

# BODY CONDITION AT CALVING, CALF SURVIVAL AND REPRODUCTIVE PERFORMANCE OF FIRST CALF HEIFERS

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## Story in Brief

Eighty-one Hereford and Angus x Hereford heifers that calved as 2-yr-olds were used to evaluate the influence of body condition score at calving on birth weights, calving difficulty and reproductive performance. Heifers calved during February and March of 1985 and 1986. Body condition at calving influenced birth weights in 1986, but not in 1985. Calving difficulty, percentage of heifers requiring assistance at calving and percentage of live calves at weaning were not influenced by body condition at calving. There was a tendency for less of the thinner heifers to rebreed. Hereford and Angus x Hereford heifers with a body condition score of 6 have a desirable amount of body energy reserves at their first calving for optimal performance.

(Key Words: Body Condition Score, Dystocia, Reproduction)

## Introduction

Body condition or body energy reserves at calving is the most important factor that influences the length of the interval from calving until the first postpartum estrus. Reduced nutrient intake during the last months of pregnancy may reduce birth weights of calves, reduce body energy reserves and delay rebreeding. One objective of this study was to determine the influence of body condition score (BCS) at calving on birth weights of calves, calving difficulty and rebreeding performance of heifers calving at two years of age.

## Materials and Methods

Eighty-one Hereford and Angus x Hereford heifers that calved as 2-yr-olds during February and March of 1985 and 1986 were used in this study. In November before calving, heifers were blocked based on breed and BCS (1 = emaciated, 9 = obese) and divided into two groups. Heifers were fed to lose or gain weight so that they would have a BCS of 4, 5 or 6 at calving.

At calving, dystocia scores were assigned (1 = no difficulty, 2 = minor difficulty, 3 = calf puller used, 4 = cesarean section, 5 = abnormal presentation) and calves were weighed. Birth weights were adjusted to bull equivalents by multiplying heifer weights by 1.07. Calves were weaned at an average age of seven months. Heifers were exposed to fertile bulls starting on May 1 for 60 days in 1985 and 69 days in 1986. Pregnancy rate was determined 3 months after the end of the breeding season.

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Table 1. Influence of BCS of 2-yr-old heifers at calving on birth weights, calving difficulty and calf survival<sup>a</sup>.

Trait	Body Condition Score		
	4	5	6
Number of heifers			
1985	10	21	8
1986	8	23	11
Total	18	44	19
Live calves at birth, %	94	84	95
Birth weight of calves, lb			
1985	68.3±2.4	66.2±2.0	67.6±1.9
1986	60.8±2.3	68.0±1.8	71.8±2.4
Dystocia score, average of 1-4 scores	1.2±.1	1.4±.1	1.3±.1
Heifers requiring assistance at birth, %	33	32	35
Live calves at weaning, %	83	84	89
Heifers pregnant at the end of the breeding season, %	65	78	89

<sup>a</sup>Year did not influence any of the traits except birth weight, so values are the mean ± SE for both years for all traits except birth weight.

### Results and Discussion

The number of live calves at birth was not significantly influenced by BCS of the heifers. There was a year x BCS at birth interaction for birth weights of calves. In 1985, birth weights were similar for heifers with BCS of 4, 5 or 6 at calving. However, during 1986, birth weights were the least for BCS 4 heifers and greatest for BCS 6 heifers. The reason for this difference between years is not certain. It might be related to the amount of nutrients available to the cows each year during late gestation.

Dystocia score was not influenced by BCS of the heifers at calving. About one-third of the heifers in each of the BCS groups required assistance at calving. The percentage of live calves at weaning was not influenced by BCS of the heifers at calving. Most of the calf losses occurred at parturition or during the first 2 weeks of age.

Reduced nutrient intake of first calve heifers during late pregnancy may decrease calf growth and reduce the birth weights of calves. However, the reduction in birth weight for heifers during 1986 of this study was not associated with a decrease in calving difficulty. In addition, there was a tendency for less of the thin heifers to rebreed. Only 65% of the heifers that calved in a BCS of 4 rebred compared to 89% of the heifers that calved with a BCS of 6.

We conclude that a BCS of 6 is a desirable amount of body energy reserves for first calve Hereford and Hereford x Angus heifers to have at parturition for good reproductive performance.