LAWNS IN GEORGIA
Selection and Species

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Table of Contents

Selecting the Right Grass ............................................................................................................. 1
Cool-Season Grasses ...................................................................................................................... 1
  Tall Fescue ............................................................................................................................ 2
  Kentucky Bluegrass ................................................................................................................ 3
  Ryegrass and Rough Bluegrass .............................................................................................. 3
Warm-Season Grasses ................................................................................................................. 3
  Bermudagrasses ....................................................................................................................... 3
    Common Bermudagrass ........................................................................................................... 3
    Celebration Bermudagrass .................................................................................................... 4
    Hybrid Bermudagrass .......................................................................................................... 4
    Tifway Bermudagrass .......................................................................................................... 5
    TifTuf ................................................................................................................................... 5
    TifGrand ............................................................................................................................... 5
  Zoysiagrasses ......................................................................................................................... 5
    Meyer and Emerald ................................................................................................................ 6
  Centipedegrass ........................................................................................................................ 6
  St. Augustinegrass ...................................................................................................................... 7
Peripheral Lawngass Species ...................................................................................................... 8
  Carpetgrass ............................................................................................................................. 8
  Bahiagrass ............................................................................................................................... 8
  Seashore Paspalum ................................................................................................................... 8
  Buffalograss ............................................................................................................................ 8
An attractive lawn adds beauty and value to any property and turfgrass is one of the most versatile and functional plants in the landscape. Turfgrass enhances the environment in ways that can be particularly important in urban environments. Additionally, turfgrass is one of the most effective plant covers to reduce soil erosion and surface runoff while recharging ground water, which results in more efficient use of rainfall. In most landscapes, turfgrass occupies the largest area and provides an ideal surface for outdoor activities. It begins with selecting the best adapted species and cultivar for an individual site—right plant, right place.

Selecting the Right Grass

Selecting the right turfgrass is perhaps the most important factor in developing and maintaining an attractive and problem free lawn. Turfgrass selection should be based on environmental conditions, turf quality, desired appearance, and maintenance requirements. Environmental considerations include temperature and moisture, shade adaptation, soil pH, and fertility. It is also important to realize that all turfgrasses fall into two major groups: cool-season and warm-season species. Each group has unique strengths, weaknesses, and seasonal growth patterns that determine the timing of management practices. Thus, selection should be based on which turfgrass most closely meets the desired criteria, and mixing cool-season and warm-season species within the same lawn should be avoided.

Cool-Season Grasses

Cool-season grasses grow well during the cool months of spring and fall when temperatures average 60-75 °F. These grasses may become stressed, dormant, or injured during the hot months of summer and may require more water than warm-season grasses. For regional adaptation and the general characteristics of cool-season grasses in Georgia, refer to Table 1.

Tall Fescue (*Festuca arundinacea* and *Lolium arundinaceum*)

Table 1. Adaptation and characteristics of cool-season turfgrasses for Georgia lawns.

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>Tall Fescue</th>
<th>Fine Fescue</th>
<th>Kentucky Bluegrass</th>
<th>Ryegrasses</th>
<th>Rough Bluegrass</th>
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<tbody>
<tr>
<td>Heat Hardiness</td>
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<td>Excellent</td>
<td>Fair</td>
<td>Poor</td>
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<tr>
<td>Cold Hardiness</td>
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<td>Good</td>
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<td>Poor</td>
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<td>Shade Tolerance*</td>
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<td>Good</td>
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<td>Wear Tolerance</td>
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<td>Salt Tolerance</td>
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</tr>
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<td>Establishment Rate**</td>
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<td>Mowing Height (inches)</td>
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<tr>
<td>Optimal Soil pH Range</td>
<td>5.5 – 6.5</td>
<td>5.5 – 6.5</td>
<td>5.5 – 6.5</td>
<td>5.5 – 6.5</td>
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<tr>
<td>Region Best Adapted</td>
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<td>Mountains</td>
<td>Statewide°</td>
<td>Statewide°</td>
</tr>
</tbody>
</table>

* Can be seeded
° Used as an overseeding species
* Turfgrasses need at least four hours of full to filtered sunlight per day.
** Establishment rate is dependent on the planting date, seeding rate, and environmental conditions.
Tall fescue is best adapted to Georgia’s Piedmont Region and is used for home lawns, general areas, and for soil stabilization. In general, the southern boundary for tall fescue adaptation and growth would be Griffin, Georgia, although it can be found in shaded or protected microclimates further south. Because it can be seeded, tall fescue is popular with do-it-yourself homeowners. It can also be established from sod.

