

Varieties of Bermudagrass

All bermudagrasses used for forage in the United States are of the species *Cynodon dactylon*. Bermudagrass was first brought to the U.S. in 1751 by Henry Ellis, former Governor of South Carolina. It was introduced at Savannah and quickly came to be considered the most important grass in the South.

In the past 50 years, research in the development of hybrids has improved the agronomic and forage quality characteristics of bermudagrass. Bermudagrass hybrids are essentially sterile. They may produce seedheads but produce little or no viable seed. Therefore, all hybrid bermudagrasses must be propagated vegetatively. The hybrids are often referred to as being “improved” because of increased yields (improved response to fertilizer), better forage quality, or greater cold tolerance when compared to particular lines of common bermudagrass.

Although forage quality has improved with breeding programs, management has more overall impact. Specifically, cutting or grazing management that determines the stage of maturity at harvest is the factor that affects forage quality the most.

Seeded Bermudagrasses

Common

When used in connection with any crop species, the term “common” refers to material that either has not been identified as a cultivar exhibiting a specific set of genetically controlled characteristics or for which the genetic identity has been lost. Therefore, “common” bermudagrass encompasses a wide range of ecotypes.

Since it has such genetic range, common bermudagrass is the most widely adapted type of bermudagrass overall but is not a true cultivar and is highly variable depending on the seed source. While it can be a useful forage crop, common bermudagrass also frequently occurs as a weedy invader in other forage crops (including hybrid bermudagrass), row crops, and lawns. Common bermudagrass is usually propagated by seed but is rhizomatous and can also be propagated vegetatively.

Although generally shorter than hybrid bermudagrass, some common bermudagrass ecotypes are almost as tall as some of the hybrids. Forage yields of common bermudagrass ecotypes vary greatly, but even the most productive do not equal the long-term

production of the hybrid Coastal, which is considered the standard.

With regard to other traits, the forage quality of common bermudagrass is similar to, and occasionally even slightly higher than, Coastal. Common bermudagrass is generally more winter hardy than the hybrids, but this can vary greatly with ecotype. Common bermudagrass responds favorably to good management and growth conditions.

Common bermudagrass may be desirable where environmental concerns require a dense sod or aesthetic considerations suggest the establishment of a relatively low-growing grass. It may also be the desired type where animal traffic is very heavy or simply where seed establishment is a primary management consideration.

Giant (NK37) is a seed-propagated bermudagrass selection that has been marketed since the 1960s. It was selected in the arid southwestern United States where it is well adapted. The selection is susceptible to the fungal leaf spot disease *Helminthosporium*. In the southeastern U.S., Giant has typically been productive for a short time after establishment and then has declined rapidly in yield.

Pasto Rico, Terra Verde, Campo Verde, and Ranchero are commercial blends of common and Giant bermudagrass. They may be blends of hulled and unhulled seed. First-year yields are likely to be higher than the hybrids because hybrids are slower to establish. However, the yields typically decrease beginning the second year and will likely be similar to common bermudagrass by the third year. The decreased yield is due to the loss of the Giant component to cold injury and/or leaf spot disease over time. The plantings will eventually convert to what might be simply termed a common bermudagrass stand.

Hybrid Bermudagrasses

Coastal bermudagrass is a hybrid that was released in 1943 by the USDA and the Georgia Coastal Plains Experiment Station. Coastal has improved vigor and yield when compared to common bermudagrass. It is a tall-growing, coarse-stemmed type that produces both rhizomes and stolons. The cultivar responds well to fertility and irrigation but also has considerable drought tolerance.

When Coastal is planted in a soil that is infested with root-knot nematodes, the nematodes become lodged in the Coastal roots and die before they can lay their eggs. For this reason, legumes susceptible to root-knot nematodes grow much better in association with Coastal than with common bermudagrass. Coastal tolerates frequent and close grazing; however, it responds well to good grazing management. Coastal has been grown successfully throughout Alabama, but winterkill occasionally occurs in the northernmost portion of the state.

Under reasonably good management, Coastal will maintain a weed-free sod longer than common will. It grows well over a wide range of soil pH, but generally will do best if the soil is limed to at least a pH of 5.6. Maintain a pH of 5.8 to 6.5 if legumes are to be overseeded.

