

# Forages



## Bahiagrass Utilization in East Texas

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Bahiagrass (*Paspalum notatum*) is a warm-season perennial bunch grass native to South America. The first introduction to the US occurred in 1913 with common bahiagrass by the Florida Agricultural Experiment Station. In 1935, Escambia County Extension Agent Ed Finlayson found a more productive bahiagrass growing along the docks and railroad tracks at Pensacola, FL. This variety became known as 'Pensacola' and has been the most widely used of all the varieties to date. A more recent release from the USDA-ARS station at Tifton, GA, 'Tifton 9' has exhibited increased seedling vigor and usually higher dry matter production compared with Pensacola.

Bahiagrass has several characteristics that make it valuable as a pasture grass. Bahiagrass tolerates a wider range of soils than does bermudagrass or dallisgrass. Compared with hybrid bermudagrass, bahiagrass tends to green up earlier and remain green longer in the fall, but lacks the drought tolerance of the bermudagrass on deep sandy soils. Bahiagrass is resistant to weed encroachment due to an extremely thick thatch formed and tolerates close, continuous grazing better than most other grasses. The species also produces moderate levels of dry matter on soils of very low fertility and, finally, is established from seed.

Suitable soil types range from upland sandy sites (which may suffer during summer drought) to more poorly drained sandy areas. When establishing bahiagrass, seed should be broadcast onto a well-prepared seedbed at 12 to 15 lbs. of pure live seed per acre, covered with no more than ½ inch of soil, and rolled to ensure good seed-soil contact. Higher seeding rates can help to quicken establishment. Establishment usually takes place in the spring after the last chance of a killing frost has occurred. Although the optimum temperature range for

bahiagrass seed germination is 85 to 95°F, weed pressure is greater with later plantings and the relatively weak bahiagrass seedlings are at a competitive disadvantage. Apply any needed P and K and the least amount of N possible at planting; N will only serve to encourage weed competition. After the grass begins to cover, 40-60 lbs./acre of additional N may be used. Early weed management involves mowing or limited grazing. 2,4-D herbicide may be used only after the grass reaches 5-6 inches in height; use of phenoxy herbicides prior to this stage may kill or injure the grass seedling. Once bahiagrass reaches a thick, solid stand, weeds are seldom a problem. Ideally, bahiagrass should be fertilized according to soil test recommendations, although even minimal amounts of N, P, and K will serve to increase dry matter production and crude protein content.

Bahiagrass should primarily be used for pasture, although some is harvested and conserved as hay. Producers used to harvesting bermudagrass hay should realize bahiagrass should be cut at a much lower plant height (8-10 inches) if high levels of forage nutritive value are desired. If bahiagrass is cut for hay, it is critical to apply appropriate N, P, and K based on soil test recommendations due to the removal of nutrients from the site. Given similar levels of fertility, hybrid bermudagrass will usually provide more dry matter production and higher levels of crude protein and digestibility (Table 1). Under low levels of fertility or no fertility, bahiagrass, however, can persist for many years in relatively pure stands. Forage nutritive value is usually adequate for mature beef animals, but growing animal performance will suffer if an appropriate supplement is not provided.

To maximize use of the pasture and to help reduce winter feeding costs, overseeding bahiagrass with a legume, cereal grain, or ryegrass may be advisable. In the past producers have perceived it difficult to establish cool-season pasture in bahiagrass. This is generally due to the thick thatch of rhizomes produced by bahiagrass. In order to reduce bahiagrass competition, the pasture should be grazed close

**Table 1. Forage nutritive value of bahiagrass, bermudagrass, and mixed-warm-season hay<sup>1</sup>.**

Hay Type	Crude Protein	Total Digestible Nutrients	Acid Detergent Fiber
	% DM		
Bahiagrass	8.3	50.0	44.2
Bermudagrass	10.7	54.4	40.4
Mixed Grass	9.3	50.7	43.1

<sup>1</sup>Louisiana State University

and lightly disked. Clover or ryegrass seed should be broadcast sometime in mid October. If using a cereal grain, a drill should be used to place the seed deeper. Note that although bahiagrass can perform under low fertility programs, winter pasture species will not. Fertilizer should be applied at the recommended rate based on soil test.