For many, tall fescue is desirable because of its genetically dark green color during the spring and fall when warm-season turfgrasses are dormant and brown. Although the canopy may thin in the summer, tall fescue can remain green all year.

This species grows well in full sun as well as moderate shade and, grows rapidly during spring and fall. Tall fescue is a perennial species known to have a bunching growth habit (generally considered a “bunch-type” grass), but botanically, it is considered weakly rhizomatous. Because of its bunch-type growth, spring preemergence herbicides are generally necessary to keep a lawn relatively free of weeds. Tall fescue is adapted to a wide range of soil conditions but grows best on fertile, well-drained soils with a soil pH between 5.5 and 6.5. It may need irrigation to remain attractive during the summer; however, excessive irrigation can lead to disease problems. Established tall fescue lawns tend to thin and become “clumpy” and may need periodic reseeding every few years.

The use of tall fescue has increased since the introduction of “turf-type” cultivars in the early 1980s. The turf-type cultivars have a darker green color, finer leaf blades, a lower growth habit, greater canopy density, and improved shade tolerance compared to the more traditional ‘Kentucky 31’ (K-31). K-31 is a tall fescue cultivar that was originally used as a forage, for pastures, and for erosion control, but eventually became used for lawns. If properly established and maintained, turf-type cultivars provide a more attractive lawn grass than K-31.

Turfgrass breeding efforts at the University of Georgia have introduced cultivars (e.g., ‘Southeast’, ‘Tenacity’, ‘Bulldog 51’) tolerant of acidic soil conditions commonly found in Georgia and across the Southeastern U.S. Having a genetic tolerance to lower pH soils lends these cultivars to have extensive root systems that improve persistence under periodic drought and summer heat. While better adapted to Georgia’s climate, these grasses do not have the aesthetic appeal of the turf-type cultivars and have not been widely accepted for home lawn use.

Within the retail market, tall fescue is typically sold as a blend of two to four cultivars and sold under a commercial brand name. Brand names stay constant but cultivars within the blend can change from year to year. There are some cultivars that perform better in Georgia’s climate than others, but there are other factors associated with creating a blend.

Just because the cultivar performs well in field trials does not mean that there is enough to sell or it is commercially available. Sometimes the best adapted and most attractive grasses are poor seed producers and it is not profitable to put the cultivar into seed production.

The gap between the good, better, and best turf-type tall fescue cultivars has narrowed in the last 15 years. If a blend has one or two “best” cultivars and one or two “better” cultivars, the difference between the cultivars is narrow and likely undetectable in the lawn. Generally, the turf-type tall fescue blends commercially available in retail outlets or professional lawn care centers are satisfactory and may be superb where adapted for Georgia lawns.

The introduction of turf-type tall fescues, which are frequently promoted as fine-leafed, has produced some confusion between tall fescue and fine fescue, which can be several entirely different species. It is important to know the difference between tall fescue and fine fescue. The tall fescues have wider leaf blades and better tolerance to Georgia environmental conditions than fine fescues. Fine fescues such as red fescue (Festuca rubra), sheep’s fescue (Festuca ovina), or hard fescue (Festuca longifolia) have extremely fine leaves and are suited to low fertility, low maintenance, and shaded situations. In Georgia, they generally do not perform as well as tall fescue but are commonly found as part of “shade mixtures” at many retail outlets.
Kentucky Bluegrass (*Poa pratensis*)

Kentucky bluegrass has a fine to medium leaf texture and a bright green color. Although it does not perform as well as tall fescue, it can be used in the mountainous areas of north Georgia. A major attribute of Kentucky bluegrass is its rhizomatous or creeping growth habit. Kentucky bluegrass can become semi-dormant during hot weather and grows best in a fertile soil with a pH of 5.5 to 6.5. While it does best in partial shade, it will grow in open sun if adequate moisture is present.

**Ryegrasses and Rough Bluegrass**

Perennial ryegrass (*Lolium perenne*), annual ryegrass (*Lolium multiflorum*), and rough bluegrass (*Poa trivialis*) are suited as temporary cool-season turfgrasses throughout Georgia. They can be used as a winter cover on new lawns where the permanent or base grass has not been established or for overseeding, to provide a green cover on some warm-season grasses (e.g., bermudagrass and zoysiagrass) during winter. However, overseeding may damage the warm-season grass unless managed correctly in the spring because the ryegrass competes for sunlight, water, space, and nutrients.

