

1988

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Recommended Citation

Momont, P.A. and Pruitt, R.J., "Effects of Cow Body Condition and Calving Date on Calf Performance" (1988). *South Dakota Beef Report, 1988*. Paper 13.
http://openprairie.sdstate.edu/sd_beefreport_1988/13

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EFFECTS OF COW BODY CONDITION AND CALVING DATE ON CALF PERFORMANCE

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CATTLE 88-12

Summary

Records from 285 Charolais-sired calves out of 133 Simmental x Angus crossbred cows taken over 3 years were used to evaluate the influence of cow body condition at calving, condition score change following calving and calf birth date on calf performance. Calves nursing cows with higher condition scores in March had increased daily gains from birth until May. However, at weaning time average daily gain and weaning weights were similar regardless of cow condition at calving. Cows which maintained body condition or lost less than two condition scores from March to May weaned heavier calves than cows which lost two or more condition scores after calving. Calf growth rate from birth until 6 months of age was similar between calves born early and those born late in the calving season.

(Key Words: Beef Cow, Calf Performance, Condition Score, Calving Date.)

Introduction

Researchers have found that lower cow nutrition and body condition at calving decreases average daily gain of the young calf. With the arrival of spring grass, lighter calves appear to compensate for earlier depressed gains and their weaning weights are similar to calves from fleshier cows.

Preliminary results from the Gundmonson Sandhills Laboratory, Nebraska, compared calf performance of March- and April-born calves. No differences in weaning weights taken at a common age were observed between the two groups. Although older calves were heavier at weaning time, their average daily gain from birth to weaning was not affected by month of birth.

Data from this study were recorded in conjunction with a 3-year project designed to determine the minimum cow body condition before calving and breeding necessary for adequate reproductive performance. The objectives of this analysis were (1) to determine the effects of cow body condition at calving and condition score change from calving until May on calf performance and (2) to determine the influence of calving date on calf performance under range conditions.

Materials and Methods

Simmental x Angus crossbred cows and their Charolais-sired calves were wintered at the SDSU Range and Livestock Research Station near Philip and grazed summer pastures near Sturgis, South Dakota. Calving occurred from mid-March until mid-May. Cows and calves grazed native pastures as one group from May until weaning. High and low early and late winter nutritional treatments established wide ranges in cow body condition in March prior to the start of the calving season and in early May upon "turnout" onto summer pastures. Visual condition scores (CS 1-9, 1 = severely emaciated) were assigned cows using the average score of two assessors in March and May of each year. A more complete description of condition scores are outlined in paper 88-11 of this publication. Calf weights (after feed and water removal overnight) were recorded at the end of late winter treatment and monthly thereafter until weaning.

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Results and Discussion

Calves from fleshier cows at calving had higher average daily gains from birth to May (Table 1). Higher cow body condition in March did not improve calf rate of gain after May. Calf weight after May and 205-day adjusted weights were similar regardless of cow body condition at calving.

TABLE 1. EFFECTS OF COW CONDITION SCORE IN MARCH ON CALF PERFORMANCE

	<u>March cow condition score</u>			
	<u>3,4</u>	<u>5</u>	<u>6</u>	<u>7,8</u>
No. of calves	60	128	66	31
Calf average daily gain, lb/day				
Birth to May	1.64 ^a	1.84 ^{ab}	1.89 ^{ab}	2.14 ^b
May to July	2.53	2.53	2.42	2.47
July to September	2.80	2.75	2.75	2.78
Calf weight, lb				
May	149 ^a	158 ^b	161 ^b	166 ^b
June	214	228	226	229
July	288	297	293	301
September	536	538	536	547
205 day adjusted weight, lb	596	598	595	609

a, b (P<.05).

Average daily gain and actual weights of calves from cows that maintained or lost less than two condition scores from March to May were similar (Table 2). Once cows and calves grazed summer pastures calf gains were similar until weaning for all groups. If cows lost at least two or more condition scores during the late winter treatment period, calf rate of gain was depressed enough to lower 205-day adjusted weaning weights approximately 20 pounds.

No interactions were found between condition score in March and condition score change from March to May for calf performance. The effect of condition score change on calf performance was not influenced by cow body condition at calving.

Differences in calf gains occurred from birth to May and from May to July for early and late born calves (Table 3). However, calf gains from birth to approximately 6 months of age were not different. Monthly weights were higher for early born calves while 205-day adjusted weights were similar.

As suggested by previous studies, early calf performance improved as cow body condition at calving increased. Summer weight gains and calf weaning weights were not affected by cow body condition at calving. If cow nutrition after calving was severely restricted to the point that cows lost two or more condition scores before May, then calf gains during that period were decreased and not compensated for by weaning time. No differences were found in weaning weights for early versus late calves when compared at a common age. Under these range conditions, differences in weaning weights were due to an age advantage for older calves and not differences in average daily gain.

TABLE 2. EFFECTS OF COW CONDITION SCORE CHANGE FROM MARCH
UNTIL MAY ON CALF PERFORMANCE

	Condition score change, March to May		
	Maintained	Lost one	Lost two or more
No. of calves	42	127	116
Calf average daily gain, lb/day			
Birth to May	2.09 ^a	2.01 ^a	1.54 ^b
May to July	2.53	2.46	2.49
July to September	2.76	2.78	2.77
Calf weight, lb			
May	164 ^a	164 ^a	147 ^b
June	232 ^a	228 ^a	212 ^b
July	303 ^a	298 ^a	283 ^b
September	545 ^a	545 ^a	528 ^b
205-day adjusted weight, lb	607 ^a	606 ^a	586 ^b

a,b (P<.05).

TABLE 3. EFFECTS OF CALVING DATE ON CALF PERFORMANCE

	Early calves	Late calves
No. of calves	194	57
Average calving date	March 24	April 15
Calf average daily gain, lb/day		
Birth to May	2.04 ^a	1.73 ^b
May to July	2.36 ^a	2.49 ^b
July to September	2.71	2.78
Birth to September (early calves)		
Birth to October (late calves)	2.46	2.44
Calf weight, lb		
May	167 ^a	138 ^b
June	235 ^a	199 ^b
July	306 ^a	267 ^b
September	551 ^a	506 ^b
September (early calves)		
October (late calves)	551	548
205-day adjusted weight, lb	600	593

a,b (P<.05).