

EFFECTS OF POSTPARTUM WEIGHT LOSS ON PERFORMANCE OF FALL CALVING COWS

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Story in Brief

In the third year of a 4-year study, 58 mature Hereford cows in good body condition were allotted to one of 3 nutritional treatments at the time of calving in September and October. Treatments groups were (1) maintain weight from calving (first post-calving weight) through breeding, (2) lose 10 percent of the calving weight from calving to the beginning of breeding and (3) maintain weight from calving to the beginning of breeding but lose 10-15 percent of the body weight during the 56-day breeding season starting about December 1.

Cows in Group 1 had the least weight and condition loss from calving through breeding and had the greatest percentage of cows in heat and the most cows rebred. Weight loss before breeding tended to delay the interval to first estrus. Excessive weight loss during breeding can be very detrimental to rebreeding performance and is especially critical if there has been weight loss before the breeding season. These data suggest that good body condition at calving is not sufficient to guarantee good reproductive performance of fall calving cows.

Introduction

Cows losing weight after calving tend to have longer postpartum intervals from calving to estrus than cows that are gaining weight. Most cows in Oklahoma, whether spring or fall calving, will lose weight from calving to breeding. Fall calving cows and early spring calving cows frequently lose weight during the breeding season as well. It is important, therefore, to measure the effects of weight loss before and during the breeding season on cow reproduction and calf performance so that feed resources might be more effectively allocated. The objective of this research was to determine the effects of weight loss before and during the breeding season on rebreeding of cows and performance of their calves.

Experimental Procedure

This report summarizes the third year of a continuing study (the 1982-1983 breeding season). Results of years 1 and 2 were discussed in the 1983 Animal Science Research Report (MP-114:218). Mature Herefords that calved from mid-September to late October, grazed bermuda pastures until calving and were moved to native grass shortly after calving.

One day each week, cows with calves at least 2 days old were weighed (first postpartum weight), scored for body condition (1=very thin to 9=very fat) and allotted to one of three treatments based on date of calving. Treatments were: (1) maintain weight from calving though

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breeding, (2) lose about 10 percent of the first postcalving weight by the beginning of breeding and be fed the same as Group 1 during breeding and (3) maintain weight from calving to the beginning of breeding, followed by a loss of 10-15 percent of the first postpartum weight during the breeding season.

Supplemental feed for all three years consisted of cottonseed meal at the rate of from 2 to 3 lb/head/day from calving to breeding for Groups 1 and 3 and no cottonseed meal before breeding for Group 2. During the breeding season, Groups 1 and 2 were fed 4/lb/head/day of cottonseed meal while Group 3 was fed none. Hay was fed only when snow or ice covered the dormant forage. The breeding season was 60 days from about December 1 to February 1 each year. Estrus was detected by sterile bulls with chin-ball markers before breeding and by marker-equipped fertile Hereford bulls during the breeding season. Year 3 was relatively mild until the last two weeks of January. Following breeding, all cows were fed together at the rate of 4 lb/hd/day of cottonseed meal and hay was fed when snow or ice covered available forage.

All calves were weighed and males were castrated by banding at birth. Calves were weighed at the beginning and end of the breeding season and at weaning in mid-May. Cows were weighed and scored for body condition at 2-week intervals from calving to the end of breeding and at 28-day intervals to weaning.

Results and Discussion

Results of year 3 are shown in Table 1.

Year 3

In year 3, cows calved in slightly lower body condition than in years 1 and 2. Prior to breeding, cows in Group 2 lost 6 percent of their first post-calving weight, whereas cows in Groups 1 and 3 lost only 1-2 percent. Cows in Group 3 lost an average of 113 lb, or about 12 percent of their post-calving body weight, by the end of the breeding season. Body condition losses generally followed body weight losses. However, due to an adequate supply of forage, Group 2 quickly regained .38 units of body condition during the breeding season. As in years 1 and 2, cows which were the heaviest at the end of breeding lost the most weight from breeding to weaning. Group 3 cows were the thinnest at the end of breeding and lost the least weight during this time. This could be due to decreased milk production or increased metabolic efficiency which would lower their maintenance energy requirement.

The effect of treatment on days from calving to first estrus was not as marked as in years 1 and 2. However, more cows in Group 1 came into heat during the breeding season and pregnancy rates tended to be greater. In agreement with the results of year 1, cows in Group 3, had more repeat breedings than cows in Groups 1 and 2. Pregnancy rates for cows in Group 3 were greater in the third year than in previous years, probably due to the decreased severity of weight and body condition losses during this year.

Calf weaning weights were low, reflecting the fact that 205 day adjusted weaning weights were computed based on May weights and calves were not creep fed. Calves from Group 1 cows tended to be the heaviest, although there were no significant differences. In the third year, calves from cows in Groups 1 and 3 averaged approximately 10-15 lb heavier at the beginning of the breeding season than calves from Group 2. Similar results were discovered in year 2.

Table 1. Cow and calf performance: Year 3.

	Treatment			Prob.
	1	2	3	
Number of cows	19	19	20	
Cow wt, lb				
After calving	958	963	960	NS
Change to breeding	-12	-58	-21 ^b	NS
Change during breeding	-30 ^a	-15 ^a	-91	<.01
Change from breeding to weaning	-133	-102	-82	NS
Total change	-176	-176	-195	NS
Cow condition score				
After calving	5.8	5.2	5.7	NS
Change to breeding	-.26	-.68 ^b	-.30	NS
Change during breeding	-.28 ^a	+.38 ^b	-.69 ^c	<.01
Change from breeding to weaning	-.56	-.27	-.38	NS
Reproductive performance				
Percent pregnant	89	84	85	NS
Days from calving to first estrus (number in heat)	72 (18)	75 (15)	69 (16)	NS
Calf wt, lb				
Birth wt	72	68	68	--
Adjusted 205 day wt	264	254	250	NS

^{a, b, c} Means on the same line with different superscript letters differ (P<.05).

^d Condition score based on scale of 1 through 9 where 1=very thin and 9=very fat.

Conclusion

Based on this year's results and those of the 2 previous years, weight and body condition loss before breeding can reduce the number of cows in estrus and lengthen the postpartum anestrus interval by an average of 11 days (P<0.07). Weight and body condition loss during the breeding season can reduce the number of cows cycling. These losses during the breeding season can be particularly detrimental to rebreeding performance when they follow weight losses before breeding, as occurred in year 2. Cows which lose weight prior to breeding can make some compensatory gain response when fed low quality roughage diets plus adequate protein supplement. Results based on three years of data collection suggest that the rebreeding performance of cows that calve in good condition can be reduced if significant weight losses occur before or during the breeding season. The degree to which reproductive performance is reduced appears to be dependent upon the condition of the cows at calving and the severity of the weight losses after calving and during the breeding season.