Contrary to its name, “perennial” ryegrass is treated as an annual in Georgia where it is seeded in the fall, provides green color throughout the winter and spring, then dies in late spring to early summer as temperatures become too hot for it to survive. There are many cultivars of perennial ryegrass, most of which have fine leaf texture, a genetic dark green color, consistent growth rate, and tolerance to wear or traffic.

Annual ryegrass is more of a “true” annual that germinates quickly in the early fall and grows well through Georgia winters. However, it is susceptible to heat and begins to die in mid- to late spring. Annual ryegrass is also known as common, winter, domestic, Oregon, and Italian ryegrass. Compared to perennial ryegrass, annual ryegrass has a coarser leaf texture, is light green in color, has an inconsistent growth rate, and lower tolerance to wear and traffic stress.

**Warm-Season Grasses**

Warm-season grasses grow best during the warm months (i.e., May to October) when temperatures reach 80–95 °F in the spring, summer, and early fall. They grow vigorously during this time and become brown and dormant in winter. Warm-season grasses used for home lawns in Georgia will spread by rhizomes, stolons, or both. Rhizomes are elongated, belowground stems. Stolons, sometimes called “runners,” are elongated aboveground stems. For regional adaptation and general characteristics of warm-season grasses in Georgia, refer to Table 2.

**Bermudagrasses (*Cynodon spp*)**

All bermudagrasses thrive in hot weather but typically perform poorly in shade. They spread by both stolons and rhizomes, which can make them difficult to control around flower beds, walks, and borders. If fertilized adequately, they may require frequent mowing. Bermudagrasses are adapted to the entire state and tolerate a wide soil pH range, but 5.5 to 6.5 is ideal.

**Common Bermudagrass (*Cynodon dactylon*)**

Common Bermudagrass is drought resistant, grows on many soils, and makes a good turf if maintained correctly. All bermudagrasses can produce unsightly seedheads, and most common bermudagrass cultivars tend to be more prolific than hybrid bermudagrasses. Despite the seedheads, common bermudagrass cultivars are used on home lawns due to the ease and economy of establishment by seeding.
Improved Seeded Types – In the 1980s, research to develop new seeded types from ‘Arizona Common’ became popular. This research has developed some better-performing seeded bermudagrasses. Three newer seeded cultivars on the market are ‘Arden 15’, ‘Monaco’, and ‘Rio’. ‘Princess 77’ (being discontinued from production and sale), ‘Riviera’, ‘Southern Star’, ‘Majestic’, ‘Shangri La’, ‘Pyramid’, ‘Sundevil II’, ‘Blue muda’, ‘Sahara’, and ‘Mirage’. In general, the better-performing cultivars have improved color, density, turf quality, and traffic tolerance. They also tend to have slightly better low temperature survival than ‘Arizona Common’, but these turfgrasses still do not produce the high-quality turf of the vegetative hybrid bermudagrasses, described below.

Celebration® Bermudagrass

Celebration® bermudagrass is genetically a common bermudagrass but is produced like a vegetative hybrid, meaning it is only available as sod, sprigs, or plugs. There is no commercial production, or sale, of Celebration® bermudagrass seed. Celebration® bermudagrass has a unique blue-green color and a high growth rate, making it suited for home lawns, golf courses, and sports fields. Likely because of its growth rate, in long-term field trials Celebration® has shown relatively good shade persistence for a bermudagrass. After six years of growth under a heavy hardwood shade, Celebration® has maintained commercially acceptable turfgrass quality down to 5.5 hours of filtered to intermittent sunlight per day during the growing season. Like all bermudagrasses, it prefers full sun and performs its best when it has eight or more hours of sunlight per day.

Hybrid Bermudagrass (*Cynodon dactylon* x *C. transvaalensis*)

Hybrid bermudagrass has greater disease resistance, turf density, better weed resistance, fewer seedheads, finer and softer texture, and more favorable color than common bermudagrass. Hybrid bermudagrass will produce seed but it is sterile, or nonviable. This means hybrid bermudagrass cannot be propagated by seed and must be planted by vegetative means (e.g., sod, sprigs, and plugs). For best appearance and high expectations (e.g., golf courses, stadium fields), hybrid bermudagrass can tolerate intensive management like low mowing heights and frequent fertilization. However, hybrid bermudagrass is well adapted for residential use and can provide a high-quality, attractive lawn with moderate management.

