



Increasing Bahiagrass Production in Periods of High Nitrogen Fertilizer Price

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Warm-season grasses are the predominant forages for cow-calf operations in Florida. While warm-season grasses are more productive than most other forage plants, they require N fertilization to achieve their full production potential. Fertilizer prices have increased tremendously over the last two years and, unfortunately, this trend is expected to continue in response to high energy demands and the decreased supply of fossil fuels.

Bahiagrass has inferior production and nutritive value to other warm-season grasses, such as bermudagrass and stargrass. Research conducted in Wauchula, FL compared the production and nutritive value of ten species and cultivars of warm-season grasses growing in soils with high fertility levels. Bahiagrass was the least productive but had levels of crude protein and digestibility that were similar to other species and cultivars when harvested at 6 weeks regrowth interval (Table 1). Despite the inferior production, during the difficult times of high N fertilizer prices, bahiagrass is certainly a good forage species to have. Bahiagrass is more persistent than hybrid bermudagrass, stargrass, and limpograss on extensive production systems with low fertilization levels. The growing points of the bahiagrass tillers are close to the ground, which allows the plant to survive when grazed or harvested at short stubble heights. In addition, bahiagrass is resilient to frequent harvests because it has a significant proportion of the total mass (approximately 50%) allocated to reserve structures (roots and rhizomes) below ground. Those structures allow the plant to regrow, even with little leaf area remaining after grazing or harvest.

When increasing N fertilization is not an economic option, rotational grazing may enhance the productivity of bahiagrass pastures. Research conducted at the Range Cattle Research and Education Center, Ona, FL compared two grazing frequencies on four bahiagrass cultivars: Pensacola, Argentine, Tifton 9, and UF – Riata. Plots were fertilized with 60 lb N/acre in the spring and grazed at 2- or 4-weeks intervals for 2 years. The 2-weeks interval is similar to a continuous grazing, while the 4-weeks simulated a rotational stocking. The plots were grazed at 3-inch stubble height. In the first year, Tifton 9 and UF-Riata had greater production than Argentine and Pensacola; but Argentine had the greatest production in the second year. Plots grazed at 4-weeks interval had approximately 50% greater forage production than 2 weeks. Sunlight is the major

source of energy for photosynthesis and herbage production and plots grazed at 2 weeks were able to intercept 66% of the sunlight, while the 4-week grazing plots intercepted 77%. In addition, the plots grazed at 2 weeks had fewer tillers than plots grazed at 4 weeks intervals, which could result in fewer plants per area and weed establishment.

There was very little difference in bahiagrass crude protein and digestibility among cultivars; however, plots grazed at 4 weeks had less crude protein and digestibility concentrations than those grazed every 2 weeks (Table 2). Plots grazed at 4 weeks were still in the nutritive value range to maintain a mature beef cow at adequate body condition score.

More importantly, there were differences in persistence among bahiagrass cultivars grazed at 2 and 4 weeks. Argentine had similar ground cover when grazed at 2- or 4-week interval; however, Pensacola, Tifton 9, and UF-Riata decreased ground cover when grazed at 2 weeks, indicating that these cultivars are less persistent under frequent grazing.

Bottom line, bahiagrass production can be improved by allowing the plant a 4-week rest period to restore leaf area. Thus, it is beneficial to rotate the animals, even if they are in an extensive grazing system with low N fertilization levels. It is unlikely that the increase in forage production would increase the average daily gain of the animals; however, it will likely allow increased stocking rates and improve gain per acre. In addition, Pensacola, Tifton 9, and UF-Riata have better persistence with 4-weeks resting period.

In general, 2.0 lb of forage (dry matter) per pound of animal liveweight exposed to the pasture provides adequate forage for cow-calf pairs. For example, considering that 2.0 lb DM / lb liveweight is recommended and the pasture is grazed continuously with forage mass of 1,000 lb DM/acre. It would require approximately 3.0 acres to provide sufficient forage for a 1500 lb cow-calf pair. The same pasture, if grazed rotationally, could potentially have forage mass of 1,500 lb DM, and only 2.0 acres would be necessary to support the same cow-calf pair during the growing season. If the pastures are kept at the same stocking rate, the forage produced could also be excluded from grazing and harvested as hay or haylage.

If you have any questions on bahiagrass grazing management, please contact Joe Vendramini, jv@ufl.edu.

Table 1. Herbage mass and nutritive value of warm-season grasses harvested in the summer.

Item	Forage Name								
	Elephantgrass	Bahiagrass	Stargrass	Mulato	Limpograss	Jiggs	Coastcross 2	Tifton 85	Florakirk
HM, lb/acre	13,050	2600	3670	320	3870	4600	3090	2970	3800
CP, %	9.6	12.9	12.0	12.6	12.5	11.6	12.9	10.2	11.6
ADF, %	45.2	37.3	40.5	39.1	36.3	40.5	37.8	27.0	40.1
NDF, %	68.8	63.6	71.7	63.2	65.7	72.2	67.5	58.0	71.4
Digestibility %	59.1	56.3	61.7	67.0	60.1	58.4	63.2	63.9	58.0

Table 2. Grazing frequency effects on forage production and nutritive value of four bahiagrass cultivars.

Grazing Frequency (weeks)	Height (inches)	Light interception (%)	Herbage Mass (lb DM/acre/year)	Digestibility (%)	CP (%)
2	6	66	3,800	56	11
4	11	77	6,100	53	9

Upcoming Events – visit our website calendar for registration links for these and other events.

2022 Winter Supplementation Seminar – September 22, 6:00 - 8:30 PM. A SFBFP event to be held at the Arcadia Stockyard. Space is limited. Register on Eventbrite.

Ona Beef Cattle and Forage Economics Highlight with Chris Prevatt – September 30, 11:00 - 11:45 AM. Chris, a state specialized agent III at the UF/IFAS Range Cattle REC, will be presenting, “Managing Beef Cattle Production Costs.”

UF/IFAS Range Cattle REC - 3401 Experiment Station Rd., Ona - <http://rcrec-ona.ifas.ufl.edu/>