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Abstract

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Keywords

Cattlemen's Day, 1979; Report of progress (Kansas State University. Agricultural Experiment Station); 350; Beef; Mineral supplementation; Native range; Supplemental feeding

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Delayed Winter Supplemental Feeding and Year-round Mineral Supplementation of Beef Cows on Native Range

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Summary

Polled Hereford cows on native Flint Hills pasture not supplemented until February lost more weight from December to February, lost less from February to May, and were in poorer condition before calving than cows supplemented beginning in November. But calf survival, birth weight, and calf average daily gain were similar for both groups. Feeding cows a calcium, phosphorus, trace mineral mix did not improve any measure of cow or calf performance.

Introduction

This study was to further investigate nutritional needs of spring calving cows on native Flint Hills pasture and to gain information on the need for year-round mineral supplement. Previous research here (Cattlemen's Day, 1978) showed native Flint Hills grass below NRC requirements for brood cows for sodium, potassium, phosphorous, and copper.

Experimental Procedure

During the winter of 1977-78, we maintained 70 Polled Hereford cows (calving in March and April) in 6 native Flint Hills pastures, and fed 3 pounds of alfalfa hay per cow per day in these pastures from November 1 to April 6 and an additional 6 pounds of sorghum grain per cow per day from February 15 to April 6. Cows in the other three pastures got 3 pounds alfalfa hay and 6 pounds sorghum grain per cow daily only from February 1 to April 6.

One pasture of each group received a salt, calcium, phosphorus, trace mineral mix from November 14 until calves were weaned (October 5). Content and intake of the mineral supplement are given in Table 6.1. Cows in the other 4 pastures received only salt. Using mineral analysis from previous research (Cattlemen's Day, 1978) and estimating 16.5 pounds of grass intake (dry matter) per cow daily for the winter and 30 pounds for the summer, we formulated and fed a mineral supplement to meet NRC requirements for sodium, potassium, phosphorus, and copper. During the winter, soybean meal was added to insure adequate mineral supplementation. Mineral consumption was adequate for all periods except August 1 to October 9. Equal amounts of soybean meal per cow were added to all pastures. Cows were weighed in the morning after being held off feed and water overnight. Only cows weaning a calf were included in analysis of weight change and condition.

Results and Discussion

Cow and calf performance are given in Table 6.2. Cows that were not supplemented until February lost more weight from December to February, lost less from February to May, and were in poorer condition before calving, than cows supplemented beginning in November. But calf survival, birth weight, and calf average daily gain were similar for both groups. Information on calving interval as affected by delayed winter feeding is not yet available, but must be considered. Feeding a calcium, phosphorus, trace mineral mix improved neither cow nor calf performance.

Table 6.1. Intake of salt, mineral, and soybean meal (pounds per cow daily).

	November 14-May 7		May 8-July 31		August 1-October 9	
	Salt & mineral	Salt	Salt & mineral	Salt	Salt & mineral	Salt
Salt	.019	.208	.037	.124	.022	.084
Soybean meal	.223	.222	----	----	----	----
Potassium chloride	.188	----	----	----	----	----
Dicalcium phosphate	.169	----	.147	----	.061	----
Trace mineral mix[1]	.008	----	.012	----	.004	----

[1]Trace mineral mix included 10% manganese, 10% iron, 14% calcium, 1% copper, 5% zinc, 0.3% iodine, 0.1% cobalt.

Table 6.2. Cow and calf performance with indicated supplements.

	Supplemental feeding		Mineral treatment	
	Begun Nov. 1	Begun Feb. 1	Salt & mineral	Salt
Cows per treatment	32	38	26	44
Calves alive at weaning	26	32	18	40
Calf birth weight, lb	78	77	77	78
Calf average daily gain, lb[1]	1.70	1.64	1.65	1.67
No. cows open	1	1	2	0
Cow weight, Dec., lb	1085[a]	1062[b]	1095	1062
Dec to Feb weight change, lb	-38[a]	-84[b]	-74	-59
Feb. to May weight change, lb	-183[a]	-135[b]	-162	-154
May to Sept weight change, lb	+200	+207	+204	+204
Sept cow weight, lb	1064	1050	1063	1053
December weight/height ratio[2]	23.3	22.9	23.3	22.9
February weight/height ratio	22.4[a]	21.0[b]	21.7	21.6
May weight/height ratio	18.5	18.1	18.3	18.3
September weight/height ratio	22.8	22.5	22.6	22.7

[ab]Means with different superscripts differ significantly ($P<.05$).

[1]Adjusted to steer basis and for age of dam.

[2]Weight/height ratio is weight in pounds ÷ height in inches at the withers and is used as an indication of condition. A lower weight/height ratio indicates poorer condition.