

BERMUDA GRASS



Varieties for Hay and Pasture in Louisiana

Bermuda grass (*Cynodon dactylon* L. Pers.) has grown in the United States at least since the middle of the 18th century – when records show it was introduced in Georgia. Although long regarded as a weed by early crop farmers, its importance as a pasture and forage grass today is no longer disputed.

Its primary area of adaptation in the United States is south of a line from Virginia to southern Kansas, but Bermuda grass also is grown in the Southwest wherever adequate moisture is available. In its area of production, Bermuda grass is a highly productive, warm-season, perennial grass that has a growing season lasting from March or April until autumn frosts. In Louisiana, peak growth rates usually are seen from May through August.

One of the inherent limitations of Bermuda grass has been its relatively low quality compared to some temperate annual forages. Because of this, a major objective of breeding programs with Bermuda grass has been to improve quality in lines with suitable winter hardiness.

Choosing a Variety

One of the earliest decisions to be made in pasture and hay meadow establishment is the forage or combination of forage varieties you will plant. The variety must be adapted to the soil and climatic conditions of your farm. It should also be well suited for supporting the livestock that will be produced and should fit into the total feed production program.

The base forage crop for many permanent pastures and hay meadows in Louisiana is Bermuda grass. Several Bermuda grass varieties are available for planting in Louisiana, but all are not equally adapted or equally productive.

A list of Bermuda grass varieties suggested for planting is prepared annually and made available through parish offices of the LSU AgCenter. Be sure to consult your LSU AgCenter county agent when choosing a variety to plant.

The varieties described in this publication are suggested for planting by the LSU AgCenter.

Variety Descriptions

Alicia: A variety released by Cecil Greer Grass Farms of Edna, Texas, Alicia reportedly is a selection from a strain collected in South Africa. It spreads rapidly during establishment and can be established from hay-type cuttings or from sprigs. Compared to Coastal, it produces fewer rhizomes, is less winter hardy, less drought tolerant and has less disease tolerance, according to ratings at the LSU AgCenter's Hill Farm Research Station at Homer, La. (Table 1) Digestibility of Alicia usually is equal to or less than that of Coastal. Forage production may exceed that of Coastal during the establishment year but is generally similar to Coastal in the following years in south Louisiana and is equal to or less than Coastal in the following years in north Louisiana.

Table 1. Relative rating of observed performance characteristics of Bermuda grass hybrids and common Bermuda grass in north Louisiana*

Variety	Rate of Coverage	Stolons	Production of Rhizomes	Winter Hardiness	Drought Tolerance
Coastal	3**	3	1	3	2
Alicia	2	2	4	4	4
Common	1	1	2	3	5
Grazer	2	1	4	3	2
Brazos	3	3	1	2	3
Tifton 44	5	4	1	2	2

* From Eichhorn, Marcus M., et al., 1981 Agronomy Research Report, North Louisiana Hill Farm Research Station and Louisiana Agricultural Experiment Station Circular 123.

** Ratings from 1=Excellent to 5=Very Poor

Brazos: Brazos is an F1 hybrid of plants from Africa. It was released in 1982 by the agricultural experiment stations of Oklahoma, Louisiana and Texas and the U.S. Department of Agriculture's Agricultural Research Service and its National Resources Conservation Service. Compared to Coastal, Brazos has larger stems, rhizomes and leaves. It spreads faster on heavy textured soils but not on light soils in north Louisiana. It is slower curing for hay, has earlier spring growth and is more productive on heavy textured soils along the Gulf Coast but yields about the same as Coastal on light soils in north Louisiana. It is more digestible and is slightly more winter hardy than Coastal. Differences in digestibility have ranged from 1 percentage unit up to 5 percentage units higher for Brazos.

Cheyenne II: This is a seeded variety that was developed by Pennington Seeds. It originates from plants selected for their cold tolerance and vigorous growth habit. It has been reported to establish rapidly. This variety is as cold tolerant as Coastal and is more cold tolerant than Tifton 85.

Coastal: Coastal Bermuda grass was released in 1943 by the USDA-SEA and the Georgia Coastal Plains Experiment Station. It is an F1 hybrid between a common plant from a cotton field near Tifton, Ga., and a plant from the Union of South Africa. Coastal is more robust than most common Bermuda grasses and is more resistant to foliage diseases, frost and drought. It generally produces more forage than common Bermuda

grass, especially at high fertility levels (Table 2). Yields of Coastal and Alicia are similar. Quality is generally similar to or slightly poorer than that of common Bermuda grass if the two are fertilized alike and sampled at the same growth stage (Table 3).

