

FACT SHEET

TURFGRASSES FOR TEXAS LAWNS

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Selecting the proper grass for a particular site enhances lawn appearance and reduces maintenance. Environmental conditions and management practices determine which turfgrass is best adapted to a specific site. Poorly adapted turfgrasses do not perform satisfactorily even with good maintenance. Some grasses are suited to shade, others are not. Some grasses require supplemental watering to survive, others may not. Also, some grasses tolerate traffic much better than others.

Texas has a wide range of environmental conditions — from semi-arid western regions to high rainfall regions of east Texas, and from temperate climates in the Texas Panhandle to sub-tropical regions in south Texas. Most turf grasses can survive in arid areas with supplemental watering, but temperature limits the adaptation of many species. In the cooler, drier climates of the Texas Panhandle, cool season grasses such as bluegrass and fescue can be grown. In the sub-tropical areas of south Texas, the warm season grasses such as bermudagrass and St. Augustine are best adapted. Between these extremes, both cool and warm season grasses can be grown in some situations with good management.

Shade, or light intensity, is a major factor in the adaptation of a turfgrass to a specific site. St. Augustine grass, for example, would perform well in an area receiving 50 percent full sunlight. Bermudagrass would not be satisfactory under the same conditions. However, even shade tolerant grasses require 30 to 40 percent sunlight.

Interactions between environmental conditions such as temperature and shade are also important. Tall fescue, for example, will not perform well in central Texas in full sun, but in 50 percent shade it might do very well. Likewise, temperature and mois-

ture may interact to influence the adaptability of a turfgrass. Bluegrass is not a good grass for east Texas lawns because of the combination of high temperatures and high humidity. However, bluegrass can be grown in the Texas Panhandle where temperatures may be just as high, but humidity is much lower.

Soils also influence turfgrass adaptation to a particular site. The sandy, acid soils of east Texas are well suited to carpetgrass and centipedegrass. The heavy (clay or clay loam) alkaline soils of west Texas are best suited to buffalograss. Other grasses such as zoysia, bermuda and St. Augustine can be successfully grown on all soils.

Management practices may have an overriding influence on turfgrass selection. If a homeowner does not plan to water a lawn, a drought tolerant grass such as bermudagrass or buffalograss is required. If a homeowner will not mow a lawn more than twice a month, only the low maintenance grasses meet his requirements. In Table 1, three levels of maintenance are included. High level maintenance requires frequent watering, at least weekly mowing, several applications of fertilizer each year and pest control. Low level maintenance requires no supplemental watering, monthly mowing, perhaps annual fertilization and no pest control.

To select a turfgrass, use Table 1 to identify grasses that meet all environmental conditions for a specific site. Then review the descriptions for each grass meeting those requirements. Finally, select the variety that is best adapted in terms of environment and management to that site. For example, to select a grass for a shaded site in Amarillo, review descriptions of grasses for arid climates, low winter temperature and shade conditions. Only zoysia, tall fescue and bluegrass meet those conditions. The homeowner then selects one of those grasses, or a grass mixture in the case of bluegrass and perennial ryegrass, that satisfies his management preference.

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Environmental Conditions	Level of Maintenance Required		
	High	Moderate	Low
Arid Conditions	1, 2, 3, 4, 8, 9, 11	1, 4, 6, 8	6
Low Winter Temperatures (Below 10° min.)	2, 4, 8, 9 10	4, 6, 8	6, 8
High Summer Temperatures – Low Humidity	1, 2, 3, 4, 8, 9, 10	1, 3, 4, 6 8	6
High Summer Temperatures – High Humidity	1, 2, 3, 4	1, 3, 4, 5	1, 3, 5, 7
Shade (Less Than 80% Sun)	3, 4, 8, 9 10	3, 4, 5, 8	3, 5, 7, 8
Saline Conditions	1, 2, 3	1, 3	1

- 1- Bermuda (Common)
- 2- Bermuda (Hybrid)
- 3- St. Augustine
- 4- Zoysia
- 5- Centipede
- 6- Buffalo
- 7- Carpet
- 8- Tall Fescue
- 9- Kentucky bluegrass
- 10- Perennial ryegrass

Table 1. Selection Criteria for Turfgrasses

Grass Descriptions

Common bermudagrass (*Cynodon dactylon*); see Figure 1. Bermudagrass, introduced into the United States in the 1700's from South Africa, has since become naturalized throughout the southern United States. Common bermudagrass is a medium textured turfgrass with a creeping growth habit. It spreads by rhizomes and stolons and is the only bermudagrass that can be established from seed. It spreads rapidly during late spring and summer and goes dormant after the first hard frost. It is straw-colored during the dormant period and resumes growth when temperatures are above 70 degrees for several days.

