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Cow and Calf Performances as Affected by Fertilizing and Burning Bluestem Pastures

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Summary

Burning and fertilizing Bluestem pastures were evaluated by comparing performances of spring-calving cows and calves that grazed them. Two control pastures were not burned or fertilized; two pastures were burned; and two were burned and fertilized with 40 pounds of nitrogen an acre, applied aerially. Neither average daily gains of the calves nor reproductive performance of the cows differed significantly among treatments, but more pounds of calf were weaned per acre from pastures burned and fertilized.

Introduction

Economic conditions in the beef industry are forcing producers to find ways to improve the productivity of native range to reduce production costs. Fertilizing has long been used to increase crop production, but the results have been less favorable on native range. Fertilizing pasture has been limited because it tends to increase weeds and cool-season grasses, is difficult to apply, and has not proved economically feasible.

Late-spring burning has been shown to reduce weeds and cool-season grasses on Flint Hills range. Therefore, we are studying fertilizing and burning separately and in combination to see if they complement each other and can be used to increase productivity of Bluestem grass and performance of animals grazing it.

Experimental Procedure

This study started in the fall of 1971 with Polled Hereford cows assigned to three pasture treatments. Cows that died, were unsound, or failed to calve, have been replaced.

One Polled Hereford bull was placed in each pasture from May 24 to July 25. Calves were weaned October 9, 1975, at an average age of 196 days.

All pastures have been treated the same the last three years. April 22, four of the six pastures were burned. April 29, ammonium nitrate (34% nitrogen) was applied aerially at 40 lbs. of nitrogen per acre to two burned pastures. The first week of every month the cows and calves were gathered and weighed, after being penned without feed or water overnight.

Results and Discussion

Burning or burning plus fertilizing did not significantly affect weaning weight of calves or performance of cows, but significantly increased pounds weaned per acre--through heavier stocking rates, not increased daily gains.

Table 7.1 Effects on cow and calf performance of burning and fertilizing native bluestem pastures, 1974-1975.

	Control (two pastures)	Burned (two pastures)	Burned and fertilized (two pastures)
<i>not same time out</i> Cows per treatment	23	26	30
Average cow wt., lb.			
Dec.	1009	988	1006
Feb.	962	952	952
May <i>July</i>	828	804	797
Sept. <i>NOV</i>	1025	1016	1019
Acres per cow	7.1	7.1	5.6
Supplemental feed ¹ , av. per cow daily,			
Nov. 1 to Feb. 15	3.0	3.0	3.0
Feb. 15 to April 20	6.0	6.0	6.0
Avg. calving date ²	3-30	3-31	3-24
Calf birth wts., lbs. ²	75.8	78.2	74.7
Number calves weaned	19	23	25
Avg. breeding date	6-13	6-17	6-14
Conception rate, percent	96	92	100
Adjusted weaning wt., lbs. ²	491	464	479
Pounds weaned per acre ²	57	58	71

¹ Cubed compound of 50% dehydrated alfalfa and 50% ground sorghum

² Adjusted for cow age, calf sex, birth date, birth weight