



Forage Research in Texas

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ANIMAL PERFORMANCE FROM COMMON AND COASTAL BERMUDAGRASS
STOCKED AT THREE LEVELS OF FORAGE AVAILABILITY

SUMMARY

Coastal bermudagrass, overseeded with 'Gulf' ryegrass and 'Yuchi' arrowleaf clover produced approximately twice as much dry matter as common bermudagrass oversown with ryegrass and 'Mt. Barker' subterranean clover. At forage availabilities of 400 pounds/ac dry matter or less, lactating cows were not able to maintain body weight. Offspring of these cows, however, continued to show positive weight gains. Stocking rates of approximately one cow and calf per acre on either forage specie produced maximum calf average daily gains. However, medium stocking rates of 1.5 to 2.0 animal-units per acre produced the maximum gain per acre. Weaning weights ranged from a maximum of 787 pounds for fall-born steers grazed at low stocking rates to 460 pounds for either fall- or spring-born heifers grazed at high stocking rates.

OBJECTIVE

The primary objective of this study was to determine the effect of forage availability level (stocking rate) on pasture dry matter production and cow-calf performance.

PROCEDURES

Four F-1 (Brahman x Hereford) cows and their 1/2 Simmental calves grazed either a common bermudagrass-ryegrass-subterranean clover pasture or a Coastal bermudagrass-ryegrass-arrowleaf clover pasture each at 3 levels of forage availability. Due to unfavorable weather conditions, ryegrass and clover did not have sufficient forage to permit full-time grazing until April 26. The 2 heifer and 2 steer fall-born calves on each treatment were weaned on July 19. Spring-born calves grazing common bermudagrass were weaned on September 24; whereas, those calves grazing Coastal bermudagrass were weaned on October 10. Differences in time of weaning was due to the germination and growth of subterranean clover in September, and not to

grass differences. All animals were weighed at 28-day intervals. Total dry matter forage produced during the year was estimated using the cage-difference technique. All pastures received a total of 200-100-100 lbs/ac of N-P₂O₅-K₂O in split applications.

RESULTS:

Table 1 shows the effect of stocking rate on estimated forage dry matter production during the growing season. Although the grazing pressures were more severe on common bermudagrass as compared to Coastal bermudagrass, forage yield in both grasses was reduced at the high stocking rates. More importantly, however, is the fact that Coastal bermudagrass produced approximately twice as much dry matter as common bermudagrass, with the same rate of fertilizer.

Average daily gain/loss (ADG) of both cows and calves grazing common bermudagrass pastures is shown in Table 2. The ADG of cows ranged from -2.20 to 1.41 with decreasing stocking rates; whereas, calf ADG, over the same range of stocking rates, ranged from 0.54 to 3.06 for the 145-day period. Combined cow and calf gain per acre at 3.07, 1.52, and 0.75 animal-units per acre, respectively, was -739, 606, and 486 lbs. Table 3 presents cow and calf ADG from a 162-day grazing trial with Coastal bermudagrass. With the exception of the magnitude of gain per acre and individual differences in ADG, a similar response to stocking rate was apparent among cattle grazing either common or Coastal bermudagrass. With a 200-day grazing period, stocking rates slightly higher than those presented at the medium level, and slightly reduced calf ADG due to that grazing pressure, it is not too difficult to produce 1000 pounds of calf gain from overseeded Coastal bermudagrass pastures.

Weaning weights of test calves are shown in Table 4. Although it was predictable that steers would wean heavier than heifers and that fall-born calves would wean heavier than spring-born calves, weaning weight differences within and between groups are interesting. For example, heifer weaning weights plateaued at the medium stocking rate; whereas, steers continued to gain more weight on the low-stocked pastures. There was only a 17-pound difference in average weaning weights of fall-born vs spring-born calves exposed to the high stocking rates. On the medium and low stocking rates, however, there was a 121 and 133 pound advantage, respectively, in favor of fall-born calves. Similarly, fall-born steers weaned 68 pounds heavier than

fall-born heifers; whereas, spring-born steers weaned only 33 pounds heavier than spring-born heifers. The animal performance data reported for this single year study should be used to illustrate trends rather than as absolute gain-advantage treatments.

Table 1. Average forage availability and estimated total dry matter production.

	<u>FORAGE AVAILABLE</u> (lbs/ac)	<u>STOCKING RATE</u> (AU/ac)	<u>FORAGE YIELD</u> (lbs/ac)
Common bermudagrass	195	3.07	9,010
	1003	1.52	10,248
	1392	0.75	11,400
Coastal bermudagrass	371	4.42	17,957
	3931	1.83	20,567
	6541	1.10	26,480

Table 2. Animal performance from common bermudagrass-ryegrass-subterranean clover pastures.

STOCKING RATE (AU/ac)	AVERAGE DAILY GAIN			GAIN PER ACRE ¹		
	COW	CALF	COW + CALF	COW	CALF	COW + CALF
	lbs					
3.07	-2.20	0.54	-1.66	-979	240	-739
1.52	0.52	2.23	2.75	115	491	606
0.75	1.41	3.06	4.47	153	333	486

¹145-day period

Table 3. Animal performance from Coastal bermudagrass-ryegrass-arrowleaf clover pastures.

STOCKING RATE (AU/ac)	AVERAGE DAILY GAIN			GAIN PER ACRE ¹		
	COW	CALF	COW + CALF	COW	CALF	COW + CALF
	lbs					
4.42	-1.60	0.57	-1.03	-1146	408	-738
1.83	1.19	2.40	3.59	353	712	1065
1.10	1.44	2.53	3.97	257	451	708
1.20*	1.31	2.32	3.63	255	451	706

¹162-day period

*rotationally grazed between 2 paddocks

Table 4. Weaning weights of fall-born and spring-born calves grazed at 3 stocking rates.

CALVING SEASON	STOCKING RATE	WEANING WEIGHTS ¹ (LBS)		
		HEIFERS	STEERS	AVG
FALL	HIGH	457	521	489
	MEDIUM	672	716	694
	LOW	692	787	740
	AVG	607	675	641
SPRING	HIGH	462	481	472
	MEDIUM	570	576	573
	LOW	570	643	607
	AVG	534	567	551
AVERAGE OF SEASONS	HIGH	460	501	481
	MEDIUM	621	646	634
	LOW	631	715	673
	AVG	571	621	596

¹Weaning weights from calves grazing common and Coastal bermudagrass have been combined for averaging purposes.