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Stocking rate and supplementation of steers grazing bluestem pasture in early summer

Abstract

Native bluestem pastures were grazed from May 8 to July 18, 1984 by steers with an average beginning weight of 553 lb, at stocking rates of 1.7, 1.5, and 1.25 acres per steer. Gains per acre were higher ($P < .01$) with increased stocking rate (97, 111, 132 lb/acre). Daily gains were similar for the three stocking rates (2.34, 2.35, 2.36 lb/day). Daily supplementation with about 1.5 lb sorghum grain plus Rumensin® per head significantly increased gains.

Keywords

Cattlemen's Day, 1985; Kansas Agricultural Experiment Station contribution; no. 85-319-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 470; Beef; Stocking rate; Steers; Bluestem

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K**Stocking Rate and Supplementation of Steers Grazing
Bluestem Pasture in Early Summer****S**Ed F. Smith, Ronald W. Graber, Jack Riley
Clenton Owensby¹, and R.R. Schalles**U**

Summary

Native bluestem pastures were grazed from May 8 to July 18, 1984 by steers with an average beginning weight of 553 lb, at stocking rates of 1.7, 1.5, and 1.25 acres per steer. Gains per acre were higher ($P < .01$) with increased stocking rate (97, 111, 132 lb/acre). Daily gains were similar for the three stocking rates (2.34, 2.35, 2.36 lb/day). Daily supplementation with about 1.5 lb sorghum grain plus Rumensin[®] per head significantly increased gains.

Introduction

Early-season intensive stocking (May 1 to July 15) of native bluestem pastures produces daily gains similar to those made during the same period at normal stocking rates season long. This trial evaluated different intensive stocking rates and the value of self-fed Rumensin[®] in a salt-limiting, sorghum grain mixture.

Experimental Procedures

One 63-acre and five 60-acre pastures were assigned randomly to one of three stocking rates: 1.7, 1.5, or 1.25 acres per steer from May 8 to July 18, 1984 with two pastures per stocking rate. Steers in one pasture at each stocking rate received a Rumensin[®] -sorghum grain supplement (Table 2.2), while steers in the other pastures received only salt. The steers, primarily of British breeding, averaged 553 lb initially.

Results

Results in Table 2.1 and Table 2.2 show no differences in daily gain among stocking rates. Supplementation increased ($P < .01$) gains of steers over nonsupplemented steers for all stocking rates. Steers on the high and low stocking rates showed the best response to supplementation. Economically it makes sense at present cattle prices and interest costs to supplement with low levels of grain, since about 1 lb of added gain was made for each 4.2 lb of supplemental feed containing Rumensin[®]. Gains per acre were increased with both the highest stocking rate and supplementation.

Grass remaining after mid-July was greater at the lowest stocking rate and decreased with increased rates (Table 2.3 and 2.4). Forbs remaining after mid-July were significantly higher for the medium stocking rates than for the high or low stocking rates.

¹Department of Agronomy.

Table 2.1. Effect of Stocking Rate on Performance of Steers Grazing Intensive Early Stocked Bluestem Pastures for 71 Days

Item	Stocking Rate (acres per steer)		
	1.7	1.5	1.25
Steers per Treatment	70	80	96
Beginning Wt., lb	565	550	544
Total Gain per Steer, lb	165	166	165
Daily Gain per Steer, lb	2.33	2.34	2.32
Gain per Acre, lb	97 ^a	111 ^b	132 ^c

^{a b c}Values in same row with different superscripts differ significantly (P<.01).

Table 2.2. Effect of Grain Supplementation on Performance of Steers Grazing Intensive, Early-Stocked Bluestem Pastures

Stocking Rate (acres/steer)	Supplemented			Nonsupplemented		
	1.7	1.5	1.25	1.7	1.5	1.25
Steers per Treatment	35	40	48	35	40	48
Supplement per Head Daily (self-fed):						
Ground Sorghum Grain, lb	1.09	1.56	1.58	0	0	0
Salt, lb	.16	.24	.25	0	0	0
Rumensin [®] , mg	105	151	162	0	0	0
Total Gain per Steer, lb	180	172	180	150	161	150
Daily Gain per Steer, lb	2.54	2.42	2.53	2.12	2.26	2.12
Gain per Acre, lb	106	115	144	88	107	120
Supplemented vs Nonsupplemented:						
Total Gain per Steer, lb	177 ^a			154 ^b		
Daily Gain per Steer, lb	2.50 ^a			2.17 ^b		
Gain per Acre, lb	121 ^a			105 ^b		

^{a b}Values in the same row with different superscripts differ significantly (P<.01).

Table 2.3. Grass Remaining in Mid-July and Early October following Grazing at Indicated Stocking Rates from May 8 to July 18, 1984

Stocking Rate (acres/steer)	Grass Yield, Lb per Acre					
	Supplemented			Nonsupplemented		
	1.7	1.50	1.25	1.7	1.50	1.25
Range Site:	<u>Mid July</u>					
Loamy Upland	2230	1654	1054	1594	1268	1263
Breaks	1918	1033	674	817	759	685
	<u>Early October</u>					
Loamy Upland	2057	1739	1326	1676	1290	1271
Breaks	1580	996	753	846	846	661

Table 2.4. Forbs Remaining in Mid-July and Early October following Grazing at Indicated Stocking Rates from May 8 to July 18, 1984

Stocking Rate (acres/steer)	Forb Yield, Lb per Acre					
	Supplemented			Nonsupplemented		
	1.7	1.50	1.25	1.7	1.50	1.25
Range Site:	<u>Mid July</u>					
Loamy Upland	276	415	231	203	551	398
Breaks	159	162	258	135	273	119
	<u>Early October</u>					
Loamy Upland	188	416	357	155	456	296
Breaks	213	201	335	114	114	95