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Use of GnRH prior TAI improves conception rates in *Bos taurus* beef cows

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Resumo

Estradiol cypionate (EC) is used as ovulation inducer in time AI (TAI) protocols, despite the dispersive time of ovulation (42-96 h after P4 removal). The present study tested the hypothesis that GnRH 34h after intravaginal device (IVD) removal increases the conception rate in *Bos taurus* beef cows. A secondary objective was to determine the effect of GnRH on the morphology and function of the corpus luteum (CL). Procedures were approved by UFRGS Ethics Committee. Data were analyzed by ANOVA and Chi-square. In Experiment 1, lactating multiparous cows (n=157; BCS±2.9) kept on ryegrass pasture received an IVD (0.96g P4; Boehringer), 5.5mg 17b estradiol and 50mg P4 (Boehringer; im) on Day 0 (D0). Cows were treated with cloprostenol (PGF; 500ug, Boehringer; im), eCG (300UI im; Ourofino; im) and estradiol cypionate (EC; 0.5mg, Zoetis; im), simultaneously to IVD removal on D8. On D9, cows were allocated to Control (no treatment; n=79) or GnRH (25µg leirelin; Agener; im; n=78) groups 34h after IVD removal. Control cows that did not show estrus received GnRH at TAI (48h after IVD removal). Cows in the GnRH group had higher pregnancy per AI (P/AI) compared to Control (67.9% and 51.9%; p<0.05). In Experiment 2, we tested whether these results would be repeated without im P4 on D0 and GnRH at TAI in cows not detected in estrus. Multiparous cows (n=342; BCS±2.9) kept in native pasture had the follicular wave synchronized as previously described, except for estradiol benzoate (EB 2mg; Ourofino; im) and IVD (1g P4, Ourofino) on D0; and EC (1mg Ourofino; im) on D8. On D9, cows were allocated to Control (no treatment; n=144) or GnRH (n=198) groups. No difference (p>0.1) in the P/AI was detected between groups (52% and 50%, for GnRH and Control groups, respectively). In Experiment 3, primiparous (n=14) and multiparous (n=16) lactating Brangus cows had the follicular wave synchronized with a protocol of 8 and 9 days, respectively. The animals received EB (2mg im; Ourofino) and IVD (1g P4, Agener). At IVD removal, cows received PGF (0.5mg; Ourofino), eCG (300UI; Ourofino) and EC (0.5mg; Agener) im. The follicles were scanned by ultrasound at IVD removal and at GnRH treatment. Cows were distributed according to the follicular diameter: primiparous (Control 11.3±0.6mm, n=7; GnRH 11.9±0.6mm, n=8; p>0.5) and multiparous (Control 12.4±0.8mm, n=5; GnRH 12.3±0.5mm, n=7; p>0.5). Ovulation was confirmed 72h after IVD removal. Serum P4 concentration and CL diameter did not differ between treatments (p>0.05) in both categories 7 and 12 days after TAI. In conclusion, GnRH treatment prior to TAI promoted a significant increase in P/AI in cows kept on winter pasture, whereas no significant effect was observed in cows grazing on native pasture. The positive effect of GnRH in Experiment 1 is more likely related to ovulation synchrony because no significant effect was observed on CL morphology and function.

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