Coastal will yield up to twice as much as most common bermudagrass ecotypes. Further, it will generally produce more forage in the late summer and early fall than common will. In a 5-year study done at Tifton, Georgia, pastures of common bermudagrass carried 0.8 steers per acre and produced 161 pounds of live weight gain per acre per year, while Coastal carried 1.3 steers and produced 277 pounds of gain. Other studies have indicated an even greater advantage for Coastal bermudagrass.

Tifton 44, a hybrid between Coastal and a winter hardy bermudagrass from Berlin, Germany, was released by the USDA and the Georgia Agricultural Experiment Station in 1978. It has finer stems, is darker green, and forms a denser sod than Coastal. Tifton 44 is slower to establish than Coastal, seldom providing any significant forage production during the establishment year. It is more winter hardy than Coastal and usually greens up 7 to 10 days earlier in the spring. Tifton 44 has yielded slightly less dry matter than Coastal in many trials conducted in the Southeast.

The higher nutritive value of Tifton 44 (compared to Coastal) has resulted in 15 to 20 percent higher average daily gains for cattle grazing during summer. However, it is important to note that the improved animal performance will not be realized unless the pasture and grazing management systems are optimal. In a more casual management system, the benefits of the improved quality will not be realized.

Tifton 44 may take 3 years to fully establish, which is typically twice as long as Coastal. (This disadvantage can be partially overcome by planting a higher-than-normal amount of sprigs during establishment.) Invasion by weeds during this slow establishment period can be a serious problem. However, use of this hybrid can be particularly desirable where a tight sod is the goal or where good winter hardiness is needed, such as in the northern third of Alabama.

Tifton 68, released by the USDA and the Georgia Agricultural Experiment Station in 1983, is a hybrid created by crossing two plant introductions that were selected for high digestibility. It has big stems and

large stolons that spread rapidly. The hybrid is stoloniferous (has aboveground runners) but is not rhizomatous (spreading by underground creeping roots). It is higher in yield and digestibility than Coastal but is not very winter hardy and is not recommended for Alabama.

Tifton 78 is a cross between Tifton 44 and the Mississippi State University variety Callie. Tifton 78 was released in 1984 by the USDA and the Georgia Agricultural Experiment Station. It is taller than Coastal and is more stoloniferous, spreading more rapidly than Coastal. It can be established either from top cuttings or sprigs. However, use of tops for establishment is not recommended because this approach increases vulnerability to winterkill.

This hybrid is not as winter hardy as Tifton 44 and is recommended only for the southern half of Alabama. For Tifton 78 grown in central Alabama, it is advised to leave growth accumulated after September 15 as a standing mulch on the field. Tifton 78 is similar to Callie in many respects except that it is slightly more winter hardy and is resistant to rust.

The main advantage of Tifton 78 as compared to Coastal is that it has better forage quality. In a 3-year clipping trial planted at Tifton, Georgia, Tifton 78 produced 25 percent more dry matter and was 7.4 percent higher in digestibility than Coastal. When compared with Coastal in a 3-year grazing trial, Tifton 78 produced 27 percent more steer days and 13.5 percent better average daily gains resulting in 36 percent more live weight gain. Once again, however, these advantages will only be realized with good management. This level of advantage has not typically been realized in Alabama.

Tifton 85, which was released in 1992, is a cross between a plant introduction from South Africa and Tifton 68. Like Coastal, Tifton 44, and Tifton 78, it is a product of Dr. Glenn Burton's breeding program at Tifton, Georgia. It is taller, has larger stems, broader leaves, and a darker green color than most bermudagrass hybrids. It has large rhizomes (though fewer than Coastal and Tifton 44) and very large, rapidly spreading stolons.

In two 3-year small plot tests at Tifton, it produced an average of 26 percent more dry matter that was 11 percent more digestible than Coastal bermudagrass. Another study at Tifton resulted in steers gaining 1.47 pounds per day from mid-April through mid-October.

Tifton 85 is not highly winter hardy. It is not unusual for thinning of a stand to occur during winter in central Alabama or areas with similar winter conditions. Tifton 85 is currently recommended for the southern half of Alabama.

