

AI and IATF

Increasing 12 h of intravaginal device permanence allows greater estrus synchrony but lower pregnancy rates in artificially inseminated acyclic dairy goats**Cleber Jonas Carvalho de Paula¹, Joanna Maria Gonçalves Souza Fabjan¹, Jasmine Bantim Souza Pinheiro¹, Joedson Dantas Gonçalves², Jenniffer Hauschild Dias⁴, Maria Emilia Franco Oliveira^{2,3}, Jeferson Ferreira Fonseca³**

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This study assessed in dairy goats the effect of hormonal induction treatments varying only 12 h in progestogen device permanence on estrus synchrony and fertility. In both Experiments, goats received 60 mg of medroxyprogesterone acetate (MAP) intravaginal devices for 6 (G6) or 6.5 d (G6.5), and 200 IU of eCG i.m. and 30 µg of d-cloprostenol were i.m. applied at 24 h or 36 h before device removal, respectively. In Experiment 1 (n = 24), data related to sexual behavior and ovarian ultrasonography were recorded and, in Experiment 2, (n = 83) fertility was assessed after Flexible Time Artificial Insemination (FxTAI). Parametric variables were subjected to one-way ANOVA and nonparametric variables were analyzed by the chi-square test; P value <0.05 was considered as significant. Estrus response rate was similar (P>0.05) between G6 (92%) and G6.5 (100%). The interval from device removal to estrus was shorter (P<0.05) in G6.5 (34.7 ± 1.8 vs. 44.4 ± 3.3 h). At the time of removal of the device, animals with follicles larger than 6 mm represented 54% (13/24) of the goats, being 31% (4/13) and 69% (9/13) from G6 and G6.5, respectively (P = 0.057). In comparison with goats with follicles larger than 6 mm, those animals with follicles smaller than 6 mm had longer (P <0.05): follicular wave emergence after sponge removal (78.8 ± 4.7 vs. 62.6 ± 3.3 h), interval from device removal to estrus (43.8 ± 2.5 vs. 35.9 ± 2.9 h) and to ovulation (81.1 ± 4.8 vs. 67.1 ± 3.4 h) and follicular growth rate per day (0.9 ± 0.1 vs. 0.6 ± 0.1 mm / day). The association of G6.5 with the number of goats presenting follicles larger than 6 mm affected the ovulatory follicle and/or the formation and maintenance of the corpus luteum (CL), resulting in lower fertility. The largest ovulated follicle, the second largest and the interval from device removal to ovulation were similar (P> 0.05) between groups. According to the doppler ultrasound exams, luteal dysfunction [partial (only 1 CL) or total regression] increased progressively from day 3 (100.0 vs. 100.0%) to 7 (100.0 vs. 83.3%), 10 (100.0 vs. 75%), 13 (100.0 vs. 66.6%), 17 (63.6 vs. 41.6%) and 21 (50.0 vs. 33.3%) to G6 and G6.5 treated goats, respectively. This dysfunction was related to the CL presence and blood perfusion. The G6.5-goats had greater estrus synchrony, but a lower (P<0.05) conception rate (53 vs. 83%). In conclusion, increasing the time of intravaginal device permanence from 6 to 6.5 d resulted in greater estrus synchrony, but lower fertility in dairy goats subjected to estrus induction treatment at the non-breeding season. The G6 treatment resulted in high conception rate and can be recommended to support FxTAI programs in dairy goats in the non-breeding season. Keywords: AI; Anestrus; Caprine; Corpora Lutea; Follicular Dynamics; Ultrasound. Promotion Institutions: CNPq; Projects 310166/2012-8 and 479826 2013-7, Fapemig; Project CVZ-PPM 00201-17 and EMBRAPA Project 20.19.01.004.00.00.