



# Bahia Grass

## Production and Management



Bahia grass (*Paspalum notatum* Flugge) is grown from east Texas to the Carolinas and as far north as northern Arkansas and central Tennessee. It is principally adapted to the area of Louisiana, Mississippi, Alabama, southern Georgia and Florida.

Although it can grow in a wide range of coastal-plain soils, it performs best on sandy soils with a pH of 5.5 to 6.5. It grows better on drought-prone soils with relatively low fertility and on sandier soils than most other pasture grasses.

Bahia grass is a deep-rooted warm-season perennial. It forms a deep, extensive root system that few other plants are able to encroach after a sod has been developed.

Bahia grass is popular in the South because of several factors. Among those, it tolerates a wider range of soil conditions than Bermuda grass or Dallis grass. It is established by seed rather than sprigs. It resists encroachment of weeds. It can persist and produce moderate yields on soils of low fertility, and it withstands heavy grazing.

Bahia grass can be used as a permanent pasture or a hay crop. Beef gains on Bahia grass pasture have been intermediate to gains on common and coastal Bermuda grass, and Bahia grass hay accompanied by appropriate supplements is satisfactory for beef cattle wintering programs.

## Variety Descriptions

**Pensacola:** The most extensively used Bahia grass variety was generated from a stand found near Pensacola, Fla., in 1935. Characterized by long, narrow leaves and long stems, Pensacola generally has adequate cold tolerance for survival across Louisiana, but top growth is killed by moderate frosts. It is the most popular variety planted for pasture and hay in Louisiana.

**Argentine:** Introduced from Argentina in 1944, this variety has wider leaves, is not as cold tolerant and does not make as much spring growth as the other varieties. It produces fewer seed heads than other varieties, but its plants and seed heads generally are much larger than other varieties. Ergot can be a problem on seeds of this variety.

**Tifton 9:** Released from Georgia in 1987, Tifton 9 is a selection from Pensacola Bahia grass. Compared to Pensacola, Tifton 9 has longer leaves, is much more vigorous in

the seedling stage, is more palatable, is equally digestible and has a similar level of cold tolerance.

**UF-Riata:** It was developed for fall and early spring forage production for the southeastern United States. It was developed by the University of Florida and U.S. Department of Agricultural/Agricultural Research Service researchers in Florida. This Bahia grass exhibits lower photoperiod sensitivity, improved leaf tissue cold tolerance and increased forage production during the cool season compared to the standard Bahia grass varieties Argentine and Pensacola. UF-Riata was developed using Pensacola-derived lines and novel Bahia grass plant selections collected in Oklahoma, Alabama and Georgia. Trials at multiple locations show UF-Riata is similar in total season yield to Tifton 9, with an improvement in seedling vigor and leaf tissue cold tolerance that promotes late-fall season growth and early-spring season growth. UF-Riata seasonal total forage yields have been 25 percent greater compared with Argentine and Pensacola and 10 percent greater compared with Tifton 9 in north Florida. When tested in Florida during the growing season, UF-Riata has equal or higher nutritive value than all other Bahia grass varieties. UF-Riata is not tolerant of severe overgrazing.

**AU Sand Mountain:** This variety originated from a patch of Pensacola Bahia grass that had been planted in the early 1960s on what is now the Sand Mountain Research and Extension Center near Crossville, Alabama. In 1984, seed from this ecotype was collected and included in variety trials in Alabama and several other states. The variety has proven to be more winter-hardy than other Bahia grass varieties and will expand the area of adaptation of Bahia grass farther north. The exact northern limit is not known but is likely at least as far north as central Tennessee. In the upper portion of the area where Bahia grass commonly has been grown, this variety consistently has yielded better than other varieties. The farther south the new Bahia grass is grown, however, the less likely it is to outperform currently available varieties.

