

FORAGE AND BEEF CATTLE RESEARCH - 1982

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EFFECT OF ENERGY INTAKE AND BODY CONDITION
SCORE ON POSTPARTUM INTERVAL

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SUMMARY

Twenty-one mature Brangus cows and 9 first-calf 2-year old Brangus heifers were fed a diet which contained either (1) 90% of the NRC requirements for metabolizable energy (ME), (2) 100% of the NRC requirements for ME, or (3) 110% of the NRC requirements for ME from calving to first observed estrus,. Cows receiving 110% of their NRC requirements for ME had a shorter postpartum interval ($P<.01$) than did cows receiving 100% or 90% of their requirements for ME. In addition, those cows which lost body condition from calving to first observed estrus, regardless of energy intake, had a longer ($P<.005$) postpartum interval than did those cows which maintained or gained body condition.

OBJECTIVES

Previous research at this Station and at the Beeville Station has indicated that fewer cows in thin body condition following calving returned to estrus and become pregnant during the breeding season. This experiment was undertaken to determine if small changes in the level of energy intake from calving to first observed estrus would affect the postpartum interval in both mature and first-calf 2-year old Brangus heifers.

PROCEDURE

At calving, cows (21) and heifers (9) were randomly assigned to receive one of the following three levels of energy intake: (1) 90% of the NRC requirements for ME for a mature lactating cow with average milking ability, (2) 100% of the NRC requirements for ME, or (3) 110% of the NRC requirements for ME. Cow weight and condition score, along with calf weight, was recorded at calving, at 21 days postpartum, and at first observed estrus. Sterile heat check bulls, equipped with chin ball markers, were maintained with each treatment group to aid in estrus detection. A cow was removed from her respective treatment group when she was observed in standing heat, or if she had not returned to estrus within 90 days after calving.

RESULTS

Cows and heifers which were receiving 110% of the NRC requirements for ME had a significantly shorter postpartum interval ($P < .01$) than did those cows receiving either 100% or 90% of the requirements for ME (table 1). Additionally, those cows which maintained or gained body condition following calving had a significantly shorter ($P < .005$) postpartum interval than did those cows which lost body condition following calving (table 1). These results are graphically presented in figures 1 and 2, respectively. By 35 days postpartum, almost 80% of the cows receiving 110% of the ME requirements and 60% of the cows receiving 100% of the ME requirements had exhibited standing estrus behavior with only 36% of the cows receiving 90% of the ME requirements had been observed in estrus (figure 1). The same trend can be seen when cows were compared on the basis of body condition (figure 2). Seventy-five percent of the cows which maintained or gained body condition following calving were observed in estrus by 35 days postpartum while only 36% of those cows which lost body condition were in estrus by 35 days postpartum.

These results show that if a yearly calving interval is to be maintained, a cow must be fed enough energy to at least maintain her body condition following calving. While it may not be economically feasible nor even desirable for the producer to have his cows gaining body condition following calving, it is apparent that the cows which are rapidly losing body condition and may not conceive during a limited breeding season.

Table 1. Effect of energy level on postpartum reproduction.

Group	n	Pre-calving weight (lb)	Calving weight (lb)	21-day weight (lb)	Estrus weight (lb)*	Postpartum interval (days)**
90% ME ^a	11	1096±27.1	977±19.8	1003±30.6	933±37.0	57.5±8.8
100% ME ^a	10	1162±42.2	1049±40.9	1060±42.9	1012±58.3	40.3±6.6
110% ME ^a	9	1109±35.9	878±52.1	1019±42.0	988±39.2	34.7±5.1
Lost body condition	14					
Maintained body condition	16					
						60.0±7.5 ^b
						31.7±2.8 ^c

^aGroups were fed the noted percentage of the NRC requirements given for metabolizable energy (ME) for lactating beef cows with average milking ability from calving to first postpartum estrus.

^{b,c}Means differ P<.005.

*Means in the same column differ P<.10.

