

# **PUBLICATIONS**

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# CHANGES IN PELVIC AREA AND CERVICAL DILATION NEAR PARTURITION IN BRAHMAN COWS AND FIRST-CALF HEIFERS

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## SUMMARY

Brahman heifers with large pelvic areas can still experience calving difficulty due to large birth weights of the calves. Heifers that experienced calving difficulty had slower rates of cervical closure than did heifers without calving difficulty. Mature cows without calving difficulty did not close the cervix as rapidly as heifers without calving difficulty. In conclusion, even in breeds known for calving ease, such as the Brahman, care must be taken in sire selection to avoid bulls that produce calves with excessive birth weights.

## INTRODUCTION

In the past, Brahman and Brahman cross cattle have been known for calving ease. Recent selection emphasis has been directed toward increasing weaning weights and increasing growth rates with little concern for birth weights. Although selection for these traits has resulted in increased animal performance, birth weight also has increased. Calving difficulty can result in calf loss, longer postpartum intervals and lower cow productivity. Emphasis also should include birth weight as a consideration in sire and replacement heifer selection to lower the incidence of calving difficulty.

It has been shown that heifers which experience calving difficulty have longer postpartum intervals and lower pregnancy rates. This is due to a slower rate of uterine involution brought about by damage to the uterus at calving and a greater frequency of uterine infection. Calving difficulty is often due to small pelvic area in the cow and/or large birth weight of the calf.

The objectives of this experiment were to define changes in pelvic area and cervical dilation in Brahman cows and first-calf heifers and to relate these changes to the occurrence of calving difficulty.

## PROCEDURES

Sixteen Brahman cows and fourteen first-calf Brahman heifers, calving in the spring of 1987, were utilized. Seven of the heifers experienced dystocia, but all of the cows calved without difficulty. Measurements of pelvic area and cervical dilation began 10 days before predicted calving and continued until 3 days after

calving. Pelvic height and width were measured using a Rice pelvimeter. Cervical dilation was estimated by vaginal palpation. The period analyzed was 4 days prior to calving through 3 days after calving.

## RESULTS

### PELVIC AREA

Cows exhibited larger pelvic areas than heifers (Figure 1). As calving approached, there was an increase in pelvic area beginning at 3 days before calving with the greatest increase measured at 1 day before calving (Figure 2). This increase in pelvic area may be due to relaxin, a hormone which is known to relax the birth canal prior to calving.

### CERVICAL DILATION

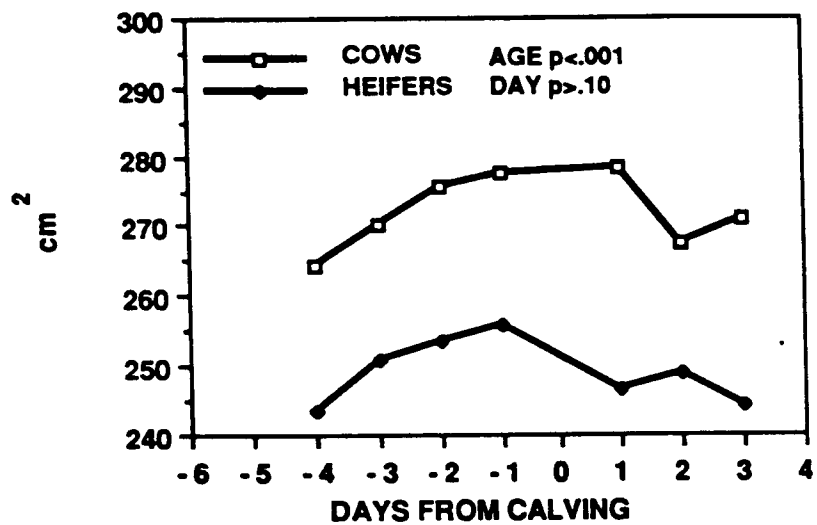
Cows and heifers had very similar rates of cervical dilation prior to calving. After calving, heifers which calved without difficulty were able to constrict the cervical lumen at a quicker rate compared to cows without calving difficulty (Figure 3). Heifers that experienced dystocia were much slower in cervical constriction than heifers without calving difficulty (Figure 4). Heifers that have a delayed closure of the cervix could have a greater incidence of uterine infection, resulting in an increased postpartum interval.

