Management and Utilization of Bermudagrass and Bahiagrass in South Florida

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PART I: BERMUDAGRASS

INTRODUCTION

Bermudagrasses (*Cynodon* spp.) are closely related to stargrasses. Generally bermudagrass can be distinguished from stargrass by the presence of rhizomes. The most notable cultivars in Florida are coastal, Suwannee, Coastcross-1, Tifton 78, and Callie bermudagrass. Bermudagrasses are warm season perennials, that grow vigorously and spread rapidly after planting, provided adequate moisture and fertility are available. When established on a clean seed bed and properly managed these grasses form dense stands in a short time after planting with good yields of a quality forage. Some bermudagrasses have the capability to produce forage during the cool fall (November-December) and even during a warm, frost-free winter (January-February) if adequate moisture and fertility are available in south Florida. Top growth is easily killed by frost, followed by a rapid decline in forage quality. Generally, cultivar persistence of most bermudagrasses in central and south Florida has not been good, with the exception of Callie hybrid 35-3. Animal performance (live weight gains) from bermudagrasses ranges from 60 to 70% of that obtained for stargrass. Large differences exist in persistence and IVOMD between bermudagrasses. Callie hybrid 35-3 has shown greatest persistence of all bermudagrasses tested in central Florida during the past 20 yr (Table 1). However, Callie hybrid 35-3 is still an experimental grass and has not been released for commercial production. Generally yield and IVOMD of most bermudagrass entries are quite similar to stargrasses. Most bermudagrasses have fine stems and can be made into high quality hay, provided plants are harvested at a 4 to 5 wk interval.

To successfully grow bermudagrass in a hay or pasture operation one must consider all management factors including seedbed preparation, establishment, fertility, and grazing management. In the following discussion I will attempt to address many of these management factors.

Region of Adaption

Bermudagrasses vary in their tolerance to soil drainage. Coastal will not tolerate flooding, however, Callie hybrid 35-3 will persist and perform well on saturated flatwood soils. All bermudagrasses perform best on moist, well drained soils ranging from sands to clays. They will tolerate short periods of soil surface water and perform well. No bermudagrass will tolerate long periods of flooding. Most bermudagrasses, except Coastcross I will tolerate temperatures down to 5 to 10^{o}F.

Season of Growth

Bermudagrasses like stargrasses, grow during the warm season, and usually continue to make excellent growth under cool fall conditions. Callie hybrid 35-3 will make considerable growth during winter if warm temperatures prevail. When adequate fertility is provided, these grasses can initiate spring growth under limited moisture conditions, with Callie hybrid 35-3 exhibiting considerable drought tolerance. Once bermudagrasses are frosted, all desirable forage must be consumed within one week, since forage quality and palatability drops rapidly.

Establishment

Bermudagrasses are established vegetatively from stolons (runners) or stem pieces. Most improved pasture bermudagrass cultivars do not produce seed. Bermudagrass is planted by distributing freshly cut planting material on

clean, moist, cultivated soil, covered by disking 2 to 4" deep or crimping stem pieces 4" into the soil, followed by an extremely firm packing. Remember, clean, cultivated soil is similar to land prepared for vegetable production. Freshly distributed planting material must be covered with soil within 15 minutes to prevent drying on the soil surface. Planting material must be uniformly distributed over the seedbed, with areas no larger than 3 ft^2 void of planting material.

Approximately 7-10 days after planting and signs of bermudagrass vegetative growth appears, the newly planted area should be sprayed with 1.0 lb/A Weedmaster® in 20 to 30 gal/A water to help control annual sedges (water-grass) and broadleaf weeds. When new tillers (shoots) are about 1 to 3" tall, the newly planted bermudagrass should be fertilized with 35-35-35 lb/A N-P_2O_5-K_2O, respectively + 10/A of a micronutrient mix equivalent to TEM 300[1].

A second application of fertilizer (50 lb N/A) should be applied when plants are 8 to 10" tall or about 30 to 45 days after planting. This should be sufficient to provide a dense stand of grass 24" tall within 75 to 90 days after planting.