Common: Common Bermuda grass generally refers to unselected Bermuda grass that produces seed and can be propagated by either seed or vegetative material. It occurs naturally and typically is a mixture of several types. It is not a true variety. It grows on open land throughout much of the Southeast. Common Bermuda grass has highly variable traits ranging from dwarf or turf-type plants to plants that are similar to some of the forage hybrids. Yielding ability also varies, but Coastal generally will produce higher yields than common Bermuda grass (Table 2). Quality generally is similar to that of Coastal, and digestibility may even be slightly higher in some instances.

Grazer: Grazer is an F1 hybrid of plants from Kenya and Italy. It was tested as Tifton 72-84, Georgia 72-84 and Tifton 84. It was released in 1985 by the Louisiana Agricultural Experiment Station in cooperation with the USDA. Compared to Coastal, Grazer has equal winter hardiness, persistence and drought and disease tolerance (Table 1). It establishes more rapidly, forms a shorter, denser sod of darker color and produces fewer rhizomes. Hay yields have been lower, but total season animal gains per acre and average daily gains of grazing animals have been higher (Table 4).

Table 2. Yield performance of Coastal compared with common and Alicia Bermuda grass under hay management

Variety	Location				Mean
	Baton Rouge	Homer	Jeanerette	Rosepine	
Dry forage, tons/acre					
Coastal	-	7.86	10.00	5.40	7.75
Common	-	5.84	7.77	5.62	6.41
	-	*	*	*	ns
Coastal	6.21	7.63	10.00	-	7.95
Alicia	6.33	7.07	11.01	-	8.14
	ns	*	ns	-	ns

* P<0.05; ns = P>0.05.

Table 3. Forage quality of recommended Bermuda grass varieties as indicated by harvested forage content of crude protein (CP) and in-vitro digestible dry matter (IVDDM)

Variety	CP	Compared to Common	IVDDM	Compared to Common
		%		%
Alicia	13.4	-1.2	51.8	-2.6
Russell	12.3	-2.3	53.6	-0.8
Common	14.6	0.0	54.4	0.0
Coastal	13.3	-1.3	54.5	0.1
Tifton 44	12.6	-2.0	55.3	0.9
Brazos	13.1	-1.5	56.2	1.8
Grazer	14.6	0.0	59.1	4.7
Tifton 85	12.6	-2.0	61.3	6.9

Jiggs: This is a private release that traces its origin to a rancher in east Texas by the name of J.C. Riggs. It has become especially popular since about 2000 along the upper Texas Gulf Coast. Jiggs establishes easiest of all varieties and quicker than Coastal on heavy textured soils. It is adapted to various soil types and even does well on heavy, wet soils. Jiggs is easy to plant with long hay cuttings. It does not have many rhizomes and does not produce as much as Coastal or Tifton 85 in a drought. It also has less cold tolerance than Tifton 85 or Coastal. Forage quality is more or less equal to that of Coastal.

Russell: Russell was released by the Louisiana and Alabama experiment stations in 1994. The origin of Russell was unknown before its appearance in a field near Seale, Ala., in about 1970. The field originally had been planted to Callie Bermuda grass, but since Callie soon winter-killed throughout Alabama, it became clear that the grass which had dominated the field was unique – probably either a mutation of Callie or a natural hybrid between Callie and native common Bermuda grass. Russell has yielded better and been rated higher for winter hardiness than Coastal (Table 5). Forage quality of Russell was similar to that of several other commonly grown Bermuda grass hybrids when grown in a test in Alabama. In a test in Louisiana, however, the in-vitro digestibility of Russell was lower than Coastal (Table 5). Russell produces an abundance of rhizomes for sprig plantings and produces long hay suitable for planting. Rate of spread, primarily by stolons, has been as fast or faster than any other Bermuda grass variety commonly available with the exception of Tifton 85. An unusual trait of Russell is that in the first harvest of the season

it has almost always outyielded all other varieties to which it has been compared.

Sumrall 007: This is a private release developed by Gerald Sumrall of Monticello, Miss. The origin of Sumrall 007 can be traced by to a field of Callie Bermuda grass that was growing on Sumrall’s farm in the early 1990s. Sumrall observed that Bermuda grass plants in an area of the field had very aggressive stolons. Several plants were obtained by Mississippi State University in 1996 and were designated as Sumrall 007 Bermuda grass. It established more quickly than Coastal or Tifton 44. It has short, soft stems with moderately sized leaves and aggressively spreading stolons. It has been proven to have good winter hardiness and persistence.

