

Bermudagrass Lawns

Bermudagrasses (*Cynodon* spp.) are native to Africa and are also called wiregrass, devilgrass, and couchgrass. Bermudagrasses are well adapted to the climatic conditions in Alabama and are the number-one turfgrass in the South. These turfgrasses are widely used on athletic fields, bowling greens, tennis courts, golf courses, and home lawns. Bermudagrasses grow best on well-drained soils that have a soil pH (acid index) between 6.0 and 6.5. These turfgrasses have a very fast growth rate and therefore quickly establish and recover from injury. This is largely due to the fact that bermudagrasses spread by stolons (aboveground stems) and rhizomes (underground stems).

Advantages Of Bermudagrasses

Bermudagrasses produce an aggressive-growing, dense, dark green turfgrass that is well adapted to a wide variety of soils and climatic conditions. Bermudagrasses have excellent wear and drought tolerance, fair salt tolerance, and excellent recuperative potential from injury. They will survive extended periods of low rainfall and will even survive some flooding. They establish rapidly due to their rapid growth habit and thus are very competitive against injury caused by pests, including diseases, insects, and weeds. Depending on the variety of bermudagrass, these turfgrasses can be established by seed, sprigs, or sod.

Disadvantages Of Bermudagrasses

Bermudagrasses also have a number of disadvantages. They will not tolerate shade and require almost full sunlight. Bermudagrass lawns under shade will gradually thin out and disappear over time. Bermudagrasses grow rapidly in full sun and spread by both stolons and rhizomes, which are very difficult to control within flower beds, walkways, and borders. Due to the rapid growth rate, thatch accumulation can become a maintenance problem; therefore, these grasses require a high level of maintenance in order to create a quality lawn. Because they grow so quickly, bermudagrasses should ideally be mowed using a reel mower to produce the highest-quality lawn. However, rotary mowers will work fine as long as the blades are kept sharp.

Another effect of their quick growth is that they have few pest problems, but they are susceptible to nematode damage, or injury. Nematode injury leads to shallow-rooted turfgrass plants that do not respond well to irrigation and fertility and therefore result in a thin, weak lawn that will usually become invaded by weeds. If nematodes are suspected, or if you have sandy soil, take a soil sample to your county Extension agent for analysis.

Bermudagrass Varieties

There are two types of bermudagrasses available: common bermudagrasses and hybrid bermudagrasses. Common bermudagrasses produce viable seed; hybrid bermudagrasses are sterile and do not produce viable seed. Researchers are trying to develop improved common bermudagrass varieties that have qualities comparable to those of hybrid bermudagrasses. However, only select varieties are available commercially. Check with your local Cooperative Extension System office to determine the best variety for your location and use.

Common Bermudagrasses

Common bermudagrasses (*Cynodon dactylon*) are considered a weed in most places; however, with proper management they can become a quality lawn. Common bermudagrasses produce viable seed and can be established by seed or vegetative plantings. Common bermudagrass varieties are more coarse in texture and have a lower shoot density than hybrid bermudagrasses. Their leaf texture ranges from medium to fine, depending on the variety. Common bermudagrass lawns are more prone to weed infestations than are hybrid bermudagrass lawns. This is because common bermudagrass is coarser and has a larger leaf, thus producing a more open turf or lawn in which weeds can estab-

lish. More and more improved seeded common bermudagrass varieties are becoming available.

Most common bermudagrass seeds are available hulled (hull removed) or unhulled (hull remains). Hulled bermudagrass seeds germinate faster, but unhulled bermudagrass seeds will last longer during unfavorable weather before they germinate. The new and improved common bermudagrass varieties are darker green in color, deeper rooted, more dense, and have a finer leaf texture than “common” common bermudagrass. These new varieties are general-purpose common bermudagrasses used for lawns, parks, roadsides, and sports turf. These varieties should be used in areas where improved turfgrass characteristics are desired but where quality and the level of maintenance are lower than they are for hybrid bermudagrass varieties. Some of these improved varieties include ‘Cheyenne,’ ‘FloraTeX,’ ‘Guymon,’ ‘Jackpot,’ ‘NuMex Sahara,’ ‘Sonesta,’ ‘Sundevil,’ ‘U3,’ and ‘Yuma.’