Recommended fertilizer practices for established bermudagrass should follow soil test results or about 200-50-100 lb/A N-P_2O_5-K_2O. Nitrogen should be applied in four applications. A pH of 5.5 to 6.0 is adequate for bermudagrass.

Weeds

Broadleaf weeds such as dog fennel (*Eupatorium capillifolium*) or Carolina geranium (*Geranium carolinianum*) are easily controlled by applying 1.0 lb/A Weedmaster® when plants are 6 in tall or less and 1.5 lb/A when dog fennel is taller than 6 in.

Insects

Insect problems on bermudagrass are the striped grass looper (*Mocis latipes*) and fall armyworm (*Spodoptera frugiperda*). If not controlled both insects can destroy a crop of bermudagrass.

[1]TEM 300 has the following elemental content: Iron, 18%: Zinc, 7%; Manganese, 7.5%; Copper, 3%; and Boron, 3%.

Smutgrass (*Sporobolus* spp.) can be controlled (90%) in Callie hybrid 35-3 using 0.5 lb/A active Velpar® + 0.25% X-77 spreader, when applied during the wet season of July or August. All herbicides applied in 30 gal/A water.

The two lined spittlebug (*Prosapia bicincla*) does not appear to cause any serious damage on Callie hybrid 35-3 but can destroy an entire crop of Brazos or Coastal, resulting in little late summer production. Common bermudagrass is also affected by spittlebug, producing little or no forage from July to November. However, spittlebug generally does not kill this bermudagrass. If spittlebug was a problem the previous summer, the best control measure is burning the previous years stubble during the dry season.

Disease

A "leafblight" disease (*Rhizoctonia solani*) has been found occasionally on bermudagrasses in grazing studies during August and September at Ona. Callie hybrid 35-3 was the most susceptable entry when seven *Cynodons* (5 bermudagrasses and 2 stargrasses) were tested in a mob-grazing study during 1982 and 1983. This leafblight disease will also attack stargrass, however, grazing under a continuous or rotational system, with a 4-wk grazing interval, revealed no foliar blight. The incidence of blight seemed to be associated with dense stands of tall, uncut, ungrazed forage and tended to disappear after the onset of cool conditions (October 15). Cattle consumed infected plants relatively well with no signs of rejection. This disease does not appear to be of any economic importance.

Callie bermudagrass can be seriously affected by rust (*Puccina cynodonis*) during the hot humid summer months of July to September. Generally, cattle will continue to consume plants infected by rust.

MANAGEMENT AND UTILIZATION

Studies have demonstrated that bermudagrasses should be allowed a rest period of four weeks between grazing and four to five weeks between harvesting for hay. The rest period can be extended one or two weeks during periods of slow growth, such as cool or dry conditions. This management resulted in good persistence and high dry matter yields at Ona (Table 2) and Jay (Table 3). Harvesting plants at a four to five week frequency also

resulted in good concentration of crude protein (Table 4) and in vitro digestion (Table 5). If the rest period for bermudagrasses is shortened from four to two weeks between grazing, forage quality will increase by about four percentage units, but persistence of the stand will decrease. Increasing the rest period to seven or more weeks, results in improved persistence, but crude protein (7 to 9%) and in vitro digestion (36 to 50%) are relatively low. Research has demonstrated that the in vitro digestion is variable between bermudagrass cultivars harvested at the same physiological stage. Callie and Callie hybrid bermudagrass tend to average about 10 percentage units higher than Alicia and Brazos bermudagrass.

Grazing studies with Callie hybrid 35-3 bermudagrass at the AREC, Ona, produced a 3 yr average daily gain (ADG) of 0.8 lb and 442 lb/A live weight gain (LWG) over a 200 d grazing period (Table 6). These grazing results were conducted simultaneously with stargrasses in the same study which revealed 1.1 and 0.9 lb ADG and 663 and 585 lb/A LWG for Florico and Florona stargrass, respectively. Data indicate cattle grazing Florico and Florona stargrass produced 33% and 10% higher ADG and 50% and 32% higher LWG compared with Callie 35-3 bermudagrass, respectively.

