to 4	Poor	Poor	Good	Dark	Very Coarse	Good
Jade	1½ to 2 ½	Good	Good	Poor	Dark	Fine	Good
Raleigh	3 to 4	Very Good	Good	Poor	Medium	Coarse	Good
Seville	2 to 2 ½	Good	Very Good	Fair	Dark	Medium	Good

its finer leaf texture, darker blue-green color, and better density. It has improved (good) cold tolerance and good shade tolerance compared to common varieties, but it is not resistant to chinch bugs or gray leaf spot disease. 'Bitterblue' also has lower tolerance to the triazine herbicides (atrazine, simazine) than other St. Augustinegrass varieties have.

Common

Common St. Augustinegrass has been grown since the 1800s and produces a coarse, open lawn that is susceptible to chinch bugs and herbicide, cold, and shade damage. Common varieties are light green in color and do not respond well to fertilization. Common St. Augustinegrass varieties are not recommended if the appearance and quality of the lawn are important.

'Delmar'

'Delmar' is a semidwarf St. Augustinegrass variety that has improved shade tolerance, shorter internodes, darker green color, and improved cold tolerance. Due to the semidwarf growth habit, this variety has slow lateral stolon growth and therefore requires longer to grow in and to recover from damage. This variety is susceptible to chinch bugs, sod webworms, and brown patch disease.

'Floritam'

'Floritam' is an improved variety of St. Augustinegrass that was released jointly by Texas A&M University and the University of Florida in 1973. This variety is distinguished by its reddish-colored stolons. It has a very coarse leaf texture and poor cold and shade tolerance. It does, however, have good resistance to chinch bugs and SADV. 'Floritam' is one of the most preferred varieties of St. Augustinegrass to use in open, sunny areas where

chinch bugs are a problem; however, research has shown that there is a strain of chinch bug that will damage it.

'Floratine'

This variety is an improved selection from 'Bitterblue' that was released by the University of Florida in 1962. It has a finer leaf texture and denser growth habit and tolerates closer mowing than common St. Augustinegrass varieties do. It is not resistant to chinch bugs but will tolerate light to moderate shade.

'Floralawn'

'Floralawn' was released in 1986 by the University of Florida as an improved variety with resistance to chinch bugs, SADV, sod webworms, and brown patch disease. This variety is similar to 'Floritam' in terms of shade tolerance, leaf texture, and sensitivity to cold temperature exposure. 'Floralawn' should be grown in mild climates in moderate shade to full sun under low to medium fertility.

'Jade'

'Jade' is an improved semidwarf St. Augustinegrass variety that is characterized by shorter internodes, improved shade and cold tolerance, and darker green color. It has a finer leaf texture and better shade tolerance than 'Delmar', but it is susceptible to chinch bugs, sod webworms, and brown patch disease.

'Raleigh'

This variety was released by the North Carolina Agricultural Experiment Station in 1980 for its improved cold tolerance. It can be grown throughout Alabama and has survived cold temperature exposure as low as -20 degrees F. 'Raleigh' has a coarse leaf texture, is susceptible to chinch bugs and brown patch

and grey leaf spot diseases, and is less shade tolerant than 'Bitterblue' or 'Floratine'. 'Raleigh' has been noted to turn yellow during peak summer temperatures, and its growth slows during cooler temperatures.

'Seville'

'Seville' is a dark green semidwarf St. Augustinegrass variety that was selected for its fine leaf texture. This variety has a compact growth habit, so it can tolerate lower mowing heights. 'Seville' is susceptible to chinch bugs and sod webworms. This variety also tends to be thatch-prone, has shallow rooting, and is sensitive to cold temperature exposure. It is resistant to SADV and performs well in either shade or full sun.

Establishing St. Augustinegrass

Currently, all St. Augustinegrass varieties are established vegetatively as sprigs, plugs, or sod. A few seed may be produced by certain varieties; however, the seed have poor germination and do not remain true to variety.

The most important aspect of establishing any lawn is the preparation of a good, uniform seedbed. Once the seedbed is prepared, take a random soil sample, and have it tested to determine the soil pH and fertility levels. Apply lime and/or fertilizer as recommended by the soil test report, and till it into the soil to a depth of 6 to 8 inches. Grade the lawn area and thoroughly moisten it to help in the establishment process.