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**Table 2. Adaptation and characteristics of warm-season turfgrasses for Georgia lawns.**

<table>
<thead>
<tr>
<th>Adaptation</th>
<th>Common Bermudagrass</th>
<th>Hybrid Bermudagrass</th>
<th>Centipedegrass</th>
<th>St. Augustinegrass</th>
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<td>Statewide</td>
<td>Coastal Plain to Piedmont</td>
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</tr>
</tbody>
</table>

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* Some can be seeded.
* For species with designations of “Good” or better, some cultivars have better shade tolerance.
** Establishment rate is dependent on planting date, seeding rate, and environmental conditions.
Tifway 419 Bermudagrass

Tifway has several features (e.g., green color, fine leaf texture, and dense, tight canopy) that make it an ideal turf for lawns, golf courses, and sports fields. Additionally, Tifway has relatively few pest problems and is resilient, allowing it to withstand use, various soil conditions, and Georgia’s environmental extremes, including periodic drought. Tifway bermudagrass was bred and released from the Georgia Coastal Plain Experiment Station in 1960 and has become the most widely used bermudagrass cultivar in the world. Since its release, all new bermudagrass cultivars have been compared to Tifway for turfgrass quality, color, and functionality.

Over the years, Tifway has become contaminated or mislabeled. In the mid-1990s, a group of scientists, sod producers, and the Georgia Crop Improvement Association (www.GeorgiaCrop.com) initiated the Georgia Turfgrass Certification Program to maintain the cultivar integrity of all participating grasses, but specifically Tifway. By using only Georgia Crop Improvement “blue tag” certified Tifway bermudagrass, the end user is assured of getting varietal purity and uniformity (Figure 1).

TifTuf® Bermudagrass

TifTuf® has many of the desirable characteristics as Tifway but with better drought tolerance. Studies at UGA have shown TifTuf® to use approximately one-third less water, which makes this cultivar ideally suited for use in home lawns, especially those without a permanent in-ground irrigation system. Additionally, TifTuf® has a relatively higher growth, or recovery, rate which makes it well adapted for use on lawns, sports fields, and sod production. Likely because of its growth rate and high rhizome production, in long-term field trials TifTuf® has shown relatively good shade persistence for a bermudagrass. After six years of growth under a heavy hardwood shade, TifTuf® has maintained commercially acceptable turfgrass quality down to 5.5 hours of filtered to intermittent sunlight per day during the growing season. Like all bermudagrasses, it prefers full sun and performs its best when permitted at least eight hours of sunlight per day. Compared to other hybrid bermudagrass cultivars, TifTuf® has a genetically lighter green color but is still acceptable by industry standards.

TifGrand® Bermudagrass

TifGrand® has many of the desirable characteristics of Tifway but with a genetically darker green color and finer leaf texture. Having a genetically dark green color can lead to lower nitrogen needs since the grass is not being fertilized for color—the color is “built in.” Nitrogen application for TifGrand® grown for a lawn can be one-third less than for other bermudagrass cultivars. The recommend mowing height range for all hybrid bermudagrasses grown as lawns is 1 to 1.5 inches. Because of the finer leaf texture, TifGrand® can be mowed lower. While nonviable, TifGrand® is a prolific seedhead producer, and maintained under lawn conditions, it needs to be mowed regularly, especially in the spring when seedhead production is greatest.

Zoysiagrasses (Zoysia spp.)

Several species and cultivars of zoysiagrass are available in Georgia. Within the species there is great genetic diversity, which leads to an array of cultivars with various leaf textures (e.g., coarse to fine), green color, and adaptation ranges. Zoysiagrass can form a dense turf and spreads by both stolons and rhizomes but has a relatively slower growth rate than other turfgrass species. For lawns, zoysiagrass is adapted to the entire state, is increasing in popularity and use, forms an excellent turf when properly maintained, and is tolerant to a
wide soil pH range, but 6.0 to 7.0 is ideal. Some zoysiagrass cultivars are fairly shade tolerant, able to maintain acceptable quality and color with as little as 4.0 to 4.5 hours of filtered to intermittent sunlight per day during the growing season (Figure 2). Zoysiagrass is a warm-season species and prefers full sun and performs its best when permitted at least eight hours of sunlight per day.

Establishment is predominately by vegetative methods (e.g., sod, sprigs, or plugs) but there are two commercially available seeded cultivars: ‘Zenith’ and ‘Compadre’. Both cultivars can also be planted from sod. Relative to other grasses, zoysiagrass has a lower nitrogen requirement, only needing 1.0 to 2.0 pounds of nitrogen per 1000 ft² per year.