PASTURE ROTATION STUDY

A three year study was conducted on bermudagrass and stargrass to compare a one and two wk cattle rotation on ADG and LWG. Cattle rotated on a weekly basis were on a 5 pasture rotation and those rotated every 2 wk were on a 3 pasture rotation. Both rotation treatments were allowed a 4-wk regrowth period between grazings. Results indicate stargrasses (Florico and Florona) (586 lb) produced 61% more LWG/A than the bermudagrass (Callie hybrid and Brazos) (365 lb) (Table 7). The ADG for stargrasses (0.8 lb) was also 11% higher than for the bermudagrasses (0.7 lb). Rotating cattle on a weekly schedule almost always resulted in higher LWG/A and ADG for both stargrasses and bermudagrasses, compared with rotating cattle every 2 wk. The bermudagrasses (Callie hybrid and Brazos) produced higher ADG (16%) and higher LWG (12%) when rotated weekly, compared with ADG and LWG increases of 8 and 10%, respectively for stargrasses. Brazos showed the highest response to weekly cattle rotation compared with 2 wk rotation, with an increase of 27% for ADG and 18% for LWG. One reason for the high response of Brazos to the weekly rotation may be due to its low IVOMD, 8 to 10 percentage units lower than Callie hybrid.

SUMMARY

Commercial growers that are located far enough south in peninsular Florida (generally south of Orlando) should consider Florico or Florona stargrass over Callie hybrid bermudagrass for grazing because of better ADG and LWG. Either stargrasses or bermudagrasses can be made into good quality hay or haylege, provided they are harvested at a 4 to 5 wk frequency.

Callie hybrid an experimental bermudagrass may be the best commercial choice for grazing, hay or haylege in north Florida (north of Orlando) and north-west Florida where low temperatures of 10 to 25°F could occur occasionally.

TABLE 1. Influence of Grazing Frequency and Grass Entry on Ground Cover Occupied by Common Bermudagrass, Ona REC.

Bermudagrass entry	Initial common bermudagrass cover	Grazing frequency (wk)			
		2	3	5	7
	%	----------%----------			
Callie†	1	4	6	3	17
Alicia	1	23	34	21	31
Callie hybrid‡	1	2	--	2	1

†Study conducted 1976 to 1978.
‡Study conducted 1981 to 1983.
Source: Modified from Mislevy et al., 1983 and Mislevy et al., 1987.

TABLE 2. Influence of Grazing Frequency and Bermudagrass Entry on Dry Matter Yield, Ona REC.

Bermudagrass entry	Grazing frequency (wk)				
	2	3	4	5	7
	t/A				
Callie†	3.6	4.9	4.7	6.4	7.8
Alicia	5.2	5.5	5.5	7.2	8.6
Callie hybrid‡	5.5	-	7.5	7.5	7.6

†Study conducted over a 3 yr period; 200 lb/A N was applied in 4 equal applications.
‡Study conducted over a 2 yr period; 140 lb/A N was applied in 4 equal applications.
Source: Modified from Mislevy et al., 1983 and Mislevy et al., 1987.

TABLE 3. Dry Matter Yield of Selected Bermudagrass Entries Grown Over a Three to Six Year Period, Jay REC.†

Grass entry	Year						
	1987	1988	1989	1990	1991	1992	Avg.
	t/A						
Callie hybrid	8.7	6.6	6.7	5.2	3.6	3.2	5.7
Callie hybrid (new tr.)	-	-	-	8.1	5.6	5.3	6.3
Tifton 44	4.8	4.7	4.2	2.6	0.7	0.0‡	2.8
Tifton 78	7.4	6.2	4.5	0.6	0.3	0.0‡	3.2

†Experiment was harvested on a four week cycle.
‡Plants died after 5 yr of harvest.
Source: L. S. Dunavin, 1993, personal communication.

TABLE 4. Influence of Grass Entry and Grazing Frequency on Percentage Crude Protein for May-June Harvested Forage, Ona REC.

