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Oocyte quality and antral follicle count of Nelore heifers (*Bos indicus*) in grazing receiving different levels of concentrated supplementation

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Resumo

Concentrated supplementation of heifers is an interesting strategy to maximize the productivity of beef cattle. It makes possible to reduce the age at puberty, of heifers with genetic potential for precocity, and the finishing time for slaughter of those with lower reproductive efficiency. However, there is a gap regarding the most appropriate supplementation levels to a maximum reproductive efficiency. The aim of this study was to evaluate the influence of different levels of concentrated supplementation on antral follicle count (AFC) and on oocyte quality of grazing heifers. We used 40 nulliparous Nelore heifers (age of 12 ± 0.71 months, weight of $262 \text{ kg} \pm 18.85$ and body condition score (BCS) of 2.33 ± 0.37), grazing *B. brizantha* pastures, divided into 4 groups (n=10), receiving different concentrate supplementation level in initial (80d) and finishing (60d) phases: Trat 05-1 (0.5% of animal live weight (LW) of concentrate supplement in the initial and 1.0% LW in the finishing phase), Trat 05-2 (0.5% LW in the initial and 2.0% LW in the finishing phase), Trat 1-1 (1.0% LW in the initial and 1.0% LW in the finishing phase), and Trat 1-2 (1.0% LW in the initial and 2.0% LW in the finishing phase). After 140 days, the heifers were slaughtered, and the ovaries were collected and sent for counting antral follicles (AFC) followed by follicular aspiration, recovery and classification of cumulus oocyte complexes (COCs). Data were submitted to a statistical analysis, according to a completely randomized design, using PROC GLIMMIX of the SAS On Demand (Sas Institute Inc., Cary, CA, USA). A significance level of 0.05 was considered. The total ($17,2 \pm 3,18$) and grade 1 ($2,71 \pm 0,902$), 2 ($1,97 \pm 0,668$) and 3 ($1,79 \pm 0,669$) COCs and AFC of heifers in group 05-1 were lower than those of the other groups ($P < 0.001$). In addition, the number of degenerate COCs was higher ($8,31 \pm 2,98$) and the COC quality ($52,1 \pm 6,00$) rate was lower ($P < 0.05$) in heifers in group 1-2. The use of intermediate concentrated supplementation levels (Trat 1-1) or the use of high level of supplements just in the finishing phase (Trat 05-2) can positively affect the antral follicle count and oocyte quality of Nelore heifers.