Tifton 44: Tifton 44 is a sterile F1 hybrid from a cross between Coastal and a plant introduced from Germany. It was released by the Georgia Agricultural Experiment Station and USDA-ARS in 1978. Compared to Coastal, Tifton 44 is darker green, has finer stems, cures faster and has more rhizomes, shorter stems and a denser sod. It exhibits earlier spring growth and has more winter hardiness. In variety tests, it has yielded less than Coastal at Jeanerette and about the same as Coastal at Homer. Forage quality and animal performance of Tifton 44 have been similar to that of Coastal (Tables 3 and 4). Slow establishment has limited plantings in Louisiana.

Tifton 85: Tifton 85 is an F1 hybrid of PI 290884 from South Africa and Tifton 68, a cold susceptible hybrid released by the University of Georgia in 1983. Tifton 85 is taller, has larger stems and broader leaves and is darker green than most other Bermuda grass hybrids. It has large rhizomes and large, rapidly spreading sto-

Table 4. Four-year performance of steers grazing Bermuda grass pastures, Calhoun

Variety	Initial weight	Final weight	Gain per head	Average daily	Gain per acre
				gain per head	
			Pounds		
Grazer	497	768a*	271a	1.8a	1,183a
Brazos	488	730b	242b	1.6b	1,105b
Coastal	488	715b	227b	1.5b	988b
Tifton 44	490	713b	223b	1.4b	969b
Mean	491	732	241	1.5	1,048

*Means having a lower case letter in common with a column are not different at the 5 percent level of probability.

Table 5. Mean forage yield and quality measurements of Russell and Coastal Bermuda grass at the Hill Farm Research Station, Homer

Variety	Yield	IVDDM*	CP	NDF
	tons/acre		%	
Russell	8.85	56.80	11.59	69.57
Coastal	7.58	58.55	12.29	69.08

*IVDDM = In-vitro digestible dry matter; CP = crude protein; and NDF = neutral detergent fiber.

Table 6. Mean forage yield and quality measurements of Tifton 85 and Coastal at the Hill Farm Research Station, Homer

Variety	Yield <i>tons/acre</i>	IVDDM*	CP %	NDF
Tifton 85	8.23	61.32	12.54	69.98
Coastal	8.92	56.77	10.29	68.84

*IVDDM = in-vitro digestible dry matter; CP=crude protein, and NDF=neutral detergent fiber

lons. In research trials, Tifton 85 has produced yields higher or equal to Coastal with more digestibility than Coastal (Table 6). The major concern with this hybrid is its lack of winter hardiness. The freezing winter-kill tolerance of Tifton 85 is not known, and it may not be adequate for survival of severe winters in Louisiana, especially in northern Louisiana.

Planting Methods

Common Bermuda grass and other seed-type varieties can be established by planting seeds. Seedbed preparation has a major influence on the percentage of seed that will ultimately produce healthy plants. A well-prepared, level seedbed is conducive to planting at the right depth and obtaining good germination and establishment.

During tillage operations, the recommended rates of lime and fertilizer should be applied. The final tillage operation before seeding should involve a cultipacker or land roller to ensure a firm seedbed has been prepared.

Common Bermuda grass should be seeded at a rate of 5 pounds of hulled seed per acre. The optimum planting dates are March 1 to June 1, but common Bermuda grass may be planted anytime during the growing season if soil moisture is adequate.

Hybrid Bermuda grass varieties produce little or no viable seed and must be vegetatively propagated. One of the most important considerations in establishing hybrid Bermuda grass fields is obtaining high quality sprigs. Producers from Louisiana interested in establishing hybrid Bermuda grass fields may have to obtain their

sprigs from other states. Few sources of sprigs are available in Louisiana.

For most hybrid Bermuda grass varieties, a bushel of sprigs contains about 400 sprigs and weighs about 15 pounds. Satisfactory stands can be established by using 12-15 bushels per acre if planted by hand in 3-foot rows, 15-20 bushels per acre if planted by machine in rows or 40-50 bushels per acre if broadcast and disked into the soil. (The variety Brazos contains fewer sprigs per bushel, so the planting rates for this variety should be increased by 25 percent to 50 percent compared to the other varieties.)

Similar to common Bermuda grass, hybrid Bermuda grass should be planted from March 1 to June 1.

A final method of establishing a Bermuda grass field is by using long hay. This involves going into an existing field of a known variety, baling the forage while its green and then transporting this baled material to a prepared seedbed for planting a new field of Bermuda grass.

The normal method of planting is to broadcast the long hay onto the field and then disk in, not bury, the cut material. A cultipacker may be used to firm the seedbed after planting.

A bale of green, uncured clippings weighing 100 pounds will plant about 2,500 square feet when spread over the area. About 17 bales are required to plant 1 acre.

Planting implements also can be used to plant long hay cuttings. These implements offer the advantage of using less planting material than the traditional long-hay establishment method.

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