Grass entry	Grazing frequency (wk)				
	2	3	4	5	7
	----------%----------				
Bermudagrass					
Callie†	18	14	12	11	8
Alicia	16	15	14	10	7
Callie hybrid‡	12	--	8	10	9
Stargrass					
Florico†	18	16	13	12	8
Florona	16	14	12	11	8
Ona	17	14	13	11	8

†Study conducted 1976 to 77; 200 lb/A N was applied in four equal applications.
‡Study conducted 1981 to 83; 140 lb/A N was applied in four equal applications.
Source: Modified from Mislevy et al., 1982 and Mislevy et al., 1987.

TABLE 5. Influence of Grass Entry and Grazing Frequency on In Vitro Organic Matter Digestion of May-June Harvested Forage, Ona REC.

Grass entry	Grazing frequency (wk)				
	2	3	4	5	7
	----------%----------				
Bermudagrass					
Callie†	65	62	55	55	47
Alicia	53	53	49	41	36
Callie hybrid‡	60	--	56	57	53
Stargrass					
Florico†	68	67	60	59	53
Florona	62	59	51	51	44
Ona	64	61	55	52	45

†Study conducted 1976 to 77; 200 lb/A N was applied in four equal applications.
‡Study conducted 1981 to 83; 140 lb/A N was applied in four equal applications.
Source: Modified from Mislevy et al., 1982 and Mislevy et al., 1987.

TABLE 6. Seasonal Steer Average Daily Gain and Live Weight Gain per Acre of Callie Hybrid 35-3 Bermudagrass, Florico, and Florona Stargrass Pastures in 1986, 1987, and 1988, Ona REC.

Year	Average daily gain, lb			Live weight gain, lb/A		
	Callie hybrid	Florico	Florona	Callie hybrid	Florico	Florona
1986	0.66 b†	1.06 a	0.81 b	398 c	640 a	521 b
1987	1.06 b	1.36 a	1.08 b	539 c	821 a	670 b
1988	0.77 b	0.95 a	0.90 a	388 b	528 a	565 a
Mean	0.84 b	1.12 a	0.92 b	442 b	663 a	585 a

†Means between grasses for each year followed by the same letter(s) do not differ significantly at the 0.05 level of probability according to Duncan's multiple range test.
Source: Modified from Larbi et al., 1989.

TABLE 7. Comparison of Weekly and Biweekly Cattle Rotation on Live Weight Gain and Average Daily Gain for Stargrass and Bermudagrass (1988-1990), Ona REC.†

Grass entry	Live Weight Gain, Rotation (wk)				Average Daily Gain, Rotation (wk)			
	2	1	2	1	2	1	2	1
	lb/A		% Change		lb		% Change	
Stargrass								
Florico	570	650		14	0.81	0.90		11
Florona	545	580		6	0.73	0.77		5
Bermudagrass								5
Callie hybrid	360	380		6	0.59	0.62		27
Brazos‡	330	390		18	0.73	0.93		

†All grasses had a 4 wk rest period.
‡Average of 2 yr.

PART II: BAHIAGRASS

INTRODUCTION

Bahiagrass (*Paspalum notatum*) is a warm season perennial, that grows good on both well drained and poorly drained Florida soils. The most notable cultivars in Florida are Pensacola, Paraguay 22, Argentine, and Tifton-9. When seeded at the proper rate, followed by adequate moisture and fertility, and good broadleaf weed and sedge control, bahiagrass can be ready for grazing in 80 to 90 d. Most bahiagrasses produce little forage after October 15 and generally remain at a low productive level until mid to late March. The upper surface of the top growth is usually killed by frost, however considerable green forage material exists within the grass sward if allowed to attain a height of 6 to 8 in before frost. Most all bahiagrasses are persistent, with little differences in crude protein (CP) and in vitro organic matter digestion (IVOMD). Dry matter yield for Pensacola, Paraguay 22, and Argentine are quite similar. However, new cultivars (Tifton 9 and Tifton 18) developed in recent years do produce more forage.