**Meyer and Emerald Zoysiagrass**

Two well-known but older cultivars, ‘Meyer’ has a medium leaf texture, medium to dark green color, good cold tolerance, and moderate adaptation to shade. ‘Emerald’ zoysiagrass has a fine leaf texture, high shoot density, dark green color, better shade tolerance than ‘Meyer’, and a slow growth rate. ‘Emerald’ can develop excess thatch if overfertilized. In extreme years, its moderate cold tolerance makes it more susceptible to winter injury from the Atlanta area and north.

As a species, zoysiagrass is sometimes described as having a needle-like feel characterized by tough, stiff, or rigid stems and leaves. Because of high leaf blade silica content, a quality mowed appearance is best achieved using a reel-type mower to maintain ‘Meyer’ and ‘Emerald’ cultivars. However, diversity in the species and the efforts of plant breeders over the past 25 years have produced new releases that achieve a quality appearance when cut using a rotary mower. With the emergence and production of cultivars like ‘Zenith’, ‘Compadre’, ‘El Toro’, ‘JaMur’, ‘Empire’, ‘Geo’, ‘Zeon’, ‘Zorro’, and others, there has been an explosion in the use of zoysiagrass throughout Georgia. Compared to ‘Meyer’ and ‘Emerald’, as a group, these newer releases have higher growth rates, a lower tendency to produce thatch, better adaptation to sod production systems, and an improved aesthetic appearance after mowing.

**Centipedegrass (Eremochloa ophiuroides)**

Centipedegrass is a ‘Granny Smith’ apple-green, medium-leaf textured turf that can be an attractive lawn or general-purpose area. It spreads only by stolons and has a slow to moderate growth rate. For lawns, centipedegrass is best adapted to the middle and lower part of the state but can be grown statewide. The cultivar ‘TifBlair’ was bred between Tifton and Blairsville for improved cold hardiness and to stretch the northern range of the species. ‘TifBlair’ is also the only certified centipedegrass cultivar. Centipedegrass performs best in full sun but can maintain acceptable quality and color with as little as six hours of filtered to intermittent sunlight.
per day during the growing season. Centipedegrass is subject to “decline” problems that can be prevented by proper management. This includes proper fertilization and maintaining a mowing height of 1 to 1½ inches. Because centipedegrass has low annual nitrogen needs, it is a relatively low maintenance grass. The yearly nitrogen requirement for centipedegrass is 1 to 2 pounds of nitrogen per 1000 ft², with the lower end of the range typically being sufficient. Unless a soil report indicates otherwise, phosphorus is generally not needed and a “zero” phosphorus-containing fertilizer (e.g., 15-0-15) is recommended for centipedegrass. Similarly, lime should only be applied to a centipedegrass lawn if indicated by the results of a soil test. The maintenance soil pH range for centipedegrass is 5.0 to 6.0, making the species well adapted to most Georgia soils.

Centipedegrass can be established from seed or sod. The two cultivars of centipedegrass are common and ‘TifBlair’. Aesthetically there is little difference between the two, but ‘TifBlair’ tends to have a denser canopy and is better adapted to cooler areas of the state. Because the two cultivars are similar in appearance and growth habit, one cultivar can be interseeded into the other without affecting the visual appearance of the lawn (i.e., ‘TifBlair’ can be seeded into a thin common lawn). Due to leaf texture and color difference among cultivars, planting a seeded cultivar into a vegetative cultivar is not recommended for bermudagrass or zoysiagrass.

Spring green-up, or the transition to active growth, can be a difficult period for centipedegrass. It is not uncommon for it to begin growing then turn yellow following a mid- to late spring cold snap and as soil temperatures fluctuate. Additionally, during the spring, environmental conditions are favorable for the development of large patch disease (Rhizoctonia spp). Centipedegrass is susceptible to large patch during the spring and a protective fungicide application or two may be considered to prevent disease occurrence. Delaying the first spring nitrogen application until soil temperatures at the 4-inch depth are consistently 65 °F and rising can mitigate the occurrence and severity of large patch. This applies to other warm-season species too, especially zoysiagrass. Once environmental conditions stabilize and are consistently warm, centipedegrass lawns have relatively few problems throughout summer.