Common bermudagrass tolerates heavy traffic, moderate salinity and close mowing, but it has very poor shade tolerance and is susceptible to winterkill where winter temperatures are below 10 degrees. Common bermudagrass has a number of pest problems (leaf spot diseases, armyworms and white grub), but its rapid rate of recovery reduces the need for pesticides. It performs best with moderate maintenance, but it can be used as a low maintenance grass in parks, lawns and along roadsides.

Hybrid bermudagrass (*Cynodon spp*); see Figure 1. Most of the hybrid bermudagrasses have been developed in the last 25 years. In general, each hybrid bermuda was developed for a specific purpose. All varieties must be established from sprigs or sod. They

develop a fine to medium texture and require more maintenance than common bermudagrass. Fertilization, mowing and watering requirements are all greater than for common bermudagrass. The fine textured varieties including Tifgreen (328), Tifdwarf and Pee Dee are best suited for golf greens. Other varieties including Tifway (419), Santa Ana, Sunturf, Ormond and Texturf-10 are best suited for lawns and athletic fields. Several hybrid bermudagrasses including Midway, Midiron and U-3 have superior cold tolerance.

St. Augustine grass (*Stenotaphrum secundatum*); see Figure 1. St. Augustine grass, often called carpetgrass, is native to the Gulf Coast of Texas. A coarse textured, warm season perennial grass, it spreads by large creeping stolons and is largely propagated from sod or sod plugs although it may be established from seed. St. Augustine is limited to areas with mild winter temperatures and is the most shade tolerant of the warm season grasses. It has good fall color retention, but goes dormant after several hard frosts.

St. Augustine requires a moderate level of maintenance, but has a number of serious pest problems including brownpatch, chinch bugs, white grub and St. Augustine Decline. Several varieties of St. Augustine grass are available including Texas common, Floratam and Raleigh. Floratam and Raleigh are resistant to St. Augustine Decline and Floratam is also

resistant to chinch bugs. However, Floratam is not as cold tolerant or shade tolerant as Raleigh or common St. Augustine grass.

Zoysiagrass (*Zoysia* spp). Zoysia was introduced into the U.S. from Southeast Asia in 1911. A warm season perennial, it spreads by creeping stolons and rhizomes. The texture of zoysiagrass ranges from very fine (*Z. tenuifolia*) to fine (*Z. Matrella*) to coarse (*Z. japonica*). The leaf blades are much stiffer than those of other warm season grasses. The improved zoysiagrasses must be established from sprigs or sod. Zoysia turns brown after the first hard frost, but is among the first grasses to green up in the spring. Zoysia has moderate shade tolerance, good drought tolerance and excellent wear tolerance. However, zoysia is very slow to establish from sprigs or plugs.

Major varieties of zoysia for turf use are Meyer and Emerald. Meyer is a coarse textured variety used for lawns. Emerald is a medium textured grass used for lawns and golf courses. *Z. tenuifolia* is a very fine textured variety used primarily as a ground cover for landscape areas that are difficult to mow. *Z. tenuifolia* is not as cold tolerant as the other varieties of zoysia.

Centipedegrass (*Eremochloa ophiuroides*). Centipedegrass is native to China and Southeast Asia. Introduced into the United States in 1916, it is widely grown in the southeastern United States. In Texas, it is best adapted to the sandy, acid soils in the eastern region of the state. On heavy textured, alkaline soils it develops severe iron chlorosis. Centipede is a low maintenance turfgrass ideally suited for lawns. It is a warm season perennial grass that spreads by stolons which produce rather short, upright stems resembling a centipede — thus the name centipedegrass. It produces seed and is readily propagated from seed. It is coarse textured and has a yellow-green color.

Centipedegrass forms a dense turf, has a rather slow rate of growth and requires less mowing than St. Augustine or bermudagrass. Centipede turns brown after a hard frost, but recovers when temperatures are favorable. It is moderately shade tolerant, but grows best in full sun.

Buffalograss (*Buchloe dactyloides*). Buffalograss is a native warm season perennial grass widely used for turf in the western region of Texas. It spreads by creeping stolons and can be propagated by seed. Buffalograss is one of the few grass species having separate male and female plants; the female plant produces a bur containing the seed.

Buffalograss is not shade tolerant and has poor wear tolerance. It has excellent cold and drought tolerance. Although it develops a dry, straw-colored appearance during prolonged dry periods, it recovers after rainfall or irrigation. It requires little mowing and is well suited to low maintenance environments such as parks and roadsides.