Bahiagrass will generally tolerate considerable grazing and clipping mismanagement. Due to the

morphological nature of the plant and its ability to produce rooted stolons at the soil surface, it is nearly impossible to over-graze or harvest to frequently. The following discussion will address the cultural and management practices of bahiagrass.

Region of Adaption

All bahiagrasses are well adapted throughout Florida. Even Argentine bahiagrass has adequate cold tolerance to withstand low temperatures in north Florida during cold intrusions. However vegetative growth of Argentine tends to be slightly more sensitive to cold temperature than other bahiagrasses.

Season of Growth

Bahiagrasses are warm season perennials producing about 86-90% of their total seasonal yield from April thru September, or only 10 to 14% during the short days of October thru March. This winter production is about half the forage produced by stargrasses, bermudagrasses, and ditigrasses during the winter. Pensacola tends to express the most cold and drought tolerance of the standard cultivars. Bahiagrass can provide a valuable winter forage nitch through stockpiling. Grass allowed to accumulate during late summer and fall can be grazed after frost, since only the surface is frozen with green vegetation available in the sward.

CULTURAL PRACTICES

Establishment

Bahiagrass is established from seed. Seedbed should consist of a clean (free of common bermudagrass and other vegetation), moist, cultivated soil. Rapid establishment of bahiagrass can be accomplished by seeding at a rate of 35 lb/A followed by light disking (grove disk, no angel) and rolling the soil for firm compaction. Be sure seed is covered with about 0.5" soil. It is not recommended to seed bahiagrass on cultivated, sandy soil, followed only by rolling.

Approximately 3-4 weeks after seedling emergence when broadleaf weeds and sedges (watergrass) are 4 to 6" tall, mow the entire area to a 2 to 3" stubble. This procedure will help eleviate the shading problem of bahiagrass by weeds and sedges. All bahiagrass is sensitive to shading. About 30 to 40 d after seedling emergence apply a fertilizer mixture equivalent to 30-30-30 lb/A N-P_2O_5-K_2O, respectively + 1.5 lb/A elemental Zn, Cu, Fe, and Mn as a sulfate form.

A second application of fertilizer (30 lb/A N) should be applied when bahiagrass plants are 4 to 6" tall, about 60 d after seeding.

A fertilizer practice for established bahiagrass that can be followed is 96-24-48 lb/A N-P_2O_5-K_2O for soils low in P_2O_5 and K_2O. This can be applied in a split application in spring and late summer. This author personally recommends 10 lb elemental Fe (sulfate form) per ton fertilizer, to help prevent yellowing of bahiagrass.

Weeds

Many broadleaf weeds in bahiagrass can be controlled by applying 1.0 lb/A Weedmaster® when plants are less than 6" tall or 1.5 lb/A when dog fennel is taller than 6". Smutgrass (*Sporobolus jacquemontii*) growing in bahiagrass can be effectively controlled with 0.5 lb/A active Velpar plus 0.25% non-ionic sulfactant in 30 gal/A water. This Velpar treatment will provide about 90% smutgrass control, with 0.75 lb/A active Velpar providing 95% control.

Insects

Insect problems on bahiagrass generally consist of striped grass looper, fall army warm and mole crickets. Mole crickets are the most serious pests causing more than $40 million damage annually to Florida pastures, lawns and golf courses. Mole crickets make burrows resembling tiny tunnels in the soil. The burrowing loosens the soil and crickets disturb and cut off the grass roots, causing plants to die. Biological control is best through establishment of the Uruguayan nematode which naturally prays on mole crickets.

Disease

Dollar spot appears on bahiagrass during the wet-humid conditions of July and August. Irregular spots of purplish-brown bahiagrass appear in the

field. These spots can range from one to more than three feet in diameter. The disease does not appear to kill the plants. Cattle appear to continue grazing infected plants. The best control measure in pasture is additional nitrogen, allowing grass to out grow the fungus.

Management and Utilization

Clipping and grazing studies have demonstrated that allowing bahiagrass more than a 2 to 3 wk rest between clipping or grazing did not greatly increase dry matter yields (Table 1). Forage quality was highest at the 2-wk grazing frequency with Pensacola bahiagrass averaging 56 to 58% IVOMD (Table 2) and 13 to 14% CP.

