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Removal of estradiol treatments from synchronization protocols decrease TAI outcomes in Bos indicus heifers and cows

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Resumo

This experiment evaluated the outcomes of removing estradiol (E2) administration for synchronization of follicular wave (SYN) and ovulation induction (IND) on the reproductive performance of Nelore heifers (HE) and cows (CO) submitted to TAI. A total of 1,111 HE and 1,290 suckled CO from commercial farms (TO, PA, MT, MS) were used. On day 0 (D0), animals received an intravaginal P4 device (P4d; Primer®, Agener União) and were randomized according to cyclicity (HE=45%; CO=27%) and BCS (HE=2,8±0,2; CO=2,8±0,3) to either one of the treatments (2x2 factorial): 1)EB/EC: 2mg of benzoate estradiol (EB; RIC BE®, Agener União) on D0 and 1mg of estradiol cypionate (EC; Cipiotec®, Agener União) on D8 (HE=279; CO=328); 2)EB/GnRH: 2mg of EB on D0 and 25µg of lecirelin (GnRH; Tec-Relin®, Agener União) on D10 (HE=277; CO=314); 3)GnRH/EC: 50µg of GnRH on D0 and 1mg of EC on D8 (HE=281; CO=327) and 4)GnRH/GnRH): 50µg of GnRH on D0 and 25µg of GnRH on D10 (HE=274; CO=321), i.m. The experimental protocol was adjusted for heifers [0.265mg of PGF (Estron®, Agener União) on D0 and 0.5mg of EC on D7 (7days of P4d treatment) instead of 1mg on D8 in CO]. All animals received 0.530mg of PGF and eCG (HE=200IU; CO=300IU; Novormon®, Zoetis) i.m, concomitant with P4d removal. At the same time, animals were painted with chalk on their tailheads, and removal of chalk on the day of TAI was used as an indication of estrus. The TAI was performed 48h (HE=D9; CO=D10) after P4d removal. A subset of animals (HE=477; CO=772) was evaluated by US (Mindray®, DP-2200) on day of P4d withdrawal and at TAI. The following variables were evaluated: dominant follicle diameter (DFD; mm±SEM), CL at P4d removal (CLP), early ovulation rate (EOV; ovulation between P4 device removal and TAI), estrus detection rate (EDR) and pregnancy rate (P/AI). Statistical analyses were performed using PROC GLIMMIX of SAS 9.4. No interaction (P>0,05) between SYN*IND was observed for any variable and data was presented by main effects (EB at the beginning or EC at ending of protocol). In SYN, CO treated with EB on D0 had greater P/AI compared to those that received GnRH [EB=44.0% (280/642) vs. GnRH=33.0% (216/648); P<0.0001]. Similar effect was observed for HE [BE=43.1% (201/466) vs. GnRH=37.2% (174/468); P=0,003]. CO and HE treated with GnRH on D0 showed a larger DFD at P4d removal than animals treated with EB (HE=9.8±0.1 vs. 8.0±0.1mm; P<.0001; CO=10.8±0.1 vs. 9.6±0.1mm; P<.0001). Furthermore, CO treated with GnRH on D0 presented higher CLP [EB=10.1% (39/347) vs. GnRH=20.0% (77/309); P=0.0002]. Also, it was verified that CO treated with GnRH at D0 had a higher EOV [6.51% (22/316) vs. 1.8% (6/331); P=0.02] than EB treatment. In the IND group, the EDR was greater in HE [88.8% (53/520) vs. 83.7% (75/385); P=0.01] and CO [78.6% (121/445) vs. 68.1% (178/380); P=0.02] that received EC instead of GnRH. In conclusion, removal of E2 treatments on TAI protocol had a negative impact on reproductive efficiency in HE and CO.