Hybrid Bermudagrasses

Hybrid bermudagrasses (*Cynodon dactylon* x *Cynodon transvaalensis*) are more superior as turfgrasses than are common bermudagrasses. As the scientific name indicates, two different bermudagrasses have been crossed to create one turfgrass with improved qualities. Hybrid bermudagrasses do not produce viable seeds and therefore must be established by vegetative plantings, such as plugging, sprigging, or sodding. Compared to common bermudagrasses, hybrid bermudagrass varieties have greater disease resistance, greater density, fewer seedheads, finer leaf texture, darker color, and better weed resistance. However, hybrid bermudagrasses require more maintenance, such as fre-

quent mowings, fertilization, edging, and dethatching for the best appearance and quality.

Table 1 lists a number of varieties of bermudagrass that are available for use as home lawns.

Some of the more popular bermudagrass varieties that are currently recommended for use as home lawns in Alabama are ‘Tifgreen,’ ‘Tifway,’ ‘FloraTeX,’ ‘MS Choice,’ and ‘MS Pride.’

‘Tifgreen’

‘Tifgreen’ hybrid bermudagrass was released in 1956 and is often referred to as Tifton 328 bermudagrass. This cultivar has a fine texture, dark green color, and high shoot density. It has good low-temperature tolerance, drought tolerance, wear resistance, and early spring growth and green-up. As its name implies, ‘Tifgreen’ was selected for use on golf course putting greens because it is tolerant to low mowing heights as little as 3/16 inch. ‘Tifdwarf’ is a mutant of ‘Tifgreen’

and is slightly more tolerant of low mowing heights.

‘Tifgreen’ produces few seedheads and is the most commonly used turfgrass for golf course putting greens around the world. It is also very popular for use on baseball and softball fields, tennis courts, and lawn bowling greens. ‘Tifgreen’ requires a high level of maintenance, including fertilization, irrigation, mowing, dethatching, and edging.

‘Tifway’

‘Tifway’ hybrid bermudagrass is a medium-textured, dark green turfgrass with a high shoot density. It is often referred to as Tifton 419. ‘Tifway’ has better tolerance to pest problems than ‘Tifgreen.’ It is used primarily for golf course fairways, athletic fields, and high-quality home lawns. This turfgrass can make a beautiful home lawn but requires adequate time, equipment, and labor resources for its maintenance and upkeep.

Table 1. Bermudagrass Varieties

Bermudagrass Variety	Seeded	Leaf Texture
Arizona Common	Yes	Coarse
Cheyenne	Yes	Medium
FloraTeX	No	Medium
GN-1	No	Medium
Guymon	Yes	Medium
Jackpot	Yes	Medium
Midfield	No	Medium
Midiron	No	Fine
Midlawn	No	Medium
Midway	No	Medium
MS Choice	No	Medium
MS Pride	No	Fine
NuMex Sahara	Yes	Medium
Ormond	No	Medium
Quickstand	No	Medium
Sonesta	Yes	Medium
Sundevil	Yes	Medium
Texturf 10	No	Medium
Tifgreen (328)	No	Fine
Tifgreen II	No	Fine
Tiflawn	No	Fine
Tifway (419)	No	Fine
Tifway II	No	Fine
U3	Yes	Medium
Vamont	No	Medium

'FloraTeX'

'FloraTeX' bermudagrass was released jointly by the University of Florida and Texas A & M University in 1993. This cultivar has medium texture and shoot density and requires less maintenance, such as fertilization and water, than other bermudagrasses. 'FloraTeX' also appears to have extended color retention in the fall as well as early spring green-up. It is less susceptible than other bermudagrasses to dollar spot disease and bermudagrass stunt mites. 'FloraTeX' must be established by vegetative plantings, such as sprigging or sodding, and produces numerous seedheads during the late spring. It should be used where desired turfgrass quality is higher than common bermudagrass but where the level of maintenance and quality are lower than that required by 'Tifgreen' or 'Tifway' hybrids.

'MS Choice'

'MS Choice' is an improved bermudagrass variety developed at Mississippi State University and released in 1991. It is a medium-textured, dark green bermudagrass that produces few to no seedheads and has enhanced shade tolerance. It is recommended for use on athletic fields and home lawns and must be established by vegetative plantings. 'MS Choice' may accumulate thatch under high fertility and is susceptible to dollar spot disease and bermudagrass mites.

'MS Pride'

'MS Pride' is another improved bermudagrass variety developed at Mississippi State University and released in 1991. It is a fine-textured bermudagrass with high shoot density, enhanced sod strength, dense upright growth, prolonged fall color retention, and improved disease resistance to leafspot and dollar spot. It also produces very few seedheads.