Midland, a hybrid between Coastal and a cold-tolerant bermudagrass found in Indiana, was jointly released in 1953 by the USDA and the Georgia and Oklahoma Experiment Stations. It is leafier, darker

green, and tends to produce a more open sod than Coastal. The cultivar is more winter hardy and tends to green up earlier in the spring than Coastal but usually produces less fall growth. Disease resistance is not as good as that of Coastal, and yields are usually lower where winterkill is not a factor. It is recommended only for the northern third of Alabama.

Callie was released by Mississippi State University in 1974 after selection from some plant introductions from South Africa. It is probably a hybrid, but its exact origin is unknown. Callie is a tall-growing bermudagrass with large stolons and wide leaves. It produces an open sod. This cultivar establishes more rapidly than Coastal, has better forage quality, and has higher yields during the establishment year. However, it has little winter hardiness and is quite susceptible to rust. As a result, it is not recommended for Alabama.

Coastcross-1 is a hybrid between Coastal and an introduction from Kenya. It is a tall-growing, broad-leaved bermudagrass that was released in 1967 by the USDA and the Georgia Coastal Plains Experiment Station. Coastcross-1 produces more stolons than Coastal and has few and small rhizomes. The open sod makes this hybrid susceptible to invasion by common bermudagrass and other weedy species.

Coastcross-1 was selected primarily for its improved forage quality. Forage yields are about equal to Coastal. This hybrid lacks cold tolerance to the extent that it is adapted only to Florida and areas with similarly mild winter temperatures. It is not recommended for Alabama.

Hill Farm Coastcross-1 is a selection of Coastcross-1 that produces rhizomes. The yield of this type is less than Coastal's, and forage quality is similar to that of Coastcross-1. As with Coastcross-1, it is not recommended for use in Alabama.

Brazos is a hybrid bermudagrass developed from materials of African origin and released in 1982 by the USDA and the agricultural experiment stations of Oklahoma, Louisiana, and Texas. It has wider leaves, thicker stems and rhizomes and more open sod than Coastal does. This hybrid has about the same winter hardiness as Coastal but makes earlier spring growth.

Forage production is equal to, or better than, Coastal on clay and clay loam soils but slightly less on sandy soils. The nutritive value is 2 to 4 percent higher than that of Coastal. There are reports that Brazos requires a little more time than Coastal to cure when making hay. Brazos has produced about 20 percent higher animal gains than Coastal over several years of testing in Texas. This variety has not been adequately tested in Alabama and is not recommended at present.

Alicia was developed by Cecil Greer Grass Farms, Edna, Texas, from a strain collected in South Africa and released in 1967. It can be established either from

sprigs or top cuttings. Alicia spreads and becomes established more rapidly than Coastal. It is less winter hardy and less resistant to diseases than Coastal. Forage production may be slightly greater than Coastal during the establishment year, but it is generally considered to be approximately equal in yield thereafter. Forage quality is typically less than Coastal. This hybrid is quite susceptible to rust and is not recommended in Alabama.

Grazer is a hybrid of introductions from Kenya and Italy. It was released in 1985 by the USDA and the Louisiana Agricultural Experiment Station. Grazer is more prostrate than most hybrids and was developed primarily for grazing. This hybrid has winter hardiness, persistence, and drought tolerance about equal to that of Coastal.

Grazer establishes more rapidly, forms a shorter, denser sod, and produces fewer rhizomes than Coastal. It is darker green than Coastal. Forage yields have been lower than that of Coastal, but digestibility is higher so that average daily gain and gain per acre are comparable to or higher than those obtained from Coastal. Grazer has not been evaluated in Alabama and is not recommended.

Russell is a vegetatively propagated bermudagrass that appeared in a field in Russell County, Alabama. The field was originally planted to the variety Callie. It is believed to be either a mutation of Callie or a natural hybrid between Callie and an ecotype of common bermudagrass. It has yielded better, spread more rapidly, and been rated higher for winter hardiness than Coastal. Forage quality appears to be similar to Coastal.