Although bahiagrass has many positive characteristics as a pasture grass, it has its share of problems. Because the species can persist under lower fertility environments, many producers have witnessed an invasion of bahiagrass into their bermudagrass fields. This is usually because fertility is less than optimum for the bermudagrass to prevent establishment of the bahiagrass. Once present, bahiagrass tends to remain and even become dominant in bermudagrass fields. Generally, 3/10 oz. of the herbicide Ally is required to eliminate mature plants. Without a change in fertility or grazing management, bahiagrass generally will return from seed in the soil the following year.

Bahiagrass establishment is slow, but the species responds well to N fertilizer rates to at least 200 lbs./acre based on work conducted at Louisiana State University. Lower dry matter production combined with reduced forage nutritive value, however, can reduce profit potential for those attempting to maximize production per unit area of land. Stocking rates for bahiagrass during the growing season as recommended by the Louisiana Cooperative Extension Service are 1 cow per 1½-2 acres.

To summarize, bahiagrass has a bad reputation, but only when compared with *well-managed* bermudagrass. Under more realistic circumstances of lower fertility and continuously-stocked cow herds, bahiagrass may not be so bad as a pasture grass. Depending on the goals and objectives for your particular property, bahiagrass may deserve more respect than it has received in the past. Below are the most common bahiagrass varieties usually encountered.

**‘Argentine’:** Introduced to Florida from Argentina in 1945, Argentine bahiagrass has long broad leaves and initiates growth later in the spring. It is less cold hardy than Pensacola. The seed is very susceptible to ergot, which reduces seed

production and can produce toxic effects in cattle. Argentine has produced the same dry matter yield as Coastal in the Woodville-Jasper area given moderate fertility inputs. Argentine is not grown much above this area due to lack of cold tolerance.

**‘Common’:** This was the most common bahiagrass variety grown until the 1930’s. Common bahiagrass plants are small with broad leaves and stems that grow 8-18 inches tall. Common is lower yielding than the other cultivars.

**‘Paraguay’:** Paraguay is a short, coarse, narrow-leaf variety that is less productive than Pensacola, but has reportedly performed well in the Jasper-Woodville area. Paraguay forms a dense sod and provides satisfactory pasture until it becomes less palatable during the summer.

**‘Paraguay 22’:** This variety is similar in appearance to Argentine in growth habit and cold tolerance. It is more productive than Paraguay.

**‘Pensacola’:** Pensacola was discovered in 1935 by county agricultural extension agent E. H. Finlayson in Pensacola, Florida growing along the docks and railroad tracks. Pensacola bahiagrass has a long narrow leaf and is more cold tolerant than common, Argentine, or Paraguay. It is resistant to ergot and is a good seed producer. This is the most common bahiagrass found in East Texas. The main disadvantages are lower dry matter yield and forage nutritive value compared to Coastal.

**‘Tifhi-1’ and ‘Tifhi-2’:** These grasses were selections made by the Georgia Agricultural Experiment Station from Pensacola. They are leafier, have more shatter-resistant seed, and are higher yielding than Pensacola. Tifhi-1 has been reported to give higher beef gain per acre than Pensacola.

**‘Tifton 9’:** Tifton 9 bahiagrass has longer leaves and improved seedling vigor compared to Pensacola. Tifton 9 has yielded 47% more forage than Pensacola over a 3-year period in Georgia. At Overton, Tifton 9 has only produced 12% more forage than Pensacola during a 3-year variety trial.

**‘Wilmington’:** This is the most cold-hardy bahiagrass variety known. It has narrow leaves of medium size, but is less productive than Pensacola and Paraguay.

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