**TifQuik:** It is being released by the University of Georgia and USDA-ARS. In developing TifQuik, the sole criterion for selection of plants was fast germination. This variety was developed from several cycles of selection from Tifton 9 Bahia

grass. In greenhouse studies, germination of TifQuik averaged five times more than Tifton 9 after six days and three times more after eight days. In the field studies, TifQuik emerged about 75 percent faster after one week than Tifton 9 and Pensacola varieties. After four weeks, TifQuik plants were taller than both Tifton 9 and Pensacola. Dry-matter yields of TifQuik were two times higher than Tifton 9 and four times higher than Pensacola for the first clipping, which was done two months after planting. The main advantage of TifQuik over other available varieties is its rapid germination and higher initial forage production.

## Establishment

Plant Bahia grass between March 1 and June 1 at a seeding rate of 15 pounds of pure live seed per acre. (The superior seedling vigor of the variety Tifton 9 allows successful stand establishment from substantially lower seeding rates when environmental conditions are favorable, however.)

Bahia grass also can be planted in the summer and fall, but these seedings usually are riskier than spring seedings. One problem with summer seedings is that the soil dries out quickly and germinating seedlings may die. Also, in north Louisiana, the risk of winterkill is a serious threat to stands that are seeded late.

Bahia grass should be planted on a well-prepared seedbed at a depth of about ½ inch. Use a cultipacker or roller after seeding to firm the soil, conserve moisture and speed germination. Successful stands can be obtained from broadcasting the seed in mixture with the planting fertilizer application, but seed viability can be reduced if the mixture is stored before spreading.

Apply fertilizer according to soil test recommendations. Apply only 20 to 40 pounds of nitrogen per acre at planting. Applying higher rates will encourage excessive weed competition. After the planted grass emerges and begins to cover, apply 40 to 60 pounds of nitrogen per acre. Small seedlings of Bahia grass are weak competitors with weeds. For fast establishment of a productive Bahia grass stand, weeds must be controlled.

Mow frequently during the months following seeding. This prevents other grasses and weeds from forming a canopy over the young Bahia grass seedlings. The herbicide 2, 4-D can be used to control many broadleaf weeds in Bahia grass, but don't apply it to Bahia grass less than 4 or 5 inches tall because it will damage or kill small Bahia grass seedlings. There are no selective herbicides that will take grassy weeds out of a Bahia grass stand. Frequent mowing is the only solution to eliminating these weeds.

Grazing should not be practiced for about three months after planting or until the stand is thick enough that the ground cannot be seen.

Be patient when attempting to establish Bahia grass. It contains a moderate to large percentage of dormant seed that germinate over a period of months. Toward the end of the summer, some plants may be fully grown and others only several inches tall. It is difficult to evaluate a stand of Bahia grass before the end of the summer of the establishment year. Even if a stand contains only one plant per square foot, it probably should be kept because the Bahia grass may out-compete the weeds during the spring of the next year.

## Variety Performance and Quality

Research comparing varieties has led to variable results. In experiments at the LSU AgCenter's Rosepine Research Station, Argentine produced more forage than Pensacola in one year, and Tifton 9 produced more forage than Argentine or Pensacola in another year (Table 1).

Research at the LSU AgCenter's Southeast Research Station has shown few differences in yield among Pensacola, Tifton 9 or Argentine when compared at three harvest frequencies, but Tifton 9 and Pensacola were more productive at the first harvest than Argentine. This slow spring growth for Argentine also has been reported in Florida research. Differences in forage quality among varieties also appear to be fairly small (Table 2). Since these three Bahia grass varieties have been shown to be similar in productivity and quality, producers should base variety selection on seed availability and cost.

**Table 1. Dry forage yields of three Bahia grass varieties for two different planting years at the LSU AgCenter's Rosepine Research Station**

Variety	1990 planting	1991 planting
	tons/acre	
Argentine	5.7 <sup>a</sup>	5.3 <sup>b</sup>
Pensacola	5.1 <sup>b</sup>	5.3 <sup>b</sup>
Tifton 9	5.3 <sup>ab</sup>	6.0 <sup>a</sup>

Values within a column followed by a different letter are significantly different (P<0.05).

**Table 2. Bahia grass forage quality as affected by variety at the LSU AgCenter's Rosepine Research Station**

Variety	Crude Protein	Digestibility
	%	
Argentine	12.1 <sup>b</sup>	66.1 <sup>b</sup>
Pensacola	12.0 <sup>b</sup>	64.6 <sup>c</sup>
Tifton 9	11.5 <sup>b</sup>	64.6 <sup>c</sup>

<sup>a</sup>Average of three harvest years and five harvests per year.