Establishing Bermudagrasses

Bermudagrasses can be established by vegetative propagation such as plugging, sprigging, or sodding. Some common bermudagrass varieties can be established from seed (see Table 1). Bermudagrasses can be vegetatively planted any time during the year; however, the optimum time for their establishment, whether by vegetative propagation or seeding, is from March through August. The successful establishment of bermudagrass depends greatly on properly preparing the soil and seedbed. All construction debris, rocks, stumps, brush, and other undesired vegetation should be removed before grading the lawn site. If necessary, remove the lower limbs of trees to allow better sunlight penetration and make soil preparation and future mowing easier. Ensure that the lawn slopes away from the house for better drainage. After establishing the final grade, take soil samples to determine the soil pH and soil fertility levels. The soil test results will provide the information to determine how much lime and/or fertilizer are needed. After preparing the seedbed, you can seed common bermudagrass or plant it vegetatively by sprigging, plugging, or sodding. Hybrid bermudagrasses do not produce viable seed; therefore, you must sprig, plug, or sod them.

Seeding

Only common-type bermudagrasses can be established from seed. Common bermudagrass seeds are available either hulled or unhulled. Hulled seeds cost more per pound, but you get more seed per pound. The seeding rate for common bermudagrass is 1 to 1½ pounds of hulled seed per 1,000 square feet, or 2 to 3 pounds of unhulled seed per

1,000 square feet. Spread the seed, and then rake the area lightly to provide good soil-to-seed contact. Mulch, such as pine straw or hay, can be spread after seeding to reduce potential soil erosion and moisture loss. If you use mulch, apply it so that about 50 percent of the soil surface is still visible. This normally requires about 100 pounds of straw mulch per 1,000 square feet. After mulching, roll the lawn or seeded area lightly to ensure a smooth lawn and good seed-to-soil contact. Water the lawn to moisten the top 1 to 2 inches of soil. In the absence of rain, water the lawn or seeded area lightly each day to keep the seed moist for about 2 weeks or until the seeds have germinated, which is usually within 10 days after seeding.

Plugging

Plugging refers to the planting of pieces of sod. In plugging, bermudagrass sod is cut into circular or rectangular pieces that are 2 or more inches in diameter. These "plugs" are typically set or planted in rows that are spaced 12 to 24 inches apart. The distance between plugs can vary, but remember that the distance affects how long it takes for the grass to grow in and establish. Normally, if plugs are placed in 12-inch rows, it will take about 3 to 6 months for the lawn to grow in; 24-inch rows take 6 to 9 months. The row spacing also affects the amount of sod needed to plug a given area. Plugging 2-inch square plugs in a 12-inch row requires about 3 square yards of bermudagrass sod to establish a 1,000-square-foot area. Set the plugs in holes that match the size of the plugs to ensure a level surface. Roll or step on the plugs to ensure good soil contact. Water the plugs, and keep the soil moist until the turfgrass has become well rooted in the soil.

Sprigging

Sprigging is the most common method of planting bermudagrasses. Sprigging refers to the planting of individual turfgrass sprigs, or “runners,” which are basically stems (stolons or rhizomes) of the bermudagrass plants. You can sprig by hand, although it is labor intensive, or you can use a mechanical sprigging machine. Sprigs are pieces of bermudagrass stems (stolons and/or rhizomes) that have at least two to four nodes (joints). Sprigs are usually broadcast-applied to shallow furrows or rows by hand-shaking them onto the soil surface. Approximately 5 to 10 bushels of sprigs are needed for a 1,000-square-foot area. If possible, “cut in” the sprigs, using a small disc harrow to set the sprigs in the furrow. Apply a light topdressing of soil and/or sand over the sprigs, and roll it, using a roller to ensure good soil-to-sprig contact. You can also plant the sprigs mechanically in rows that are 4 to 6 inches apart, but no more than 6 inches. Cover the sprigs to a depth of 1 to 2 inches, leaving a portion of the sprigs exposed above the soil surface. You will need between 2 to 4 bushels of bermudagrass sprigs per 1,000 square feet. Two square yards of bermudagrass sod should yield two bushels of sprigs. After sprigging, roll the lawn and water

it as recommended for plugging. Keep the soil and sprigs moist until they have initiated new growth and become established.

Sodding

Sodding is a common method of establishing bermudagrass and produces an instant lawn. It is recommended where immediate ground cover is needed and expense is not a concern. Sod areas that have a severe slope and/or are exposed to potential erosion problems. Lay the sod horizontally across the sloped areas, and alternate the seams of the sod like bricks to ensure stability. For best results, ensure that the bermudagrass sod is of good quality, free of weeds, watered immediately to ensure its survival, and rolled to provide a smooth, uniform lawn.

