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Effect of GnRH treatment at the time of artificial insemination on fertility of Bos indicus (Nelore) beef cows

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Resumo

The study evaluated the effect of a GnRH treatment at the time of timed-artificial insemination (TAI) on fertility of Bos indicus (Nelore) beef cows. We hypothesized that GnRH treatment at the time of TAI would increase pregnancy per AI (P/AI). Primiparous and multiparous cows from two farms (A: n = 699; B: n = 749), over two breeding seasons (BS), were submitted to a 7-d estradiol (E2)/progesterone (P4)-based TAI protocol. In farm A, cows were enrolled in this study only at the second TAI (resynchronization), whereas cows from farm B were enrolled at the first and second TAI. In both farms, on D0, body condition score (BCS) was evaluated and all cows received a 1 g intravaginal P4 device, 2 mg E2 benzoate (EB), and 0.53 mg cloprostenol sodium (PGF). On D7, concomitant with P4 device removal, cows received 0.53 mg PGF, 1 mg E2 cypionate and 300 IU eCG. On D9, expression of estrus was evaluated, TAI was performed and cows were randomly assigned to receive (G1) or not (G0) a treatment with GnRH at the time of TAI (farm A: 8,4 µg buserelin acetate [G0 = 347 and G1 = 352]; farm B: 25 µg lecirelin [G0 = 364 and G1 = 385]). All products were from GlobalGen, except for lecirelin that was from Agener. Pregnancy diagnosis was performed by ultrasound 30 d after TAI. Statistical analyses were performed by the GLIMMIX procedure of SAS 9.4 (P \leq 0.05). In farm A, presence of CL on D0 was greater in multiparous than primiparous cows (72.6% [336/463] vs. 39.0% [92/236]; P < 0.0001). Presence of CL on D0 was greater in cows with BCS ≥ 3 (66.9 [238/356] vs. 55.4% [190/343]; P = 0.02), and those cows had greater expression of estrus than cows with BCS < 3 (84.8 [302/356] vs. 73.8% [253/343]; P = 0.002). Moreover, more multiparous expressed estrus than primiparous cows (86.0 [398/463] vs. 66.5% [157/236]; P < 0.0001). Cows with CL on DO had greater P/AI than cows without CL (65.4 [280/428] vs. 50.6% [137/271]; P = 0.05). Besides, P/AI was greater in cows that expressed estrus in comparison with cows that did not express estrus (64.0% [355/555] vs. 43.1% [62/144]; P = 0.0009). There were no interactions between GnRH treatment at TAI and CL on D0, BCS, or parity. Cows receiving GnRH had greater overall P/AI than cows that did not receive (62.5% [220/352] vs. 56.8% [197/347]; P = 0.05) and GnRH treatment at TAI increased P/AI of cows not expressing estrus (52.1% [37/71] vs. 34.3% [25/73]; P = 0.05). In farm B, GnRH at TAI did not interact with parity, number of AI, BCS, or estrus. Likewise, the GnRH treatment increased P/AI (G1 = 54.3% [209/385] vs. G0 = 49.7% [181/364]; P = 0.02). In conclusion, our hypothesis was supported, and the study reinforced the benefit of a GnRH treatment at TAI on increasing P/AI of Bos indicus (Nelore) beef cows.

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