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# Treatment with bovine somatotropin (bST) improve pregnancy rate in F1 crossbred recipients submitted to FTET

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**Resumo**

The present study evaluated the administration of bovine somatotropin (bST) at different moments (at P4 device removal or at time of embryo transfer) on pregnancy to transfer (P/ET) and body weight (BW) in F1 crossbred recipients. A total of 751 crossbred (Angus x Nelore) heifers with 14 months of age from farms located in MS and BA (Agropecuária Jacarezinho, Brazil) were used for the study. At the beginning of the ET protocol (D0), heifers received a reused intravaginal P4 device (3th use; CIDR®, Zoetis, Guarulhos, SP-Brazil) and 2 mg estradiol benzoate (EB; Gonadiol®, Zoetis). After 9 days (D9), P4 device was removed and heifers received 2.5 mg of dinoprost and 0.3 mg of estradiol cypionate (EC; ECP®, Zoetis). At the same time, heifers were randomized according to BW ( $307.9 \pm 1.33$ ) and BCS ( $2.98 \pm 0.01$ ) and allocated into four treatments using 2x2 factorial design: 1) Control (n=183): no treatment; 2) bSTD9 (n=187): treatment of 325 mg of bST (Posilac®, Agener União, São Paulo, SP-Brazil) on D9; 3) bSTD18 (n=190): treatment of 325 mg of bST (Posilac®, Agener União) on D18; and 4) bSTD9-D18 (n=191): treatment of 325 mg of bST (Posilac®, Agener União) on D9 and D18. On D18, embryo was transferred only in heifers that had presence of CL (n=628). At the pregnancy diagnosis (20 days after ET), BW was recorded and the size of the embryo (n= 65) was measured using the distance from the crown-rump. Statistical analyses were performed using GLIMMIX of SAS 9.4. No interaction treatment\*moment was observed for any variable and data was presented by main effects [bST at P4 device removal (D9) or bST at embryo transfer (D18)]. The proportion of recipients transferred was similar between treatments on D9 [Control=85.0% (317/373) vs. bST=82.3% (311/378); P=0.32]. However, heifers treated on D9 had greater P/ET [Control=27.4% (87/317) vs. bST=38.3% (119/311); P=0.0038]. No effect of treatment on D18 for P/ET was found [Control=30.4% (93/306) vs. bST=35.1% (113/332); P= 0.22]. Furthermore, treatment on D9 did not affect BW at pregnancy diagnosis (Control=381.0±4.66kg vs. bST=382.6±4.48 kg; P=0.78). Nevertheless, treatment with bST on D18 improved the BW at pregnancy diagnosis when compared to control (Control=374.7±4.50kg vs. bST=388.8±4.54kg; P=0.03). The size of the embryo was similar between treatments on D9 (Control=7.7 ± 0.17mm vs. bST= 7.53 ± 0.13mm; P=0.32) and on D18 (Control=7.6 ± 0.16mm vs. bST=7.7 ± 0.15mm; P=0.56). The P/TE at 60 days was greater when bST was administrated on D9 [Control=18.8% (59/314) vs. bST=26.2% (81/309); P=0.02], but no difference was observed for bST on D18 (P=0.52). Also, the pregnancy loss was similar between treatments on D9 (P= 0.80) and D18 (P= 0.66). In conclusion, the administration of bST on D9 (P4 device removal) improved the P/ET in crossbred recipients. Also, the administration of bST on D18 increased BW recorded on pregnancy diagnosis.

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