**Means in the same column differ P<.01.

FIGURE 1

EFFECT OF ENERGY LEVEL ON POSTPARTUM INTERVAL

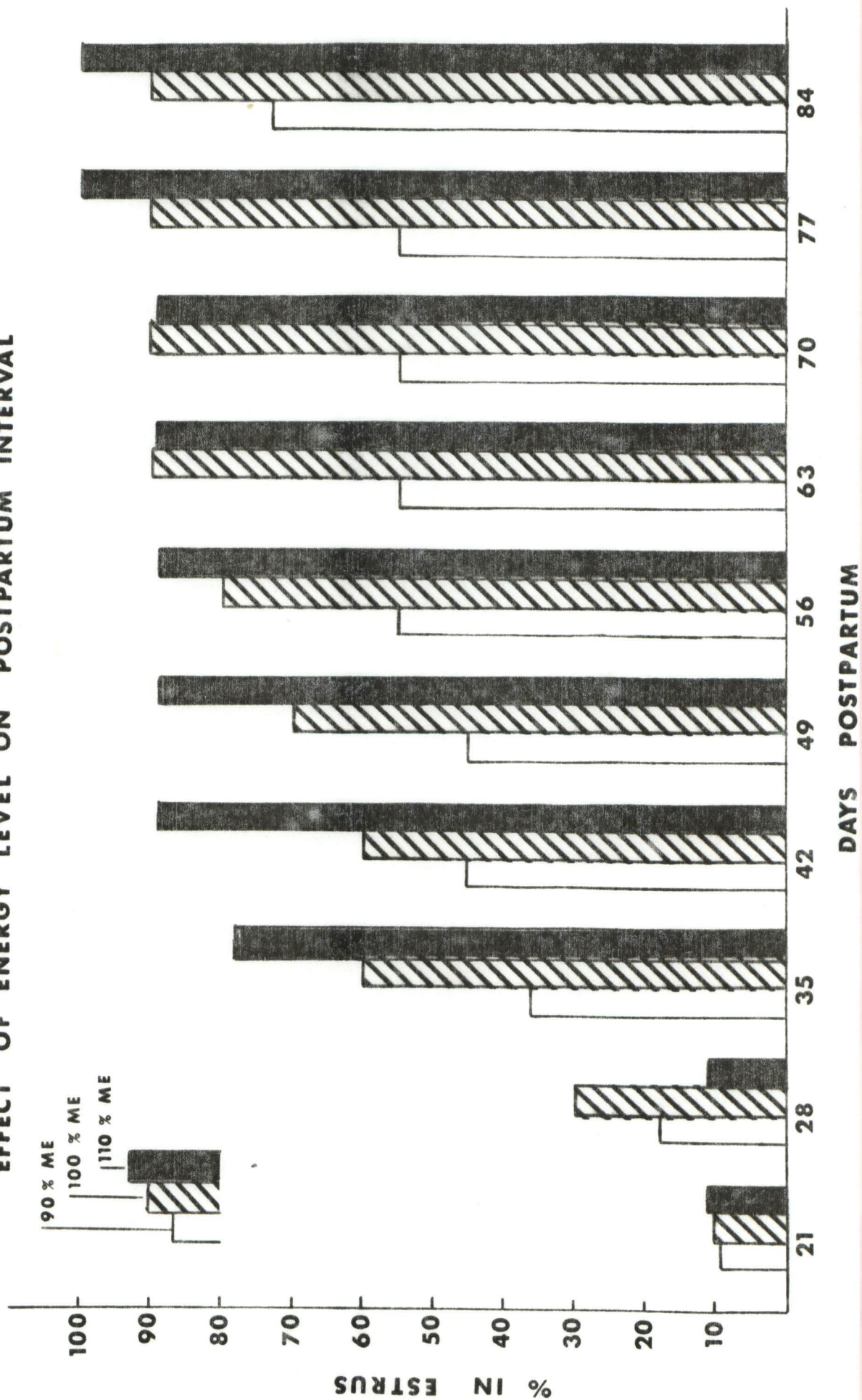


FIGURE 2
EFFECT OF BODY CONDITION SCORE ON
POSTPARTUM INTERVAL