### BIRTH WEIGHTS

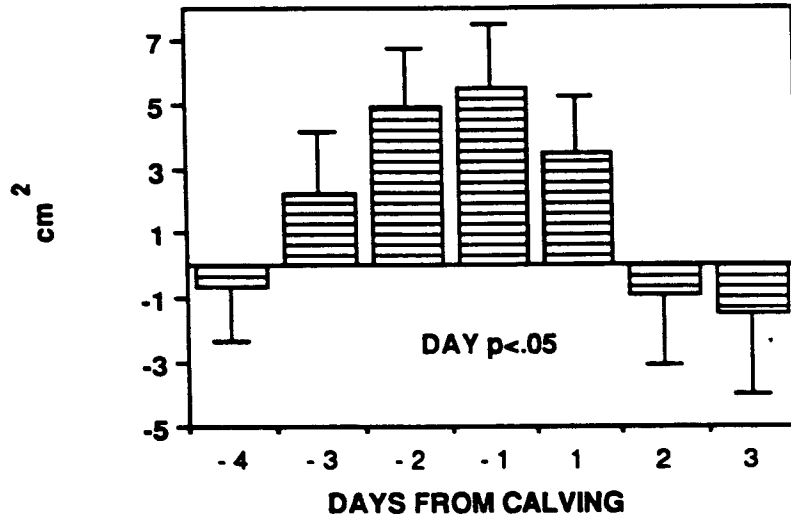
Birth weights of calves born to heifers that experienced calving difficulty (85.5 lbs) were significantly larger than the birth weights of calves born to the heifers which did not experience dystocia (68.2 lb). Large birth weights were the primary cause of calving difficulty in this experiment. Birth weights of calves born to cows and heifers were similar.

First-calf, three-year-old Brahman heifers did not restrict the birth weight of their first calf compared with birth weights of calves born by mature Brahman cows. Bulls that sire calves with large birth weights should be avoided for first-calf Brahman heifers. In conclusion, producers should avoid bulls which had excessive birth weights themselves or that have sired calves with excessive birth weights when selecting bulls to breed first-calf heifers of any breed or cross.

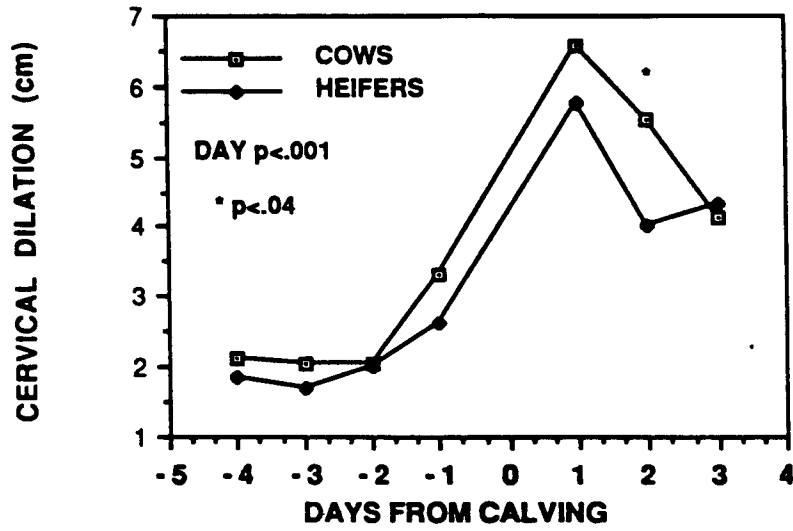
### PELVIC AREA IN BRAHMAN FEMALES



### CHANGE IN PELVIC AREA OF BRAHMAN FEMALES



### CERVICAL DILATION IN BRAHMAN FEMALES



### CERVICAL DILATION IN BRAHMAN HEIFERS

