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FIRST-CALF HEIFER PERFORMANCE ON COMMON AND COASTAL BERMUDAGRASS AT THREE STOCKING RATES

F. M. Rouquette, Jr., J. L. Kerby, G. H. Nimr, V. A. Haby and G. R. Smith

Background. Since the autumn of 1984, both common (COM) and Coastal (COS) bermudagrasses have been overseeded with clover (CLV) plus P and K but no additional N fertilizer, or overseeded with 'TAM-90' ryegrass (RYG) with N fertilizer split applied in a long-term nutrient cycling study. All pastures have been stocked at three rates (n=6 treatments) with cows and fall-born calves from Feb. to mid-Jun. and cows with winter-born calves from mid-Jun. through Sep. During this experiment, F-1 (Hereford x Brahman) first calf heifers and their Bonsmara-sired winter born calves were grazed at three stocking rates from Jun. 23 to Sep. 25 (94 days) on COM and COS pastures. Fertility rates for both COM and COS that were assigned to CLV received 0-117-117-52S-28Mg-1.24B on Nov. 20 (RCTR-2004 'Apache' arrowleaf clover). The COM and COS assigned to RYG received the same fertilizer as the CLV plus split applications of N from Nov. 22 to Sep. 4. Total fertilizer for COS and COM with RYG was 355 lbs N/ac, with 202 lbs N/ac applied during the ryegrass-bermudagrass phase and 153 lbs N/ac applied during this exclusive bermudagrass period. Calf ADG is an average of both steers and heifers.

Research Findings. From early Jun through Sep, lactating, first-calf heifers showed weight loss on all high (HI) stocked pastures (Table 1). At HI stocked COM pastures, calf ADG was about 1 lb/da; whereas, on HI COS pastures, calf ADG was about 1.3 lbs/da. The medium (ME) stocked pastures on both COM and COS had nearly identical calf ADG of 1.97 lbs/da for non-N fertilized and 2.24 lbs/da for N-fertilized pastures. Calves on low (LO) stocked pastures had ADG of about 2.4 to 2.7 lbs/da on COM and COS pastures. Stocking rates were higher on COS compared to COM, and were higher on N-fertilized vs no N-fertilization. Expressed on a 1500-lb cow-calf unit, calf gain/ac ranged from 158 lbs/ac to 348 lbs/ac on COM, and 247 lbs/ac to 533 lbs/ac on COS (Table 1). Table 2 presents performance data for both the fall-born and winter born calves using data from Table 1 and that from related reports on TAM-90 ryegrass and 'Apache' arrowleaf clover. Based on a 1500-lb cow-calf unit, total calf gain/ac from N-fertilized COM and COS pastures was higher (600 to 1150 lbs/ac) than calf gain/ac from non N-fertilized pastures (460 to 780 lbs/ac).

Application. Fertilizer costs/lb calf gain ranged from \$0.0974 to \$.1641/lb on non-N-fertilized pastures and \$0.1775 to \$0.3452 on N-fertilized pastures. There was about a 2-fold difference in cost/lb gain between fertility treatments; however, at ME and HI stocking rates the

calf gain/ac was about 70% higher from COM and 45% higher for COS than for non-N-fertilized pastures.

Table 1. Performance of first-calf heifers and calves hd/ac grazing common (COM) and Coastal (COS) bermudagrass at three stocking rates.

BERMUDA GRASS	WINTER PASTURE	ADG			STOCKING RATE ¹		CALF GAIN/AC ¹	
		FIRST-CALF HEIFER	CALF	GAIN PER CALF	1000 lb. Au-unit	1500 lb. Cw-Clf	1000 lb. Au-unit	1500 lb. Cw-Clf
		---- lbs/da ----		lbs	----- hd/ac -----		----- lbs/da -----	
COM	APCH	-1.45	0.96	90	3.80	2.53	342	228
COM	RYG+N	-1.01	1.13	106	4.92	3.28	522	348
COM	APCH	0.22	1.97	185	1.77	1.18	327	218
COM	RYG+N	-.15	2.24	211	2.27	1.51	479	319
COM	APCH	-0.49	2.39	225	1.05	0.70	236	158
COM	RYG+N	0.07	2.41	227	1.40	0.93	318	211
COS	APCH	-1.11	1.24	117	4.79	3.19	560	373
COS	RYG+N	-0.93	1.39	131	6.10	4.07	799	533
COS	APCH	0.30	1.97	185	2.47	1.64	457	303
COS	RYG+N	0.63	2.23	210	3.42	2.28	718	479
COS	APCH	1.14	2.68	252	1.47	0.98	370	247
COS	RYG+N	0.60	2.28	214	2.20	1.46	471	312

¹Stocking rates shown as either 1000 lbs = 1 animal-unit or 1500 lbs = 1 cow-calf unit.

Table 2. Total Gains per acre on common (COM) and Coastal (COS) bermudagrass from February through September.

BERMUDA GRASS	WINTER PASTURE	STK RATE	CALF GAIN / AC ¹ (lbs)					
			1000 lbs = 1 ANIMAL UNIT			1500 lbs = 1 COW-CALF		
			WINT	SUMR	TOTAL	WINT	SUMR	TOTAL
			----- lbs/ac -----			----- lbs/ac -----		
COM	APCH	HI	506	342	848	337	228	565
COM	RYG+N	HI	921	522	1443	615	348	963
COM	APCH	ME	668	327	995	444	218	662
COM	RYG+N	ME	857	479	1336	572	319	891
COM	APCH	LO	459	236	695	305	158	463
COM	RYG+N	LO	570	318	888	380	211	591
COS	APCH	HI	624	560	1184	416	373	789
COS	RYG+N	HI	926	799	1725	616	533	1149
COS	APCH	ME	716	457	1173	477	303	780
COS	RYG+N	ME	881	718	1599	586	479	1065
COS	APCH	LO	581	370	951	386	247	633
COS	RYG+N	LO	583	471	1054	387	312	699

¹WINT = Winter-spring period with fall-born calves; SUMR = Summer period with winter-born calves.