The method of establishment—either sprigging, plugging, or sodding—must be determined using the following criteria: cost, turfgrass availability, time of year, and degree of slope or erosion potential.

The best time to plant St. Augustinegrass is during active growth, which is normally

between May and August. Other times may be suitable for sodding as long as the sod is prevented from drying out.

Sprigging

Establishing St. Augustinegrass by sprigging is an effective means; however, it can be very labor intensive unless a mechanical sprigging machine is used. It is important to use freshly harvested sprigs (stolons) that have at least two or more nodes or joints. Plant the sprigs in rows that are 6 to 12 inches apart. Cover the sprigs lightly with soil, and press the soil firmly around the sprigs, leaving a tip of each sprig exposed. Keep the sprigs moist until they have become rooted and established. Water on a daily basis in the absence of rainfall for at least 2 weeks after sprigging to ensure survival and establishment. To accelerate the grow-in and establishment of the sprigs, decrease the row width and increase the number of sprigs planted per unit area.

Plugging

St. Augustinegrass can also be established via plugging. Plugs can be obtained from a commercial grower, or sod can be cut into square or circular plugs. Plugs should be spaced from 6 to 24 inches apart in 6- to 12-inch-wide rows. The closer the plugs are placed together within a row as well as in rows, the faster the turfgrass will grow in. Place the plugs in holes that are the same size and dimension as the plugs or in an open furrow (row). Tamp the plugs into place so that they are level with the soil surface. Water on a daily basis in the absence of rainfall for at least 2 weeks to ensure the survival and establishment of the plugs.

Sodding

Sodding is often the best option for establishing a lawn because it produces an “instant” lawn and reduces soil erosion.

Lay the sod over bare, moist soil in a staggered pattern such as that used in bricklaying. Stagger the sod pieces in rows, and place the edges tightly together so that there are no cracks. If there are any cracks between the pieces, fill them with soil to keep weeds from establishing in these areas. Roll the sod to smooth the surface, and thoroughly water it to ensure fast rooting. Water newly sodded areas at least twice a day in the absence of rain until the sod is established and well rooted.

Maintaining St. Augustinegrass

The level of maintenance put into St. Augustinegrass is directly related to the turf's overall quality. The higher the level of maintenance, the higher the level of turf quality. Turfgrass quality is affected by the amount of fertilization, the mowing height, the mowing frequency, irrigation or watering, thatch control, and pest control.

Fertilizing

To produce a quality turf, St. Augustinegrass requires a properly planned fertilization program. Periodic soil testing should be conducted every 1 to 2 years as the basis for major applications of lime, phosphorous (P), and potassium (K). This will help maintain the proper soil pH between the desired range of 6.0 to 7.0 and keep phosphorous and potassium at recommended levels. Soil testing is generally not used to determine nitrogen requirements for turfgrasses.

Nitrogen-containing fertilizers stimulate St. Augustinegrass growth, and the end result is a darker-green-colored lawn. The more nitrogen (N) that is applied, the more the turfgrass will grow; however, nitrogen must be applied in a balanced manner to achieve consistent, even growth patterns. In addition, the more St. Augustinegrass grows, the more often it must be mowed and the more maintenance it requires.

Ammonium nitrate, ammonium sulfate, urea, and other water-soluble nitrogen fertilizers are often used on St. Augustinegrass lawns; however, these fast-release nitrogen fertilizers will burn turfgrasses if applied too heavily or if applied to wet turf. To avoid burning the turf, do not apply more than 1 pound of actual nitrogen per 1,000 square feet of turf per fertilizer application. Always ensure that the turf is dry, and irrigate the fertilizer immediately after applying it. It is recommended to apply fertilizer that contains nitrogen (N), phosphorous (P), and potassium (K) in a ratio of 4-1-2 or 3-1-2, respectively.

Since fertilizers vary in their nitrogen content, the amount of fertilizer needed to supply 1 pound of nitrogen depends on the source used. To determine how much of a particular fertilizer is needed to supply 1 pound of actual nitrogen per 1,000 square feet, divide the percentage of nitrogen in the fertilizer into 100. For example, ammonium nitrate contains 34 percent nitrogen (34-0-0), so approximately 3 pounds of ammonium nitrate is needed per 1,000 square feet to apply 1 pound of nitrogen ($100 \div 34 = 2.94$).