<sup>b,c</sup>Means with different superscripts are significantly different (P<0.05).

## Fertility Management

Bahia grass has a somewhat undeserved reputation for not responding to nitrogen fertilization and rarely receives high nitrogen fertilizer rates. Research at the LSU AgCenter's Southeast Research Station has demonstrated Bahia grass is very responsive to nitrogen fertilization (Table 3).

**Table 3. Dry matter, yield, crude protein (CP) and yield of CP per acre of Pensacola Bahia grass at four nitrogen fertility levels**

Nitrogen lb./acre	Yield tons/acre	CP %	CP/acre lb./acre
0	1.8	10.5	370
200	5.3	12.6	1350
300	6.4	13.6	1740
400	7.0	14.4	2010

Bahia grass stands produce a dense sod with large storage reserves of energy which can support regrowth following abusive grazing, severe drought or other disturbances. This dense sod allows Bahia grass to take up large amounts of nitrogen, even from a single fertilizer application, and store this nutrient for later use. Growth responses to a single application of 200 pounds of nitrogen per acre (600 pounds of ammonium nitrate per acre) were obtained through two years after application in a Florida grazing trial.

When growing conditions are favorable, Bahia grass typically produces a sudden burst of growth in response to nitrogen fertilization. This rapid growth actually can contribute to subsequent low-quality forage because rapid late spring and early summer forage often is only partially used when grazed at typical stocking rates. Patches are grazed and then grazed again as long as regrowth is rapid. When the growth rate decreases, the pasture is a mosaic of excessively grazed spots and tall, rank, unpalatable, poor-quality areas. This aspect of Bahia grass use is the greatest challenge in effective use of nitrogen fertilizer on Bahia grass pastures.

While intensive rotational grazing may enhance management of Bahia grass pastures during periods of rapid growth, another approach is to apply nitrogen only at times and in amounts that will meet forage needs. Some accumulated late summer and autumn growth can be used effectively for winter forage when appropriately supplemented. Accumulated spring and early summer growth is detrimental, however, to both subsequent production of regrowth and quality of available forage from midsummer through autumn.

If Bahia grass is to be used as a pasture, apply all of the phosphate and potash recommended by soil analysis and 60 to 80 pounds of nitrogen in the spring soon after the grass begins to grow. An additional 60 to 80 pounds of nitrogen should be applied in early to mid-June. In South Louisiana,

another 30 to 40 pounds of nitrogen may be applied in late August or early September for late fall grazing if ryegrass is not going to be overseeded in the field.

If Bahia grass is to be used as a hay crop and cut three to four times a year, apply 300 to 400 pounds of nitrogen per acre per year. If only one or two cuttings are planned, about 200 pounds of nitrogen per acre per year should be adequate. Use these rates in split applications with no more than 100 pounds of nitrogen applied at any one time.

## Forage Quality

Bahia grass has a reputation as a low-quality forage. The quality of Bahia grass hay tends to be lower than the quality of Bermuda grass or mixed warm-season grass hay (Table 4).

When the quality of Bahia grass is adequate for making good quality hay, the grass seems too short to cut. Once it seems tall enough to cut for hay, forage quality is low, and there are many seed heads. Often during July, August and early September the quality is low even on relatively young growth. For optimum production of high-quality Bahia grass hay, take the first cutting at the boot to early heading stage and then cut every 30 to 35 days if growth permits.

**Table 4. Average forage quality of warm-season hay samples sent to the LSU AgCenter's Southeast Research Station Forage Quality Laboratory in 1992**

Hay type	Crude Protein	Total Digestible Nutrients %	Acid Detergent Fiber
Bahia grass	8.3	50.0	44.2
Bermuda grass	10.7	54.4	40.4
Mixed grass	9.3	50.7	43.1

## Grazing Management

Since Bahia grass has predominantly low-growing, dense growth, it is an excellent grass for use in grazing. About 40 percent of Bahia grass forage is produced between 0 and 1 inch in height. Bahia grass must be closely grazed or clipped to keep it tender and succulent with good quality. When Bahia grass has grown 8 to 10 inches tall, it is very tough, low quality and unpalatable. It produces very little new growth after it reaches this stage, and the quality drops the longer it stands. Research conducted in Georgia found the digestibility of Bahia grass declined from 68 percent in mid-May to 45 percent by late August.