Russell produces both rhizomes and stolons. In a greenhouse test, Russell rooted better from clippings than Coastal. This grass, which resembles common bermudagrass in many respects, forms a dense sod that holds up well under grazing and is especially effective in preventing erosion. Russell was jointly released by Auburn University and Louisiana State University in 1994 and is recommended statewide.

World Feeder is a vegetatively propagated bermudagrass that was found by a producer in Oklahoma; thus, there is no information available regarding its genetic background. It is known to have good winter hardiness and a relatively good rate of spread. However, in several bermudagrass variety trials conducted at various universities, it has yielded reasonably well but was not a standout. It is not recommended for Alabama.

LaGrange, Zimmerly, Scheffield, Naiser, Luling, Oklan, Guymon, Quickstand, and Hardie are bermudagrass types that have been marketed for forage production in some regions of the U.S. but have not been tested in Alabama. They are probably not well adapted, and until data is

obtained that proves otherwise, it would be logical to assume that they will be less productive than currently recommended varieties.

Turf Types

The following varieties of bermudagrass have been developed primarily for turf use and would not produce as much dry matter as the forage types: Bayshore, Everglades, FB-137, Midway, Ordmond, Pee Dee, Royal Cape, Santa Ana, Sunturf, Texturf 1F, Texturf 10, Tifdwarf, Tiffine, Tifgreen, Tiflawn, Tifway, Tufcote, U-3, and Uganda. New turf type bermudagrasses become available each year.

Recommendations

Common bermudagrass is the most widely adapted bermudagrass statewide and is logical to consider for pasture establishment where high yield is not the primary objective. It responds to improved management and is a dependable forage. Common is easier to overseed with winter annuals than are the hybrids. However, because of the economics associated with high hay yields, a hybrid would be a better choice for any field established for hay production or a combination of grazing and hay.

Coastal, Russell, and Tifton 44 are recommended statewide. Russell and especially Tifton 44 are particularly good choices in the northern third of the state because of their superior winter hardiness. Farther south, Tifton 44 is less attractive due to its slow establishment. Midland is another winter hardy variety that is recommended in the northern third of Alabama only. Russell has also been quite productive in central Alabama. Tifton 78 and Tifton 85 are recommended for the southern half of Alabama where winterkill is unlikely. Of the two, Tifton 85 spreads more rapidly and has yielded higher in variety trials. A summary of traits of these varieties is provided in Table 1.

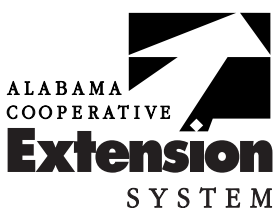
Improving the level of management on existing stands of old varieties is often more economically advantageous than eliminating existing stands and establishing new ones. In addition, planting improved varieties without providing good management may not result in increased forage yield or forage quality as compared to other bermudagrass types and therefore may not result in increased animal performance. New varieties can be helpful, but they do not substitute for good management.

Table 1. Summary of Some Characteristics of Hybrid Forage Bermudagrass Varieties Recommended for Alabama

| Variety | Rate of Spread* | Winter Hardiness* | Propagation** | | | Recommended For** | |
|-----------|-----------------|-------------------|---------------|--------|-----------|-------------------|-------|
| | | | Seed | Sprigs | Clippings | North | South |
| | | | | | | AL | AL |
| Coastal | F | G | N | Y | Y | Y | Y |
| Midland | F | G | N | Y | N | Y | N |
| Russell | G | E | N | Y | Y | Y | Y |
| Tifton 44 | P | E | N | Y | N | Y | Y |
| Tifton 78 | G | F | N | Y | N | N | Y |
| Tifton 85 | E | F | N | Y | N | N | Y |

*E= Excellent; G= Good; F= Fair; P= Poor

** Y= Yes; N= No



ANR-1015

Don Ball, *Extension Agronomist*, Alumni Professor, Agronomy and Soils, Auburn University, and **Bruce Pinkerton**, *Extension Agronomist*, Professor, Clemson University

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

Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, and other related acts, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability. UPS, 4.5M09 Revised Sept 2002, ANR-1015

©2002 by Alabama Cooperative Extension System. All rights reserved