Studies comparing Pensacola, Paraguay 22, and Argentine revealed dry matter yields were quite similar for all 3 cultivars (Tables 1 and 3). Forage quality of the three cultivars is also similar for IVOMD, however Argentine was generally one to two percentage units higher in CP than Pensacola and Paraguay 22 (Tables 2 and 4).

In recent years Tifton-9 bahiagrass was tested at Ona and compared with Pensacola for dry matter yield and forage quality. Results indicate Tifton-9 yielded 28% more forage (May-Dec.) than Pensacola and 47% more forage during the cool season Dec.-May than Pensacola. On an annual basis, Tifton-9 out-yielded Pensacola by 34% (Table 5). However, forage quality of the two grasses were similar averaging 0.8 to 1.5 percentage units apart for IVOMD and 0.8 units for CP during the warm season (Table 6).

GRAZING STUDIES

Pensacola Bahiagrass vs. Stargrass (1976 and 1977)

An experiment was conducted to study the effects of 3 stocking rates (SR) low, 3.0; medium, 4.0; and high, 6.0 cattle/A on the performance of 3 stargrasses. In addition a medium stocking rate was imposed on pensacola bahiagrass and transvala digitgrass which served as a standard. The objective was to determine the effect of SR with yearling steers on forage yield, forage quality, animal consumption and animal performance. Since bahiagrass was only in the medium SR no other SR will be discussed in this paper. The experimental units consisted of three paddocks grazed in rotation to complete a grazing cycle (42 d). Each paddock containing the medium SR was 0.5 A in size. Six cattle started grazing in early June and were maintained on each experimental unit until the onset of cool temperatures, at which time one animal was removed from some treatments. Results combined over 2-yr indicate Pensacola bahia had an average daily gain (ADG) of 0.57 lb and live weight gain (LWG) of 363 lb/A (Table 7). In this same study, at the same SR stargrass produced 51% higher ADG and 52% more LWG/A than bahiagrass. These data indicate stargrass is a better forage for young growing cattle and should be used in these situations.

Pensacola vs. Tifton-9 (1992)

An experiment is presently being conducted to evaluate Pensacola and Tifton-9 bahiagrass by the utilization of a 3.5 and 21 d cattle rotation on ADG and LWG. Cattle that were rotated every 3.5 d were on a 7 pasture rotation and cattle rotated every 21 d were on a 2 pasture rotation. Both rotation treatments were allowed a 3-wk regrowth period between grazings. Stocking rate was 2 and 3 animals (600 lb) per acre for Pensacola and Tifton-9, respectively.

Results indicate Pensacola yielded higher ADG (0.70 lb) than Tifton-9 (0.47 lb) and also higher LWG 344 lb/A and 336 lb/A, respectively (Table 8). Grazing Pensacola bahiagrass on a 2 pasture rotational system yielded 62% higher ADG (0.68 lb) than Tifton-9 (0.42 lb), respectively even though feed on offer per animal for both treatments was similar. Rotating cattle every 3.5 d (7-pasture rotation) again resulted in higher ADG for Pensacola (0.72 lb) compared with Tifton-9 (0.52 lb). However, the fast rotation yielded more LWG for Tifton-9 (375 lb/A) compared with (353 lb/A) Pensacola, resulting in a 6% increase in LWG for Tifton-9 (Table 8).

Since these data only represent one year, studies are continuing for an additional two or three years.

SUMMARY

Studies conducted at Ona on Pensacola bahiagrass had an ADG of 0.57 lb (4 animals/A SR) in 1976 and 1977 and 0.70 lb (2 animals/A SR) in 1992, with LWG averaging 363 lb in 1976 and 1977 and 343 lb/A in 1992.

Comparing Pensacola with Tifton-9 for ADG resulted in a 33% increase in favor of Pensacola, with both grasses averaging about the same (341 lb/A) LWG.

