The Relationship Between Pregnant Cows' Behavior, Calf Birth Weight and Postpartum Levels of Progesterone

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Abstract: The objective was to evaluate pregnant bovine dominance in two genetic types of cows and its relation to weight and sex of calves, as well as the ovarian function 70 days after postpartum of the cows. Twelve cows were used, Brahman×Simmental (n = 5, Br) and Brown Swiss×Brahman (n = 7, F1) between 550–610 kilos, 4-5 years old, having experienced parturition 2-3 times and being 6-7 months pregnant. Twelve observations were made every other day, using a displacement and success index, behavior samples and scanning the data every four hours with five minute intervals between each sample. The weight and sex of calves at birth were also recorded. Ten samples were used to determine the progesterone levels in blood serum using the PROC MIXED procedure for sample 3 and 8 ($p<0.01$ and 0.05), respectively. In order to determine dominance a Mann Whitney test was used, dominance was measured at U = 38 and U = 33 for F1 and Br, respectively. The Spearman test correlated with the Weight at Birth (WB) with the displacement and success index, at 0.58, 0.26 for F1 and 0.64, 0.57 for Br respectively, we observed greater correlation between weight at birth and the displacement index for both genetic types. Correlation between progesterone level's in blood serum and displacement and the success index was 0.84 and 0.07. The only samples that were significant were samples 3 and 8 where correlations of 0.75 and 0.11 were made for F1; 0.28 and 0.61 for Br respectively, which indicates that genetic type F1 had short luteal cycles and genetic type Br had no ovarian activity.

Key words: Genetic type, dominance, progesterone, ovarian activity, WB, spearman test

INTRODUCTION

Seventy five percent of Bovine meat production is carried out under tropical pasturing conditions (SAGARPA, 2000) where predominant native cattle races are a mixture of European and East Indian breeds live under critical environmental conditions (Beal et al., 1990). These cattle (Bos Taurus X Bos Indicus) are characterized by high resistance to humidity, temperature and parasites (Pineheiro et al., 1998).

In the Mexican tropics, the main livestock activity is meat production, for which rapid growth livestock breeding is important.

Most common environmental behavioral patterns are asynchronal at today's cattle ranch, for example, the fact that grass availability is directly connected with parturition (Lindsay, 1996). Because of this situation, behavioral and environmental destaging produce economic loss in the humid tropics (Peters, 1996). In crease in long periods of dioestrus are due to suckling, these are some of the circumstances preventing optimum production (Browing et al., 1994).

During handling in the corral, bovine suffer stress confronting diverse environments and when mixed with other animals better adapted to said environments this can affect the health, well being and some reproductive aspects of the animals (Solano et al., 2004; Fraser and Broom, 1998; Hasegawa et al., 1997; Arave and Albright, 1981) since they must compete for food and a resting place, they experience stress when separated from familiar animals in the pasture and when introduced into a new cattle ranch for the first time (Wierenga, 1990). Inadequate handling causes stress and unnecessary interaction between animals, causing fights that in turn diminished fertility and increase animal handler risk (Solano et al., 2004; Boleman et al., 1998; Scanga et al., 1998).

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