

1983

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Recommended Citation

Held, R.; Smith, E.F.; Riley, Jack G.; and Owensby, Clenton E. (1983) "Stocking rate, supplementation and implants for steers grazing bluestem pasture in early summer," *Kansas Agricultural Experiment Station Research Reports*: Vol. 0: Iss. 1. <https://doi.org/10.4148/2378-5977.2524>

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Stocking rate, supplementation and implants for steers grazing bluestem pasture in early summer

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Stocking Rate, Supplementation and Implants for Steers Grazing Bluestem Pasture in Early Summer

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Summary

Native bluestem pastures were grazed from May 10 to July 15, 1982 by steers averaging 599 lbs, at stocking rates 1.82, 1.5, 1.2 acres per steer. Daily gains were similar for all rates, but gain per acre increased with increased stocking rate.

Half of the steers were self-fed a salt-limiting sorghum grain-Rumensin® mixture, at about 1.8 lb per steer per day. Supplementation increased daily gain ($P < .05$) but actual differences were small (2.08 vs. 1.91 lb per day). Gain per acre was increased 7 lbs by supplementation.

Herbage yields at mid-July were least on the heavily stocked pastures, but by October regrowth on all pasture was equal. Stocking rate did not affect botanical composition.

There were no significant gain differences for steers implanted with either Compudose®, Ralgro® or Synovex®, even though 24 percent of the Compudose implants were lost by mid-summer.

Introduction

Previously, we found that early season intensive stocking of bluestem pastures (May to July 15) resulted in daily gains for that period similar to those made during the same period by steers grazing all summer at normal stocking rates. This trial continued to evaluate different intensive stocking rates.

This trial also repeated last year's study (Held and others, Cattlemen's Day, 1982) examining Rumensin® self-fed with sorghum grain in a salt-limiting mixture.

Experimental Procedure

One 63 acre and five 60 acre pastures were randomly assigned to one of three stocking rates: 1.82, 1.50 and 1.20 acres per steer from May 10 to July 15, 1982, two pastures per rate. Steers in one pasture per stocking rate received supplement (Table 12.2) while steers in the other pastures received only salt. The steers, primarily British breeding, averaged 599 lbs initially. Steers were implanted with either Compudose, Ralgro or Synovex.

Results and Discussion

Results are shown in Tables 12.1, 12.2, and 12.3. There were no differences in gain due to stocking rate (Table 12.1). Supplemented steers gained more than nonsupplemented steers, and gain per acre increased with both increasing stocking rates and supplementation (Table 12.2).

Herbage remaining in mid-July reflected the stocking rate with only 660 lbs per acre remaining at the highest stocking rate (Table 12.4). On October 1 the regrowth on all pastures was equal, regardless of stocking rate. Botanical composition was not affected by stocking rate.

Steers implanted with either Compudose, Ralgro or Synovex gained about the same, even though 24% of the Compudose implants could not be detected at mid-summer.

Table 12.1. Effect of Stocking Rate of Steers on Intensive, Early Stocked Bluestem, May 10 - July 15, 1982 (66 Days)

	<u>Stocking rate (acres per steer)</u>		
	1.82	1.50	1.20
Steers per treatment	66	80	103
Avg. beginning wt., lb	597	609	592
Avg. gain per steer, lb	136 ^a	127 ^a	131 ^a
Daily gain per steer, lb	2.06 ^a	1.92 ^a	1.98 ^a
Gain per acre, lb	75	85	110

^aNo significant differences ($P < .05$) were found.

Table 12.2. Effect of grain supplementation on performance of steers on intensive, early stocked bluestem

Stocking rate (acres/steer)	<u>Supplement</u>			<u>Nonsupplemented</u>		
	1.82	1.5	1.2	1.82	1.5	1.2
Steers per treatment	33	40	50	33	40	53
Supplement consumed per head daily (self-fed)						
Ground sorghum grain, lb	1.73	1.91	1.41	0	0	0
Salt, lb	.19	.21	.16	0	0	0
Rumensin, mg	192	210	156	0	0	0
Avg. gain per steer, lb	144	122	146	128	132	119
Daily gain per steer, lb	2.18	1.85	2.21	1.94	2.0	1.80
Gain per acre, lb	79	81	122	70	88	100
Supplemented vs. nonsupplemented						
Avg. gain per steer, lb		137 ^a			126 ^b	
Daily gain per steer, lb		2.08 ^a			1.91 ^b	
Gain per acre, lb		94			87	

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

Table 12.3. Effect of implant on steer gains on intensive, early stocked bluestem^a

	<u>Compudose</u>	<u>Ralgro</u>	<u>Synovex</u>
Steers per treatment	85	84	80
Avg. gain per steer, lb	131	131	132
Daily gain per steer, lb	1.98	1.98	2.00

^aNo significant differences ($P < .05$) were found.

Table 12.4. Herbage Remaining on Loamy Upland and Breaks Range Sites on Pastures Stocked at Indicated Rates from May 1 to July 15, 1982 (lbs per acre).

	1.82 acres per steer		Stocking Rate 1.50 acres per steer		1.20 acres per steer	
	<u>Grass</u>	<u>Forbes</u>	<u>Grass</u>	<u>Forbes</u>	<u>Grass</u>	<u>Forbes</u>
Mid October						
Loamy upland	3608	339	2692	447	2899	539
Breaks	2362	193	1847	94	2255	335
Mid July						
Loamy upland	1776	212	1094	365	681	182
Breaks	1258	117	826	78	643	344



The Kansas State University Range Research Center is located in the Flint Hills west of the University. It consists of 1139 acres, divided into 18 pie-shaped pastures of about 60 acres each, all connecting to working facilities in the middle. The center was established in 1946, and is the only university range cattle research facility in the Flint Hills. Because of its unique location, research carried out there is applied throughout the tall grass region. The grasses are a mixture of big and little Bluestem, Indiangrass and others. Dr. Ed Smith, of the Department of Animal Sciences and Industry is in charge of the area, but much of the research is in cooperation with Dr. Clinton Owensby, range research specialist in the Department of Agronomy. Wildlife and botanical composition studies are carried out on the facility by the Department of Biology.

Much of the research on burning of Flint Hills grasses has been done here. Spring burning reduces weed infestations, removes the undergrowth, and destroys encroaching cedar trees. Because the fire blackens the earth, solar radiation warms the ground faster, resulting in earlier spring grass growth. Spring burning is generally delayed until late April. That shortens the time between burning and regrowth, when the soil is poorly protected against water erosion.

For summer-long grazing, the usual stocking rate is 3.5 acres per steer. But since more forage is available in the spring and early fall than during the hot periods of mid summer, extensive research has been carried out on heavy stocking (as much as double the usual rate) early in the season. Gains per acre are improved, and feeder cattle are available to the feedyards when availability from other sources is low.