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Effect of dose of estradiol cypionate as ovulation inducer on expression of estrus and fertility of Nelore (*Bos indicus*) heifers submitted to a 7d-timed artificial insemination protocol

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Resumo

The study evaluated the effect of the dose of estradiol cypionate (EC; 0.5 vs. 1.0 mg) on expression of estrus and pregnancy per AI (P/AI) in Nelore (*Bos indicus*) heifers submitted to a 7-d estradiol (E2)/progesterone (P4)-based synchronization protocol for timed-artificial insemination (TAI). A total of 200 heifers (Age = 26 ± 2 mo.; BW = 308.3 ± 1.8 kg; BCS = 3.1 ± 0.02) were enrolled in this experiment and the ovaries were previously examined by transrectal ultrasound (US) to confirm the presence or absence of CL. Heifers were submitted to a cyclicity induction protocol with 150 mg of injectable long-acting P4 on D-24, and 0.5 mg EC on D-12. At the beginning of the TAI protocol (D0), an intravaginal P4 device (0.5 g) was placed and 2 mg of estradiol benzoate, and 0.53 mg of cloprostenol sodium (PGF) were given im. On D7, concomitant with P4 device withdraw, heifers received im another PGF treatment, 200 IU of eCG, and were enrolled in a completely randomized design to receive 0.5 (EC0.5) or 1.0 mg of EC (EC1.0). In addition, heifers were painted with chalk on their tailheads for later evaluation of expression of estrus. On D9, the removal of chalk was evaluated and TAI was performed. Moreover, all heifers were treated im with 8.4 µg of buserelin acetate (GnRH). Pregnancy diagnosis was performed by US 30 d after TAI, and heifers that were diagnosed not pregnant were reenrolled in the experiment for further resynchronization, following the same TAI protocol. Combining data from the first service and resynchronizations, the total TAI performed was 302 (CE0.5 = 150 and CE1.0 = 152). Statistical analyses were performed by the GLIMMIX procedure of SAS 9.4 ($P \leq 0.05$). On D-24, 23.0% (46/200) of heifers had a CL, but there was no effect of the presence of CL on expression of estrus ($P = 0.25$) or P/AI ($P = 0.68$). Moreover, there was no effect of service on expression of estrus (first service = 79.0% [158/200]; second service = 83.8% [57/68]; third service = 79.4% [27/34]; $P = 0.64$) or on P/AI (first service = 54.0% [108/200]; second service = 48.5% [33/68]; third service = 47.1% [16/34]; $P = 0.61$). The EC treatment did not affect the expression of estrus (CE0.5 = 78.0% [117/150] vs. CE1.0 = 82.2% [125/152]; $P = 0.36$), neither P/AI (CE0.5 = 50.7% [76/150] vs. CE1.0 = 53.3% [81/152]; $P = 0.85$). There was no interaction between EC doses and expression of estrus ($P = 0.22$), and, regardless of treatment, expression of estrus did not affect P/AI (with estrus = 52.1% [126/242] vs. without estrus = 51.7% [31/60]; $P = 0.81$). In conclusion, treatment with 0.5 or 1.0 mg of EC at the time of P4 device removal in a 7-d E2/P4-based TAI protocol resulted in similar expression of estrus and P/AI in Nelore heifers treated with GnRH at the time of AI.

Keywords: synchronization; TAI protocol, Nelore, beef cattle

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