Maintaining Bermudagrass

For the first 2 weeks after establishment, water the newly planted bermudagrass lightly ($\frac{1}{4}$ inch) every day in the absence of rain to ensure the survival of the turfgrass plants. After the first 2 weeks, you can water less frequently. Experts recommend that you water less frequently and apply greater amounts of water during each irrigation to saturate (moisten) the soil. This promotes

deeper rooting of the newly established turfgrass. After mowing the newly established bermudagrass three times, water it weekly if needed.

Fertilizing

To look their best, bermudagrasses require a properly planned fertilization program. Soil-test every 1 to 2 years to determine when and how much lime and fertilizer are needed. This will help maintain the proper soil pH between the desired range of 6.0 to 6.5 and keep the phosphorous and potassium at recommended levels.

Generally, you have to fertilize bermudagrasses more than other turfgrasses used for lawns in Alabama to maintain their appearance, durability, and growth. Fertilizers containing nitrogen stimulate bermudagrass growth and result in a darker green lawn. Ammonium nitrate, ammonium sulfate, urea, and other water-soluble nitrogen fertilizers are often used on bermudagrass lawns; however, these “fast-release” nitrogen fertilizers will burn turfgrasses if they are applied too heavily or 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. Experts recommend a complete fertilizer, which is one that contains nitrogen, phosphorous, and potassium.

Since fertilizers vary in their nitrogen content, the amount needed to supply 1 pound of nitrogen depends on the source used. To determine the amount of a particular fertilizer 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 would be needed

Table 2. Suggested Fertilization Schedule For Bermudagrass Lawns

Desired Quality	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Lowest Maintenance				C ¹			C					
Moderate Maintenance				C ¹		C		C	K ²			
Highest Quality			C ¹		C	C	C	C	K ²			

Shading represents application timing window.

¹Complete fertilizer containing nitrogen, phosphorous, and potassium (C) applied at 1 pound of nitrogen per 1,000 square feet.

²Fertilizer containing both nitrogen and potassium (K) applied at 1 pound of potassium per 1,000 square feet.

per 1,000 square feet to apply 1 pound of nitrogen ($100 \div 34 = 2.94$).

Always apply fertilizers to dry turf to prevent burning, and water the turf immediately after application to dissolve the fertilizer. "Slow-release" nitrogen fertilizers do not dissolve readily in water and usually 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. Also, the turf will maintain its green color over a longer period of time with slow-release fertilizers. The amount and frequency of fertilizer applications are largely based on the fertilizer's use, the level of desired quality, and the type of fertilizer used.

If you want a lawn that requires less maintenance but is still a quality lawn, apply 2 pounds of actual nitrogen per 1,000 square feet of bermudagrass per year. Use a complete fertilizer (containing nitrogen, phosphorous, and potassium) such as 16-4-8, 13-13-13, or 10-10-10 at least two times a year during late spring (April or May) and late summer (July or August).

A moderate maintenance fertility program requires applying 4 pounds of actual nitrogen per 1,000 square feet of lawn. Apply 1 pound of nitrogen per 1,000 square feet in April, June, August, and October.

Potassium helps turfgrasses survive stress. Bermudagrasses growing in sandy soils may need 1 pound of potassium per 1,000 square feet of lawn per year. September is a good time to apply potassium to ensure winter survival and improve cold tolerance. Use a fertilizer such as a 15-0-15 or 10-20-20 for this fall application of potassium.

To produce a high-quality, dark green bermudagrass lawn, experts recommend applying 6 pounds of actual nitrogen per

1,000 square feet of lawn per year. Apply a complete fertilizer such as 16-4-8, 13-13-13, or 10-10-10 once a month starting in late March or April through September. As with the moderate maintenance program, apply potassium in the fall to improve the winter survival and cold tolerance of bermudagrasses. Table 2 shows a suggested fertilization schedule for bermudagrass lawns.

Mowing

Proper mowing practices are critical to maintaining a beautiful bermudagrass lawn. The mowing height and frequency of mowing are related to the desired level of quality and time of year. Mowing frequency (the length of time between mowings) should be based on the rate of growth of the bermudagrass. Bermudagrass should be mowed before its height exceeds $1\frac{1}{2}$ times the mowing height set on the mower. Never mow or cut off more than $\frac{1}{3}$ the height of the leaves at any single mowing. Cutting more than $\frac{1}{3}$ of the height of the leaves scalps the lawn and puts additional stress on the bermudagrass turf. If you mow when it is dry and before its height exceeds $1\frac{1}{2}$ times the desired mowing height, you do not need to collect the clippings, but they should not accumulate on the lawn. They should fall into the turf where they will decay over time and recycle some of their nutrients. Occasionally, it may not be possible to mow on schedule due to rainy weather or for other reasons, so you may have more clippings when the lawn is mowed. If there are a lot of clippings and they are clumping on the lawn, you should remove them. If clippings are not collected when they are excessive like this, they will contribute to the accumulation of thatch. Remove the clippings from your lawn after every mow-

ing if you think it improves your lawn's appearance.