Carpetgrass (*Axonopus affinis*). Carpetgrass is a warm season perennial grass introduced into the United States from the West Indies in the early 1800's. Carpetgrass spreads by creeping, laterally compressed stolons. In contrast to St. Augustine, carpetgrass has blunt, rounded leaf tips. Also, the leaf blade makes about a 45 degree angle with the stem, whereas the blades of St. Augustine emerge at a 90 degree angle from the stem. In addition, the seedstalks of carpetgrass are 10 to 15 inches tall and forked, whereas the seedstalks of St. Augustine form a flattened corky stem with the seed embedded on one side. Carpetgrass seed is commercially available; St. Augustine seed is not.

Carpetgrass is adapted to wet, poorly drained soils in east Texas. It grows well with little or no fertilization and has very few pest problems. It is more shade tolerant than bermuda, but less than St. Augustine. Carpetgrass can be easily established from seed. Many homeowners think they are buying St. Augustine seed when, in fact, it is carpetgrass seed. Carpetgrass does not produce a thick, dark green turf like St. Augustine, but produces numerous tall seedstalks all summer that require weekly mowing to maintain a neat appearance.

Tall fescue (*Festuca arundinacea*). Tall fescue is a cool season perennial bunch grass. In thin stands individual plants develop a rather broad crown through abundant tillering. Occasionally, plants develop a few short, thick rhizomes. Tall fescue is coarse textured, shade tolerant and moderately drought resistant.

In Texas, tall fescue is best adapted to the far west and panhandle regions though it can be grown in north and central Texas in moderately shaded sites. Kentucky-31, Kenwell and Rebel are lawn varieties. All varieties are established from seed.

Kentucky bluegrass (*Poa pratensis*). Kentucky bluegrass is the most popular lawn grass in the United States. In Texas, adaptation is limited to the far west and panhandle regions. Kentucky bluegrass is a cool season perennial bunch grass that spreads by tillers and rhizomes. A fine textured grass that forms a dense, dark green turf, Kentucky bluegrass is not shade or drought tolerant and has several serious pest problems.

Kentucky bluegrass can be established from seed or sod. Planting an adapted variety of bluegrass is very important. Adelphi, Bristol, Baron, Victa, Vantage and Glade are among the best adapted varieties for Texas.

Perennial ryegrass (*Lolium perenne*). Perennial ryegrass is a cool season bunch grass that behaves as an annual or short-lived perennial depending on environmental conditions. It is a fine textured grass characterized by rapid establishment and fast growth

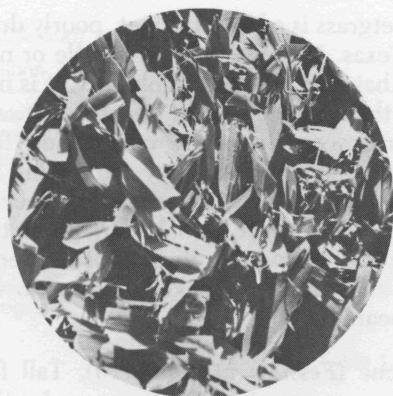
during the seedling stage. In Texas, it behaves like an annual in all regions except the panhandle where it survives in moderately shaded sites

In lawns it can be used for a temporary winter cover or in a mixture with Kentucky bluegrass to provide a fast cover. Perennial ryegrass is established from seed. Varieties include Pennfine, Manhattan, Birdie, Derby, Yorktown, Citation and Caravelle.

Turf quality can be improved and problems reduced by selecting a grass adapted to a particular site. In low maintenance situations where water may be limited, only a few turfgrasses are adapted. In well

maintained situations, environmental conditions influence the selection of a grass. Before selecting a grass, analyze the site to define conditions affecting the adaptability of a turfgrass to the location. Temperature extremes, drought, shade, salinity, soils and management influence the adaptation of a turfgrass.

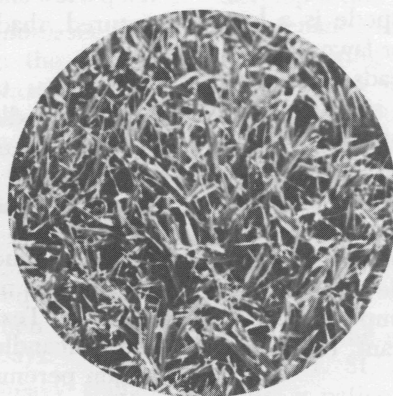
Selecting the best turfgrass for a site does not guarantee success, but planting a grass not adapted to a site guarantees failure. An adapted turfgrass properly maintained will provide a beautiful lawn. Also, less money will be spent on lawn maintenance where adapted turfgrasses are used.



A. *St. Augustine*



B. *Common bermudagrass*



C. *Tifway bermudagrass*

Figure 1. Textural differences between (a) St. Augustine, (b) common bermudagrass and (c) Tifway bermudagrass.

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