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Effect of different estradiol benzoate doses for synchronization of follicle wave in a timed-AI protocol in *Bos indicus* beef cows

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We aimed with this study to evaluate the effect of three different doses of estradiol benzoate (EB) on the ovarian follicular dynamics of Zebu beef cows submitted to timed-AI (TAI). Primiparous and pluriparous Nelore cows, lactating (n=54) or not (n=19), and with a body condition score between 2.5 and 4 (1 to 5 scale) were used. On a random day of estrous cycle (D0), cows received an 8 days-used intravaginal progesterone (P4) device (Sincrogest®, Ourofino Animal Health) and was randomly assigned according to cow's category to three groups according to the EB dose. Cows in the EB-1 (n=26), EB-1.5 (n=24) and EB-2 (n=33) groups and received, respectively, an im treatment with 1, 1.5 or 2 mg EB (Sincrodiol®, Ourofino Animal Health). A subgroup (n=15/group) were subject to daily ultrasonography from D0 to D11, to evaluate ovarian follicular dynamics. On D8, P4 devices were removed and cows received via im 1 mg estradiol cypionate (SincroCP®, Ourofino Animal Health), 530 µg sodium cloprostenol (Cioprostinn®, Boehringer-Ingelheim Animal Health Brazil), and 300 IU eCG (SincroeCG®, Ourofino Animal Health). All cows were painted with chalk marker in the sacrocaudal region to identify cows that displayed estrus between D8 and D10. Thawed semen from two bulls was used for TAI on D10 and equally distributed among the treatment groups. Pregnancy diagnosis was done on D47 by transrectal B mode ultrasonography to detect the presence of a viable embryo with heartbeat. The data were evaluated by ANOVA (PROC MIXED), Fisher's exact test or logistic regression (PROC GLIMMIX) of SAS. The time of follicle emergence (days) did not differ (P>0.1) among groups (EB-1, 4.0 ± 0.3; EB-1.5, 3.9 ± 0.4; and EB-2, 4.1 ± 0.4). Similarly, no difference (P>0.1) was observed for the follicle growth rate (mm/day) from emergence to TAI (EB-1, 1.13 ± 0.11; EB-1.5, 1.25 ± 0.08; and EB-2, 1.03 ± 0.08), diameter (mm) of the largest follicle at TAI (EB-1, 11.4 ± 0.6; EB-1.5, 12.0 ± 0.6; EB-2, and 10.4 ± 0.6), and proportion of cows detected in estrus (EB-1, 77% [20/26]; EB-1.5, 75% [18/24]; EB-2, 88% [29/33]). However, an interaction of treatment and category (P=0.05) was observed for the ovulation rate within 36 h after TAI, indicating a reduction in ovulation rate for the EB-2 group in multiparous cows (53% [8/15]A, 54% [7/13]A and 27% [6/22]B, which was not observed in the primiparous category. The pregnancy rate did not differ (P>0.1) between EB-1, EB-1.5 and EB-2 groups (42.3% [11/26], 41.7% [10/24], and 39.4% [13/33], respectively). However, for the EB-2 group, primiparous had a higher pregnancy rate than multiparous (64% [7/11]A vs. 27% [6/22]B). In conclusion, the reduction of EB dose at the beginning of TAI protocol does not impact negatively on follicle dynamics, but further studies are needed to mitigate the effects on ovulation and pregnancy rates of Bos indicus cows submitted to EB/P4 based TAI protocols. Acknowledgments: FAPESP (2015/10606-9, 2019/07805-0).