If you want a lower-maintenance lawn, mow your bermudagrass to a height between $\frac{3}{4}$ to $1\frac{1}{2}$ inches one to three times a week during the peak growing season. For the highest possible quality, you should mow bermudagrass to a height between $\frac{1}{2}$ and 1 inch, but you will have to mow almost daily during the summer growing season. You will also have to fertilize and water it more frequently to maintain an attractive and durable turf. Although these practices make for a beautiful lawn, it should be noted that low mowing heights and high maintenance could make the lawn more susceptible to pests such as diseases and weeds.

Mowing bermudagrass with a reel mower will make your lawn more beautiful and healthy. Reel mowers provide a more uniform cut than rotary mowers do and can be adjusted to mow at heights less than 1 inch. Bermudagrass grown at mowing heights greater than 1 inch can be mowed using a rotary mower as long as the blades are sharp and adjusted correctly. Dull mower blades will shred the leaf blades instead of cutting them and will give the lawn a brownish-to white-colored appearance.

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, 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. If you do not water your bermudagrass, it will survive the drought, but it will go dormant and turn brown as it does in the winter. If you want to keep your bermuda-

grass lawn green throughout the summer, you may have to apply 1 inch of water a week if there has not been enough rain. Water or irrigate early in the morning while dew is still on the grass.

Controlling Thatch

Bermudagrasses typically develop a layer of organic material called thatch between the green leaves of the grass and the soil surface. Thatch accumulates over time if not controlled and can harbor insects and disease-causing organisms. If thatch is allowed to accumulate to a thickness greater than $\frac{3}{4}$ inch, it can also create a barrier to air and water movement and raise 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 under the green turfgrass plants. The thatch will be brown to black in color and have a different appearance than the native soil beneath. If the thatch layer is thicker than $\frac{3}{4}$ inch, you need to mechanically dethatch the lawn in the spring or summer, any time from April through August. However, you should not dethatch until the grass has completed green-up after winter dormancy and begun to show good spring growth. You can use core aerifiers, aerators, vertical mowers, power rakes, or spring attachments for mowers to remove thatch. Apply a light ap-

plication of lime (10 pounds per 1,000 square feet) after you dethatch to help the remaining thatch decay. You can control thatch by using routine core aeration followed by a light top-dressing of soil and/or sand.

Controlling Pests

Several insects, diseases, and nematodes trouble bermudagrass lawns. You will have to control one or more of these pests periodically in order to grow a high-quality bermudagrass lawn.

Insects

The most serious insect pests on bermudagrass lawns are white grubs, sod webworms, armyworms, cutworms, bermudagrass mites, and grass loopers. Mole crickets can also be a major insect pest in certain areas of Alabama. High levels of fertilizer containing nitrogen encourage lush bermudagrass growth and consequently, insect problems. There are several insecticides you can use to control these pests.

Diseases

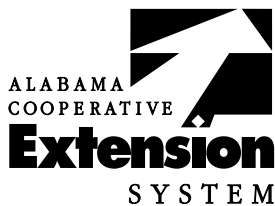
Bermudagrass lawns are susceptible to several diseases, the most common being dollar spot, brown patch, and Helminthosporium leaf spot. A good maintenance program will minimize most diseases on bermudagrass. If the grass does get infected, there are several fungicides you can use to kill the diseases.

Nematodes

Probably the most serious pests on bermudagrasses are nematodes. These microscopic, soil-borne "worms" attack the roots of the bermudagrass plants. If they are not controlled, they can completely kill the entire lawn. Nematodes cause the lawn to turn yellow and become thin, especially during hot and dry periods. Nematodes can cause extensive damage to bermudagrass lawns, particularly on sandy soils and where high maintenance is performed. Once nematodes have been identified as a serious problem, you have several options for treating them: ignore the problem, change your maintenance practices and hope to live with the problem, remove the existing turfgrass, or treat the lawn with a nematocide. If you choose to treat the lawn with a chemical nematocide, you will probably have to hire a commercial applicator to apply it.

Weeds

Bermudagrasses typically do not have many weeds because the grass is so dense and 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.



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For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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