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Factors that affect pregnancy rate and pregnancy loss in young Nelore heifers synchronized for TAI

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Resumo

The aim of the present study was to evaluate the factors that affect the pregnancy rate (P/AI) and pregnancy loss (PL) of young Nelore heifers (10-15 months) submitted to TAI. A total of 5.431 heifers from a commercial farm in MT state (Brazil) were used. On D0, heifers received a reused intravaginal P4 device (CIDR®; Zoetis, Guarulhos, SP-Brazil) and 2mg of EB (Gonadiol®, Zoetis), i.m. On D7, heifers received 2.5 mg of dinoprost tromethamine (Lutalyse®; Zoetis) and on D9 200 IU of eCG (Novormon®; Zoetis), 0,5mg of EC (ECP®; Zoetis) i.m, concomitant with P4 device removal. At the same time, heifers were painted with chalk on their tailheads, and removal of chalk on D11 was used as an indication of estrus. The TAI was performed 48h (D11) after implant removal. After 30d (DG), the pregnancy diagnosis was performed by ultrasonography and non-pregnant heifers were resynchronized for TAI using the same protocol (until 3 TAI). At the end of the breeding season (EBS), heifers had their pregnancy confirmed and PL was verified. The data were analyzed through logistic regression by PROC GLIMMIX of SAS 9.4. Receiver operating Characteristic (ROC) curve analysis (MedCalc®) was used to select optimal cut-off points for the variables analyzed. The body weight (BW) influenced the P/AI (Linear effect; P=0.003). The BW cut-off points calculated by ROC curve was 288kg [<288kg = 49.0% (n=3,398) vs. > 288kg = 53.6% (n=2,009); P=0.008]. The heifer age also impacted the P/AI (Quadratic effect; P=0.006). The age cut-off points calculated by ROC curve was 12.3 months [<12.3m = 47.0% (n=3,398) vs. > 12.3m = 52.3% (n=2,009); P=0.008]. The pregnancy loss (DG/EBS) was influenced by the BW (linear effect; P=0.0003). The BW cut-off points calculated by ROC curve was 293kg [<293kg = 13.0% (n=2,304) vs > 293kg = 8.7% (n=1,956); P<0.0001]. The PL was influenced by age (Quadratic effect; P=0.0003). The age cut-off points calculated by ROC curve was 14.7 months [<14.7m = 13.0% (n=3,130) vs. > 14.7m = 6.6% (n=1,224); P=0.008]. Furthermore, the presence of CL at the beginning of TAI protocol impacted the P/AI [CLDO = 47.0% (n=832) vs. NoCLD0 = 52.8% (n=2,144)]; P=0.003] and the PL [CLD0 = 11.7% (n=1,142) vs. NoCLD0 = 15.0% (n=395); P=0.01]. The estrus detection at TAI impacted the P/AI [Estrus = 51.7% (n=2,423) vs. NoEstrus = 42.0% (n=550); P=0.003] and the PL [Estrus = 10.3% (n=1,251) vs. NoEstrus = 12.0% (n=229); P=0.05]. Additionally, animals with higher BCS (ROC cut-off points 3.25; scale from 1 to 5) had lower PL [< 3.25 = 13,9% (n=847) vs. > 3.25 = 10.4% (n=3,382)]; P=0.003]. In conclusion, BW, age, cyclicity rate and presence of estrus impact the efficiency of P/AI and PL in young Nelore heifers submitted to TAI.

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