These and other studies at Ona indicate stargrass is a better forage for growing cattle, producing higher ADG and LWG/A than bahiagrass. However, bahiagrass is often prefered in a cow/calf situation because of lower input per animal and ability to persist under adverse conditions.

TABLE 1. Influence of Grazing Frequency and Bahiagrass Cultivars on Dry Matter Yield, Ona REC.

Bahiagrass cultivar	Grazing frequency (wk)			
	2	3	4	5
	t/A			
Paraguay 22	2.3	3.8	4.3	4.4
Pensacola	2.6	3.6	4.2	5.1
Argentine	3.2	3.8	4.4	5.2

TABLE 2. Influence of Grazing Frequncies and Bahiagrass Cultivars on In Vitro Organic Matter Digestion (IVOMD) Averaged During the Warm Season, Ona REC.

Bahiagrass cultivar	Grazing frequency (wk)			
	2	3	4	5
	%			
Paraguay 22	55	53	49	51
Pensacola	58	55	50	53
Argentine	56	52	49	51

TABLE 3. Dry Matter Production of Bahiagrass Cultivars Harvested on a Monthly Basis Over a 3-yr Period at Immokalee, FL.

Bahiagrass cultivar	Dry matter yield		
	Oct. - Mar.	April - Sept.	Seasonal total
	----------t/A----------		
Paraguay 22	1.1	5.3	6.9
Pensacola	1.1	5.0	6.5
Argentine	0.8	4.6	6.0

TABLE 4. Comparison of In Vitro Organic Matter Digestion (IVOMD) and Crude Protein (CP) for Bahiagrass Cultivars at Various Times During the Year, Ona REC.

Bahiagrass cultivar	April-Sept	Oct.-Mar.	June	Sept.	Dec.
	IVOMD		CP		
	----------%				
Paraguay 22	45	57	15	13	24
Pensacola	46	59	14	13	24
Argentine	45	59	16	16	25

TABLE 5. Comparison of Dry Matter Yield Between Pensacola and Tifton-9 Bahiagrass When Allowed to Accumulate During Three Periods of the Year, Ona REC.

Bahiagrass cultivar	Dec.-May	May-Dec.	Total Seasonal
	----------t/A----------		
Tifton-9	2.5	4.6	7.1
Pensacola	1.7	3.6	5.3
	Yield increase of Tifton 9 over Pensacola		
	----------%----------		
	47	28	34

TABLE 6. Comparison of In Vitro Organic Matter Digestion (IVOMD) and Crude Protein (CP) Between Pensacola and Tifton-9 Bahiagrass, Ona REC.

Bahiagrass cultivar	Forage accumulation periods		
	Aug.-early Sept.	Sept.-Oct.	Sept.-Oct.
	IVOMD		CP
	----------%----------		
Tifton-9	49.8	55.6	11.9
Pensacola	51.3	56.4	12.7
	Forage quality increase for Pensacola over Tifton-9		
	----------Percentage units----------		
	1.5	0.8	0.8

TABLE 7. Effect of Grasses on Average Daily Gain and Live Weight Gain per Acre at a Medium (4 animals/A) Stocking Rate Over 2 yr, Ona REC.

Grass entry	Average daily gain	Live weight gain
	lb	lb/A
UF-5 stargrass	0.86	572
Ona stargrass	0.93	589
McCaleb stargrass	0.79	491
Digitgrass	0.62†	411†
Bahiagrass	0.57	363

†Data represents only one year, after which Transvala was lost to common bermudagrass.
Source: Modified from Mislevy and Adjei, 1980.

TABLE 8. Influence of Bahiagrass Cultivar and Pasture Rotation on Average Daily Gain (ADG) and Live Weight Gain (LWG) per Acre, Ona REC.

Rotation	Cultivar			
	Pensacola†		Tifton-9†	
	ADG	LWG	ADG	LWG
	lb	lb/A	lb	lb/A
2 pasture	0.68	334	0.42	296
7 pasture	0.72	353	0.52	375

†Stocking rate for Pensacola was 2 animals/A and Tifton-9 3 animals/A, with a similar amount of feed on offer per animal.