**St. Augustinegrass (Stenotaphrum secundatum)**

A coarse-leaf textured species which can form a dense attractive lawn, St. Augustinegrass spreads only by stolons and has a moderate to fast growth rate. For lawns, St. Augustinegrass is best adapted to the middle and lower part of the state, but there are many St. Augustinegrass lawns in the Atlanta area. It is a cold-sensitive species that can be slow to recover in the spring, especially following an abnormally cold winter. St. Augustinegrass is intolerant to wear and compaction. When choosing to plant St. Augustinegrass, site use and the likelihood of traffic (e.g., foot, vehicle, dog) should be considered.

St. Augustinegrass cannot be seeded and is only established by vegetative methods (e.g., sod, sprigs, or plugs), sod being the most common. In Georgia, there are two commercially available St. Augustine cultivars, ‘Raleigh’ and ‘Palmetto’. Both have performed well in sun and shade research trials. St. Augustinegrass performs best in full sun but can maintain acceptable quality with as little as five to six hours of filtered to intermittent sunlight per day during the growing season.

Because St. Augustinegrass can be a fast-growing species, it may need frequent mowing, even at a suggested mowing height of 2 to 3 inches. It is not uncommon, and is satisfactory, for St. Augustinegrass lawns to be mowed as high as 4 inches. Location within the state can determine the annual nitrogen requirement. The nitrogen rate ranges from 2 to 5 pounds of nitrogen per 1000 ft² per year. The lower end of the range would be recommended for mid- to northern Georgia while the upper end of the range would be needed for southern regions where the growing season is longer and the soils are more sandy. Overfertilization can lead to thatch buildup, which can become a problem.
Peripheral Lawn Grass Species

Peripheral lawn grass species may be found in existing lawns but are no longer grown, promoted or sold; not adapted for residential use; or don’t meet the quality expectations of a lawn.

Carpetgrass (*Axonopus affinis* and *Axonopus compressus*)

Carpetgrass resembles centipedegrass and has many of the same management practices. In older centipedegrass lawns, carpetgrass may be a coexisting contaminant. Carpetgrass is a perennial, coarse-leaf textured, stoloniferous grass. Because it is not cold tolerant, it is predominately found in the central and southern regions of the state. It grows better on low, wet soils and in either sun or shade. Carpetgrass seed are not readily available and there are no producers growing it for sod. Propagation is local and by transplanting sprigs collected from an existing area within the lawn.

Bahiagrass (*Paspalum notatum*)

This species has generally unacceptable qualities for a lawn grass because of its open canopy, unsightly seedheads, light green color, and poor appearance following mowing. In most lawns, bahiagrass is considered a weed. Despite bahiagrass spreading by rhizomes and stolons, it is not particularly aggressive. It can grow statewide but is well adapted to the sandy soils of mid- to lower Georgia. Bahiagrass is considered a low maintenance grass best suited for roadsides, soil stabilization, and general use areas where aesthetics are not a priority. Bahiagrass can be seeded but seed are not commonly found in most turfgrass retail outlets. Redeemable characteristics of bahiagrass are that it tolerates drought and nematodes.

Seashore Paspalum (*Paspalum vaginatum*)

A salt-tolerant grass with fine leaf texture and a dark green color, seashore paspalum can tolerate intensive management like low mowing heights. It is used and best adapted for coastal regions due to its salt tolerance and not recommended for central and north Georgia. It is best suited for golf courses and sports fields where it can receive expert maintenance. Due to the intensity of management, seashore paspalum is not recommended for home lawns. Seashore paspalum does well where poor water quality and sodic soils are a limitation to other grasses. Seashore paspalum has a natural, dark green color that will “stripe up” like many of the cool-season grasses. It spreads by rhizomes and stolons and is primarily established by vegetative means; sodding and sprigging being the most common. Commercially available vegetative cultivars include ‘SeaStar’, ‘SeaIsle 1’, ‘SeaIsle Supreme’, ‘Platinum TE’, and others. ‘Pure Dynasty’ is a commercially available seeded seashore paspalum cultivar.

Buffalograss (*Buchloe dactyloides*)

This is a warm-season grass native to the central, Plains states of the U.S. It is known for its drought tolerance and is sometimes requested by homeowners seeking a “native” alternative. Just because it is native to the U.S. does not mean it is native, or well adapted, to the Southeastern U.S. Georgia’s environmental conditions, specifically humidity, makes this species susceptible to plant pathogenic diseases. As a result of a diseased canopy, buffalograss loses density and becomes weedy. Broadleaf and grassy weeds are common problems in buffalograss. In locations where buffalograss has been planted, it will persist for two to three years before better-adapted grass species predominate.