Relationship between fat mobilization and productive efficiency in Zebu cows during lactation

Relación entre movilización de grasa y eficiencia productiva en vacas Cebú durante la lactancia

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Introduction: Evaluating the mobilization of body reserves in zebu cows suggests great challenges in herd management, especially in first-calf cows. Introduction. The body condition score is the most used method to evaluate fat reserves in lactating zebu cows. Recently, alternative methods have been proposed, such as body mass index and thoracic-hump perimeter, which estimate the amount of subcutaneous fat in specific anatomical areas. of the cows. **Objective:** To evaluate the mobilization of subcutaneous fat in zebu cows using three estimation methods and to know its relationship with productive efficiency during the calving-weaning productive cycle. **Methods:** A group of first-calf zebu heifers (n=12) of contemporary age that calved the same month-time of the year in a cow-calf herd in Yopal were fixed time artificial insemination, then evaluated at the beginning and end of the productive cycle (calving - weaning): the body condition score (BCS scale 1-9), the heart girth around the hump (HGH) with a tape measure and the body mass index (BMI) based on weight, body length and hip height. The cows were weighed at calving (WCC), at weaning (WCW) and the calves were weighed at birth (BW) and at weaning (WW 240 days), the productive efficiency index was calculated: weight of the weaned calf divided by weight of the cow weaned (WW-WCW). **Results and Discussion:** The WCC and WCW were on average 434±39 kg and 408±49 kg, respectively. Calf BW and WW were 38±3.1 kg and 247±17 kg, respectively. The BCS at calving and BCS at weaning were 5.33±0.65 and 5.08±0.59, respectively. The HGH at calving and HGH at weaning was 197±7.27 cm and 191±9.77 cm, the BMI at calving and weaning was 22±0.0 kg/cm and 21±0.0 kg/cm, respectively. The average WW-WCW efficiency index was 61±7.8%. There were inverse relationships between the variations in calving-weaning fat reserves with the WW-WCW index in the cows, being the correlation coefficients BMI (-0.71, $p<0.01$), HGH (-0.63, $p<0.005$), and BCS (-0.45, $p< 0.13$), respectively. **Conclusion:** The mobilization of body reserves in lactating cows estimated by the three methods had inverse relationships with the WW-WCW efficiency index.

Keywords: Body condition score, *Bos indicus*, herd, weaning weight

Palabras clave: Condición corporal, *Bos indicus*, rebaño, peso al destete

Flight distance and grazing behaviour of Holstein cows under a conventional milking system

Distancia de fuga y comportamiento en pastoreo de vacas Holstein en un sistema de ordeño convencional

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Introduction: Flight distance (FD) is a temperament test associate to lying time of dairy cows in early lactation and under a conventional millking system. **Objective**: To determine the relationship between FD test of Holstein cows in late lactation and grazing behavior under conventional milking system. **Methods:** The study was conducted at the dairy research station of INIA La Estanzuela (Colonia, Uruguay) where 59 Holstein cows (23 primiparous and 36 multiparous) were classified as 'calm' ($\leq$2.3 m, n=20) or 'reactive' ($\geq$3.4 m, n=20). based on FD mean (distance that cows allowed a nonfamiliar person to approach, m) at 40, 70, and 170 days in milk at parlor system. The behaviors 'standing', 'lying', 'grazing', 'ruminating' and 'inactivity were record by scan method each 10 minutes (12 hours/day) during 10 days. Daily frequencies of behaviors were expressed as percentage, and its relation to cow´s FD were analyzed by generalized linear mixed for longitudinal data. **Results and Discussion**: There was a significant interaction between FD and parity in 'grazing' behavior. Primiparous cows classified as 'reactive' (61.7±0.5%) grazing less frequently that 'calm' (64.4±0.8%) (P=0.001). However, these differences were not observed in multiparous cows. The daily frequencies of 'standing', 'lying', 'ruminating' and 'inactivity' were not different between 'reactive' and 'calm' cows. On contrary ours results, it is reported that FD of cross-bred cows (Friesian × Jersey) under pasture conventional system was useful in predicting lying time but not grazing or ruminating. The different days in milk of cows could be the reason of the differences between studies. **Conclusion:** The reactivity of Holstein cows to FD test influenced the 'grazing' but it had not affect 'standing', 'lying', 'ruminating' and 'inactivity' behaviors. However, this difference on 'grazing' between 'reactive' and 'calm' was evident only in primiparous cows.

Keywords: Ethology, lying, personality, rumination, welfare
Palabras clave: Etología, echado, personalidad, rumia, bienestar