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Response of yearling steers on bluestem pastures that were intensively stocked early in season

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Response of Yearling Steers on Bluestem Pastures That Were Intensively Stocked Early in Season¹

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Summary

Nine pastures of 492 acres were summer grazed by yearling steers. Five were burned April 24, 1973; four were not burned. Burned and nonburned pastures had 0, 40, or 80 lbs. of nitrogen per acre applied aerially. Stocking rates were determined with herbage production data from experimental plots under similar treatments. Under the same fertilization and stocking rates, average daily gain and gain per acre were higher for burned pastures than nonburned pastures. Fertilizing bluestem tended to reduce daily gains but increased gain per acre. Steers on the early-season, intensively grazed pasture, gained the most per day (1.51 lbs) and produced one of the higher per-acre gains (72 lbs.).

Introduction

Previous research has shown that forage production and quality of forage increased under nitrogen fertilization, however, cool-season grass and other undesirable species increased. Late-spring burning (April) under moderate stocking has increased steer gains as well as range condition. Burning effectively eliminates many cool season species, which increases the range's production potential. We are combining the two practices to see if they complement each other and to study effects on beef production and range condition. We also evaluated early-season-intensive stocking on a burned pasture.

Experimental Procedure

Nine native bluestem pastures, totaling 492 acres, 4 miles northwest of Manhattan were used in the study. All treatments were the same as the previous year. One nonburned, nonfertilized pasture, and one burned, nonfertilized pasture have had the same treatment the last 24 years--to study long term effects. Burned pastures were burned April 24, and ammonium nitrate (34% nitrogen) was applied aerially May 2. The pastures grazed the entire summer season were stocked from May 3 to October 3, with mixed steers that averaged 487 lbs. The intensively grazed pasture was stocked from May 3 to July 15. The steers were sprayed for flies twice a month and had salt free choice. They were gathered the first of each month, penned overnight without feed or water, and weighed the next morning.

¹The following cooperated in making this study possible: Farmland Industries, Kansas City, MO.; U. S. Steel Agri-Chemical Division, Kansas City, MO.; Farmers Co-op Assoc., Manhattan, KS.; Bob's Flying Service, Waverly, KS.

Results

Late spring burning increased daily gain and gain per acre (table 5.1). Nitrogen fertilization at 40 or 80 pounds per acre tended to reduce daily gain, but to increase gain per acre about 15-20 lbs. with little difference between the 40- and 80-pound rates. Highest daily gain was on the intensely stocked pasture (May 3 to July 15) twice normal rate early in the growing season rather than a moderate rate the entire season. Early intensive stocking has had no obvious detrimental effect on range conditions.

Table 5.1. Effects on Steer Gains of Burning and Fertilizing Native Bluestem Pasture, May 3 to October 3 (154 days)-1973

	Daily gain per steer, lbs.	Gain per acre, lbs.	Acres per steer
Not burned			
No nitrogen, same treatment 23 years	1.05	48	3.3
No nitrogen	.90	41	3.3
40 lb. nitrogen per acre	.80	54	2.2
80 lb. nitrogen per acre	.69	58	1.4
Burned April 24			
No nitrogen, same treatment 23 years	1.19	53	3.1
No nitrogen	1.06	48	3.3
40 lb. nitrogen per acre	.99	68	2.2
80 lb. nitrogen per acre	.84	70	1.4
Intensely stocked May 3 to July 15 (75 days)	1.51	72	1.7