



**Interrelationship of Endocrine  
and Physiological Events  
During the Estrous Cycle  
in Brahman Cattle**

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THE HISTOLOGY AND HISTOCHEMISTRY OF BRAHMAN,  
BRAHMAN X HEREFORD AND HEREFORD CORPORA LUTEA

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SUMMARY

The corpora lutea from Brahman heifers were higher ( $P < 0.10$ ) in the enzyme ( $3\beta$ -hydroxysteriod dehydrogenase) responsible for production of progesterone. The cell types and sizes were not different between breeds. This indicates that the Brahman CL is more active in relation to its size than is the CL from either Brahman x Hereford or Hereford heifers. The activity was not increased enough to make up for the lack of organ size in the Brahman.

OBJECTIVES

Metabolic activity of cells or different numbers of active cells making up the corpus luteum of the Brahman could compensate for the smaller size and lower progesterone content as compared to the Hereford CL. This experiment was to see if the numbers and types of cells were different between Brahman, Brahman x Hereford and Hereford heifers and to determine the enzyme levels ( $3\beta$ -hydroxysteriod dehydrogenase) of the CL from the three breeds of cattle.

PROCEDURE

Corpora lutea (CL) were removed surgically from 10 Brahman, 10 Brahman x Hereford and 10 Hereford heifers on day 8 and day 13 after standing heat. The CL were examined histologically for cell type and size and histochemically for concentrations of enzyme ( $3\beta$ -hydroxysteriod dehydrogenase).

RESULTS

The histological examination of the tissue from Brahman, Brahman x Hereford and Hereford CL showed that there were no detectable differences in cell type, size or organization between breeds. Histochemical examination for  $3\beta$ -hydroxysteriod dehydrogenase however indicated that Brahman CL were higher ( $P < 0.10$ ) in enzyme concentration than were either Brahman x Hereford or Herefords (Figure 1). These differences were not great enough to compensate for the smaller CL size and progesterone content.



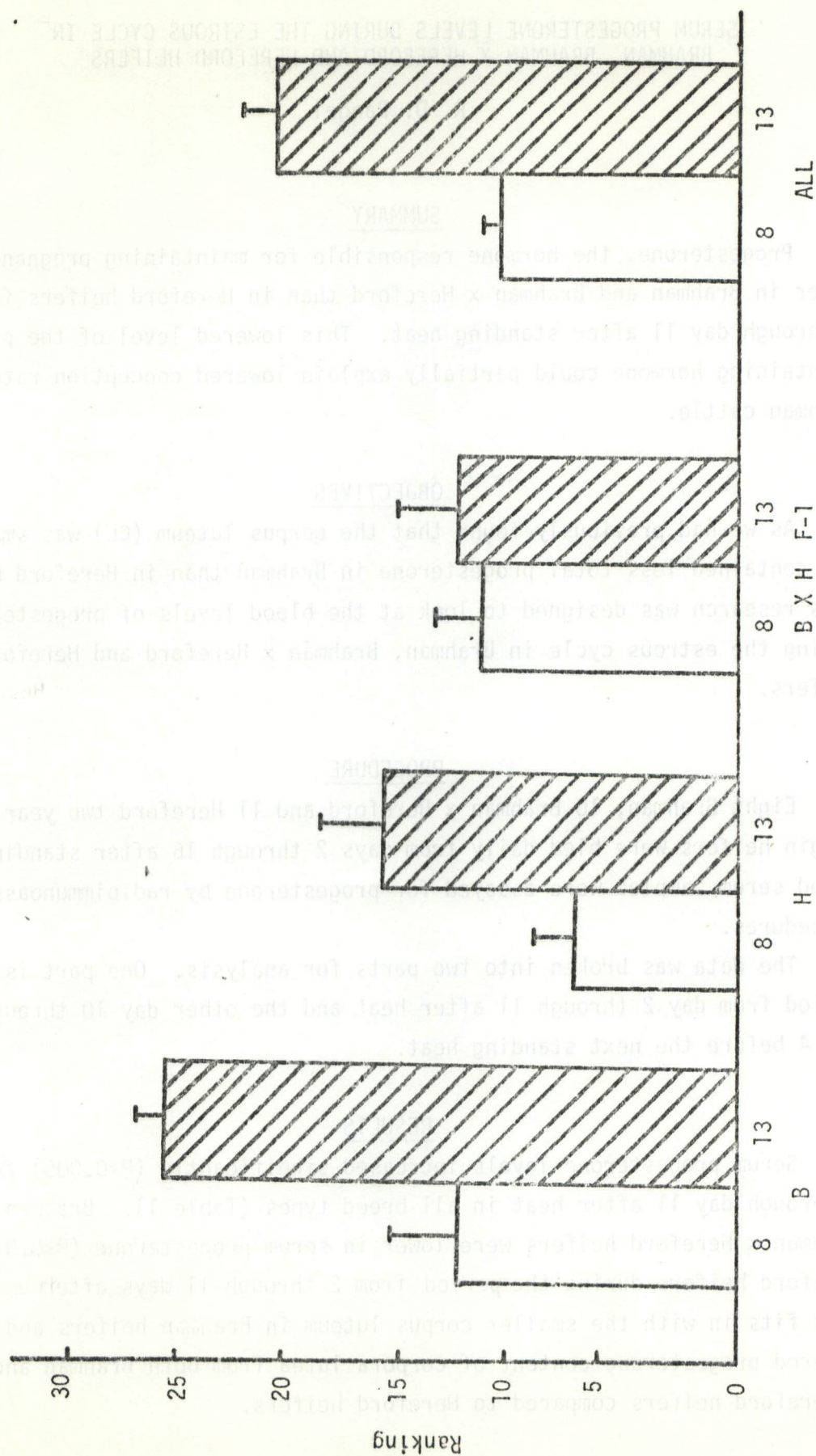


Figure 1.  $3\beta$ -SDH activity in Brahman, Hereford, and Brahman x Hereford F-1 corpora lutea from days 8 and 13 after heat.