Always apply fertilizer to dry turf to prevent burning, and water immediately after applying it to dissolve the fertilizer and make it available to the turfgrass. Slow-release nitrogen fertilizers do not dissolve readily in water and normally are more expensive than fast-release fertilizers. However, slow-release fertilizers can be applied at higher application rates and not burn the turf because the nitrogen is released slowly. The turf will maintain its green color over a longer period of time with slow-release fertilizers and will provide more consistent and even growth patterns. The amount and frequency of fertilizer applications depend on the amount of traffic on the grass, the level of desired quality, and the type of fertilizer used.

For a lawn that requires less maintenance but that still has fair quality, it is recommended to apply a total of 2 pounds of actual nitrogen per 1,000 square feet of St. Augustinegrass lawn per year. To accomplish this, apply a 4-1-2 or 3-1-2 N-P-K fertilizer, such as 16-4-8 or 12-4-8, at ½ pound of nitrogen per 1,000 square feet once in the months of May, June, July, and August. Another option is to apply 1 pound of nitrogen per 1,000 square feet once in the months of May and July. It is also recommended to apply 1 pound of potassium per 1,000 square feet per year in the fall to improve cold and stress tolerance. A fertilizer such as a 15-0-15 or 10-20-20 can be used for this fall application of potassium. The potassium should be applied in September before the onset of cold weather.

An optimum maintenance fertility program for St. Augustinegrass would require applying 4 pounds of actual nitrogen per 1,000 square feet of lawn per year. To apply this annual rate of 4 pounds of nitrogen per 1,000 square feet, apply 1 pound of nitrogen per 1,000 square feet in May, June, July, and August. Apply 1 pound of potassium per 1,000 square feet in September for improved winter hardiness. Table 2 shows suggested fertilization schedules for St. Augustinegrass lawns based on the level of maintenance and quality desired.

Mowing

Proper mowing practices are critical to maintaining a beautiful St. Augustinegrass lawn. Both

mowing height and mowing frequency should be adjusted according to the level of turf management desired. (See Table 1 for mowing heights for each variety.) For the optimum level of turf quality, mow and maintain St. Augustinegrass at a height of 2 inches and mow the lawn at least once a week during the peak growing season. Mowing at this height and frequency does require more fertilizer and water to maintain an attractive lawn. In addition, low mowing heights and high maintenance levels can predispose the turf to many pest problems.

Under low maintenance levels, St. Augustinegrass should be mowed at a height of 3 to 4 inches. This will help the turf develop a deep root system and have a better appearance.

If St. Augustinegrass is not mowed often enough and is improperly watered, it can accumulate thatch. Water only when there are signs of moisture stress to keep St. Augustinegrass growth to a minimum and reduce the rate at which thatch is deposited and accumulated.

Mowing St. Augustinegrass too low can also cause problems with turf quality. Consistent low mowing will reduce the turf density and thus reduce the turfgrass plant's ability to recover and grow. In addition, weeds are more of a problem in thin turf where sunlight is able to penetrate the turf canopy and stimulate weed seed germination.

Normally, a rotary-type mower is used to mow St. Augustinegrass, but a reel-type mower can be used. It is important to keep

mower blades sharp and well adjusted to get the highest quality cut. Dull mower blades will give the lawn a dull appearance because dull blades shred the leaves rather than cutting them, thus making the leaf edges ragged. Mower blades should be sharpened on a monthly basis during peak growing months.

Turf clippings can be returned or recycled to the lawn during mowing if the lawn is being mowed at the proper mowing height and frequency. Under these conditions, turf clippings do not contribute to thatch accumulation. Clippings should only be removed if they are wet or if the lawn has not been mowed often enough and the clippings are clumping up during mowing.

Watering or Irrigating

Irrigation on an as-needed basis is an excellent way to schedule watering of any turfgrass as long as the proper amount of water is applied when needed and not at a later or more convenient time. When using this approach, water at the first sign of drought stress or wilt, and apply at least 1 inch of water. Signs of wilting include folding of the leaf blades and the blades turning bluish green in color. Another indication is "footprints" being left in the grass when it is walked on. It is recommended to water or irrigate early in the morning while dew is still on the turfgrass plants. Irrigating or watering during the night or evening hours may increase disease problems.