Results from grazing trials have varied. Florida research demonstrated cattle grazing Bahia grass do not gain more than about 1 pound per day over the entire grazing season. Animal performance was higher in the spring, but from July through September cattle gained very little or even lost

weight. In contrast, Georgia research reported cattle gained more than 1.5 pounds per day grazing Pensacola Bahia grass. When comparing performance of cattle grazing Bahia grass to that of Bermuda grass, however, most studies have demonstrated higher animal gains on Bermuda grass (Table 5).

As a rule, it is a good management practice to clip Bahia grass pastures periodically to remove seed heads and keep the plants in a vegetative and palatable growth stage. Stocking rates on Bahia grass pasture during the growing season should be in the range of about one cow per 1.5 to 2 acres.

**Table 5. Average daily gain and beef production per acre for steers grazing three grass varieties during four years at Tifton, Ga.**

Variety	Average Daily Gain lbs.	Beef Production lbs./acre
Pensacola Bahia grass	0.95	222
Coastal Bermuda grass	1.08	331
Coastcross-1 Bermuda grass	1.50	469

## Overseeding

Since Bahia grass forms a dense, tough sod, it is sometimes difficult to obtain adequate stands of winter annual grasses such as ryegrass when they are overseeded into an established stand of Bahia grass during the fall.

Before overseeding, clip or graze the Bahia grass as close to the ground as possible. Harrowing or light-disking the area after seeding is recommended to get the seed in contact with the soil and speed germination.

Results with overseeding of legumes into Bahia grass sod have varied. Crimson clover and white clover are probably the best choices to overseed into an established stand of Bahia grass.

## Invasive Nature of Bahia grass

In contrast to the typical slow establishment of new plantings of Bahia grass, this grass can be an aggressive invader of other species.

Rotating cattle from Bahia grass pastures to those of other species such as Bermuda grass can bring in Bahia grass seed the cattle have consumed. These seed can establish small patches of Bahia grass that spread aggressively and can dominate the pasture after a few years.

Since most Bahia grass hay contains mature seed, feeding such hay on Bermuda grass pastures often results in the introduction or spreading of Bahia grass. This invasive nature limits the use of Bahia grass where a management objective is to maintain pure stands of other grass species, especially hybrid Bermuda grasses.

If Bahia grass invades a common or hybrid Bermuda grass field, it can be controlled by using the herbicide Cimarron at a rate of 0.3 ounces per acre, plus a surfactant. Cimarron can be applied anytime the Bahia grass is actively growing, and there are no grazing restrictions.

## Summary

Bahia grass is a competitive, well-adapted perennial summer grass that grows throughout Louisiana. It's also the easiest forage crop to maintain in Louisiana.

Bahia grass responds well to fertilizer but has lower nutrient requirements than Bermuda grass. Even with overgrazing and poor management, Bahia grass will maintain a stand. With good management, Bahia grass can produce ample amounts of forage through the summer.

Bahia grass offers a dependable, easily established, competitive and relatively low-cost option for summer pastures in Louisiana. Many livestock producers desire good stands of dependable forage with low to moderate fertilization. For those producers, it's hard to beat Bahia grass.

This publication was prepared by the following personnel of the LSU Agricultural Center:

**Edward K. Twidwell, Professor**  
School of Plant, Environmental and Soil Sciences



Visit our website: [www.LSUAgCenter.com](http://www.LSUAgCenter.com)

**Louisiana State University Agricultural Center**  
William B. Richardson, Chancellor

**Louisiana Agricultural Experiment Station**  
John S. Russin, Interim Vice Chancellor and Director

**Louisiana Cooperative Extension Service**  
Paul D. Coreil, Vice Chancellor and Director

Pub. 2697 (Online only) 3/11 Rev.

The LSU AgCenter is a statewide campus of the LSU System and provides equal opportunities in programs and employment.