Animal Reproduction

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Effects of different doses of estradiol benzoate (1 vs. 2mg) on D0 and estradiol cypionate (0.5 vs. 1mg) on D7 (P4 device removal) on TAI protocol efficiency in Nelore heifers

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Resumo

The experiment evaluated different doses of estradiol benzoate (EB) at the beginning of TAI protocol (D0), and different doses of estradiol cypionate (EC) at the P4 device removal (D7) in Nelore heifers (Bos indicus). A total of 794 heifers [349 aging 14 months (BW=254.3±2.8 Kg and BCS=2.88±0.01) and 445 aging 24 months (BW=322±3.2 Kg and BCS=2.86±0.02)] from a commercial farm were used. On D0, heifers were randomized into 4 groups using a 2x2 factorial design. Heifers received a reused intravaginal P4 device (Sincrogest®, Ourofino) and 0.53mg sodic cloprostenol (Sincrocio®, Ourofino). Experimental treatments were: administration 1 (EB1) or 2 (EB2) mg EB (Sincrodiol®, Ourofino) on D0 and, 0.5 (EC0.5) or 1 (EC1) mg EC (SincroCp®, Ourofino) on D7, resulting in 4 treatments: EB1-EC0.5 (n=209); EB2-EC0.5 (n=196); EB1-EC1 (n=182) and EB2-EC1 (n=207). On D7, heifers received 0.53mg of PGF and 200 IU of eCG (SincroeCG® Ourofino), concomitant with P4 device removal. At the same time, heifers were painted with chalk on their tailheads, and removal of chalk on D9 was used as an indication of estrus. TAI was performed 48h later (D9) in all groups. A subset of heifers (n=184) was evaluated by the US in order to measure the diameter of the dominant follicle (DF) on D7 and D9. Statistical analyses were performed by GLIMMIX of SAS 9.4, using BE and CE doses as fixed effects and heifer category interactions were verified as secondary effects. Since there was no interaction between EB and EC (P> 0.10), data is shown by main effects. No differences were found between EB or EC treatments for diameter of DF on D7 and D9, as well as daily follicular growth. However, the early ovulation rate (between D7 and D9) was higher in EB1 than EB2 group [11.1% (10/90) vs. 5.3% (5/94); P=0.05], but no effect of EC was observed (P=0.35). Furthemore, 24m heifers presented an increased early ovulation rate than 14m heifers [24m=10.8% (14/130) vs. 14m=1.9% (1/54); P=0.03]. No effect of EB was observed (P=0.40) for expression of estrus, but the expression of estrus was higher in CE1 when compared to CE0.5 [88.9% (363/407) vs. 94.6% (368/389); P=0.01]. An interaction between EB and heifer category for pregnancy rate was found (P=0.04), which 14m heifers presented a decreased pregnancy rate in EB2 than EB1, but 24m heifers presented a similar pregnancy rate [14mEB1=37.0% (64/173)B vs. 14mEB2=26,1% (46/176)C vs. 24mEB1=53,2% (116/218)A vs. 24mEB2=54,6%(124/227)A]. Additionally, a tendency for decreasing pregnancy rate was observed (P=0.06) for EC groups (EC0.5=46.4% (188/405) vs. EC1=41.7% (162/389)]. In conclusion, the early ovulation rate was higher in heifers that received 1mg of EB on D0. Heifers that received 1mg of EC on D7 presented greater expression of estrus. The administration of 2mg BE decreased the pregnancy rate only in 14m heifers. Regardless of heifer category, a lower pregnancy rate was observed when 1mg EC on D7 was administered.