Table 2. Suggested Fertilization Schedules for St. Augustinegrass Lawns

Desired Quality	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Low Maintenance					C ¹		C ¹		K ²			
Optimum Maintenance					C ³	C ³	C ³	C ³	K ²			

¹Apply 4-1-2 or 3-1-2 N-P-K fertilizer at ½ pound of nitrogen per 1,000 square feet.

²Apply fertilizer containing potassium (K) at 1 pound of potassium per 1,000 square feet.

³Apply 4-1-2 or 3-1-2 N-P-K fertilizer at 1 pound of nitrogen per 1,000 square feet.

Controlling Thatch

St. Augustinegrass typically develops a layer of organic material called thatch between the green leaves of the turfgrass and the soil surface. This thatch layer accumulates over time if not managed properly. If the thatch layer is allowed to accumulate to a thickness greater than $\frac{3}{4}$ inch, problems will arise. Thatch can harbor insects and disease-causing organisms, create a barrier to air and water movement, and elevate the living turfgrass plant away from the soil.

Check the thickness of the thatch layer in September or October by cutting a small triangle or square in the turfgrass, using a knife or shovel. Remove this “plug” and look at the soil beneath the green turfgrass plants. The thatch layer will be brown to black in color and have a different appearance from the native soil beneath. If the thatch layer is thicker than $\frac{3}{4}$ inch, mechanically dethatch the lawn in the spring, any time from late May through August. However, it is recommended to delay dethatching until the turfgrass has completed green-up after winter dormancy and begun to initiate good spring growth. Use a core aerifier, aerator, vertical mower, power rake, or spring attachment for a mower to remove thatch. Apply a light application of lime (10 pounds per 1,000 square feet) after dethatching to help the remaining thatch decay. Control thatch by using routine core aeration followed by a light topdressing of soil and/or sand.

Controlling Pests

Several pest problems affect St. Augustinegrass lawns. One or more of these pests will have to

be periodically controlled in order to grow a high-quality lawn. Contact your county Extension agent for diagnoses and recommendations for treating pest problems.

Insects

The most serious insect pest of St. Augustinegrass lawns is the chinch bug. This insect can be controlled with chemicals (insecticides); however, one of the best ways to control it is to plant either the ‘Floralawn’ or ‘Floratam’ variety of St. Augustinegrass because these two varieties are resistant to chinch bugs. Other insect pests of St. Augustinegrass include sod webworms, armyworms, and mole crickets. Several insecticides are available to control these pests.

Diseases

St. Augustinegrass lawns are susceptible to several plant diseases, the most common of which are brown patch and grey leaf spot. A good maintenance program can minimize the occurrence of most disease problems; however, if the lawn is infected, there are several fungicides that can be used to cure major disease outbreaks. See Extension publication ANR-0500-B, *Alabama Pest Management Handbook, Volume 2*, for more information.

Nematodes

Several types of nematodes attack St. Augustinegrass lawns. These microscopic, soilborne “worms” attack the roots of the turfgrass plants and if not controlled can completely kill the entire lawn. Nematodes cause the lawn to turn yellow in color and become thin, especially during hot, dry periods. Nematodes can cause extensive damage to lawns,

particularly on sandy soils and where high maintenance is performed. Once nematodes have been identified as a serious problem, there are several options for treating them: ignore the problem, change the maintenance practices and hope to live with the problem, remove the existing turfgrass, or treat the lawn with a nematicide. If you choose to treat the lawn with a chemical nematicide, you will probably have to hire a commercial applicator to apply it. See Extension publication ANR-0523, “Nematode Pests of Turf—Their Identification and Control,” for more information.

Weeds

St. Augustinegrass lawns typically do not have many weed problems because the grass is so dense it naturally prevents weeds from establishing. However, if weeds become a problem, the lawn has probably become thin and weakened by improper maintenance or damage from other pests. See Extension publication ANR-0616, “Weeds of Southern Turfgrass,” for more information about identifying and controlling weed pests in home lawns.

Be cautious when using herbicides on St. Augustinegrass because it is sensitive to many of them and may be injured. Herbicides that contain 2,4-D and MSMA are commonly used on most turfgrasses; however, these can be very harmful to St. Augustinegrass. Always read and follow the label recommendations for herbicides and pesticides before applying them.

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