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## EFFECT OF PARITY ON INSULIN, IGF-1, T3 AND T4 OF GRAZING NELLORE FEMALES DURING PRE-CALVING AND LACTATION PERIODS

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### RESUMO

Metabolic profile evaluation is a tool widely used in ruminant nutrition as metabolic cues to relate nutrition and physiology. While most of the scientific information regarding metabolic physiology of the transition cow and lactation has been generated in confined or free stall production systems, studies of range cattle under grazing and tropical conditions are scarce. Thirty-six pregnant female cows were used, 12 nulliparous, 12 primiparous and 12 multiparous with an average body weight, age, and body condition score: 2 years, 442 ( $\pm 62$ ) kg, 6,20 ( $\pm 0,5$ ); 3 years, 457 ( $\pm 58$ ) kg, 5,68, ( $\pm 0,5$ ); 4-6 years, 505 ( $\pm 60$ ) kg, 5,92 ( $\pm 0,5$ ), respectively. Animals were randomly divided into six paddocks, with 2 females from each category. Paddocks were evenly covered with *Urochloa decumbens* grass, with free access to water and feeders. All cows were group-fed with a 35% supplement (1.0 kg/d) for the 60 pre-partum days (gestation period from 230 to 290-d), accompanied by MM offered ad libitum supplied separately in additional feeders. Assigning calving day as day 0, blood samples were collected before feeding on days -21, -14, -7, 0, 7, 14, 21, 42, 63, 91, 154, 119, and 203. Blood samples were collected by jugular vein puncture, using vacuum tubes with a clot activator and gel for serum separation (BD Vacutainer® SST® II Advance®, São Paulo, Brazil) to quantify insulin, insulin-like growth factor (IGF-1), total triiodothyronine (T3), total thyroxine (T4). After collection, samples were centrifuged at 2200  $\times$  g for 20 min. Serum were immediately frozen at -20°C until analyzed. Statistical evaluations were performed considering 0.05 as the critical level of probability for the occurrence of the type I error. The statistical analyses were carried out using the PROC MIXED of SAS 9.4 (Inst. Inc., Cary, NC, USA). Effect of day ( $P < .0001$ ), but not parity and, parity and day, were detected for insulin ( $P > 0.05$ ). Insulin concentrations peaked upon calving and increased linearly after 42 days ( $P < 0.05$ ). An interaction occurred between parity and days for IGF-1 ( $P = 0.010$ ) concentrations. IGF-1 concentrations were lower for nulliparous cows at days 7, 14, and 21 and higher for multiparous than nulliparous at days 42, 63, and 91 ( $P = 0.02$ ). Parity and day relative to calving did not impact total T3 and T4 ( $P > 0.05$ ). Insulin and IGF-1 concentrations changed during pre- and post-partum, but parity only affected IGF-1 concentrations. Acknowledgments: The authors thank CNPq, Capes, INCT-CA and FAPEMIG for financial support.

**PALAVRAS-CHAVE:** Nutrição e produção de ruminantes, pasture, hormonal profile,

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