

Mulato (*Brachiaria sp.*)¹

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Introduction

Brachiariagrasses, including Mulato, are tropical warm-season forages native to Africa (Kenya, Ethiopia, Uganda, Tanzania, Zimbabwe, Rwanda, and Burundi). Brachiariagrasses were first introduced in tropical Australia in the early 1960s and subsequently in tropical South America in early 1970s (Parsons, 1972; Sendulsky, 1978).

Brachiariagrasses are the most widely grown forages in tropical South America, occupying over 80 million hectares (Boddey *et al.*, 2004). They are extensively used as pasture grasses, but *Brachiaria* species are not commonly used for harvested forage. Exceptions include creeping signalgrass (*Brachiaria humidicola*) and a few other species that are used for hay (Boonman, 1993; Stur *et al.*, 1996). The growing interest in brachiariagrasses has prompted an urgent need to develop new cultivars with outstanding agronomic characteristics, greater range of adaptation, greater biomass production and nutritional quality, and resistance to *Rhizoctonia* (a disease-causing fungus) and spittle bug species.

A hybridization program was initiated at the International Center for Tropical Agriculture (CIAT, Colombia), and conducted in collaboration with the Brazilian Agricultural Research Agency (EMBRAPA, Brazil). This effort resulted in the release of an apomictic hybrid, Mulato (CIAT, 2000). Mulato is the first hybrid in the *Brachiaria* genus and results from crossing ruzigrass (*Brachiaria ruziziensis* clone 44-6) and palisadegrass (*Brachiaria brizantha* CIAT 6297) (CIAT, 2001). A series of agronomic tests in Mexico, Colombia, and Central America has proved Mulato to be high in vigor and with good production potential (Miles, 1999).

Morphology

Mulato is a semi-erect perennial apomictic (produces seed asexually) grass that can grow up to 9 ft tall. It is established by seed, although it could be propagated vegetatively stem segments if necessary. It produces vigorous cylindrical stems, some with a semi-prostrate habit, capable of rooting at the nodes when they soil. Mulato has lanceolate and highly pubescent leaves of 40-60 cm in length and 2.5-3.5 cm width (Guiot and Melendez, 2003).

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Region of Adaptation and Growing Season in Florida

Mulato is adapted to many soil types ranging from sands to clays; however, it does not tolerate poorly drained soils. Even short periods of standing water may reduce stands considerably. The tropical origin of Mulato limits its productivity and persistence in latitudes above 28° (North of Interstate 4). In South Florida, Mulato grows well from spring (May) to fall (late October). Mulato is very sensitive to cold weather and above-ground forage browns quickly after a frost.

Establishment

Summer is the best time to establish Mulato in Florida because of the greater probability of adequate temperature and moisture conditions. Spring planting may be used; however, there is greater risk of dry conditions and stand failure. Commercial seed has good vigor and when placed in a moist, firm seedbed, it germinates in 5 to 10 days. Seeds can be broadcast at 10 lbs/A and covered with 1/2 inch of soil. A cultipacker-type seeder or drill can be used for more precise seed placement. Using a rolling device after seeding is recommended to assure adequate seed-soil contact and better soil moisture retention.

Fertilization

Before establishing any crop, soil testing is strongly recommended. Although UF-IFAS does not have a specific recommendation for Mulato fertilization, the stargrass recommendation can be used. Target soil pH should be between 5.5 to 6.0. For new plantings, apply 30 lb/A N, all of the P_2O_5 , and half of the K_2O recommended on your soil test report after germination. Apply additional N fertilization and remaining K_2O according to the target production. For established stands, apply 50 lbs/A N and recommended P_2O_5 and K_2O in the spring. Greater N rates may be applied if greater forage production is desired. It is not recommended to apply more than 100 lb/A N in one single application because of increased chances of N lost by leaching and/or volatilization.

Weed Control

As with any forage species, proper fertility and grazing management are very important for weed control. Weed management in Mulato, since it is a bunch-type grass, may be more challenging than for bahiagrass and bermudagrass. This makes fertility and grazing management very important with regards to weed control.

Herbicides may be applied to Mulato after at least two true tillers have formed after planting seed. These herbicides include 2,4-D, WeedMaster (2,4-D + dicamba), Forefront, Milestone, Pasturegard, Remedy, and Cleanwave. These herbicides may be applied at labeled application rates specific to the weed species present in the pasture. However, there may be some damage from triclopyr-containing herbicides (Pasturegard, Remedy) when environmental conditions are hot and humid and when Mulato is rapidly growing. Herbicides like Cimarron Plus, Cimarron X-tra, and Impose have not been investigated for their tolerance on Mulato.

Utilization

Mulato has been primarily used for grazing beef cattle in South Florida. The vigorous and prostrate-type growth during the summer makes rotational grazing recommended for Mulato pastures. Rotational grazing facilitates the adjustment of optimum stocking rate and control of grazing stubble height. The target stubble height for grazing Mulato should be 6-10 inches. With respect to nutritive value, generally Mulato has CP of 11-16% and TDN of 55-60%. Research was conducted at the Range cattle Research and Education Center to evaluate the performance of yearling heifers grazing Mulato and bahiagrass from June to September 2007 at different stocking rates, 1.6, 3.2, and 4.8 heifers/A ([Table 1](#)). Mulato pastures received 140 lbs nitrogen/A split in three applications. Results showed that the highest stocking rate pastures (4.8 heifer/A) were overgrazed, with a decrease in Mulato stand, and greater area occupied by common bermudagrass, bahiagrass, and broadleaf weeds. Stocking rates of 1.6 and 3.2 heifers/A resulted in similar average daily gain, however, 3.2 heifers/A resulted in the greatest animal gain per acre. In addition, heifers grazing Mulato at

Table 1. Performance of heifers grazing Mulato and bahiagrass pastures at three stocking rates

Stocking rate	Average Daily Gain		Gain per acre (112d)	
	Mulato	Bahia	Mulato	Bahia
	lb/d		lbs	
1.6 heifers/A	1.34Aa	0.81Ba	608Ab	407Ac
3.2 heifers/A	1.32Aa	0.99Ba	1196Aa	916Ba
4.8 heifers/A	0.48Ab	0.48Ab	656Ab	674Ab
Average	1.04A	0.76B	820A	665B

Forage species means followed by the same upper case letter are not difference from each other ($P > 0.05$).

Stocking rate means followed by the same lower case letter are not different ($P > 0.05$).

3.2 heifers/A had greater average daily gain and gain per acre than heifers grazing bahiagrass at the same stocking rates.

Although Mulato has not been used typically as conserved forage by producers, the vigorous growth and superior nutritive value to bahiagrass make it a very attractive option for hay and haylage. Mulato hay samples from producers analyzed by the Forage Extension Laboratory in Ona tested on average 14% CP and 55% TDN

Summary

Advantages of Mulato

1 Vigorous growth and superior nutritive value to bahiagrass

2) Established by seed

3) Rapid establishment

4) Can be utilized for pasture, hay, or haylage

Disadvantages of Mulato

1) Does not tolerate poorly drained soils

2) Forage browns following frost and plant survival is significantly reduced by extended periods of temperatures below 32°F

3) Shorter growing season than limpograss, bahiagrass, or bermudagrass

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