

114 Short-term hormonal protocol efficiency either with or without equine chorionic gonadotrophin to promote oestrous synchronization in cyclic dairy goats

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The use of equine chorionic gonadotrophin (eCG) in oestrous induction protocols is associated with antibody production against eCG. Moreover, there are important equine welfare issues involved in its production and the development of viable protocols without eCG in dairy goats is essential. The aim of this study was to assess oestrus and ovulatory responses of short-term oestrous synchronization protocol with or without eCG in nulliparous (NUL) and multiparous (MUL) dairy goats during the breeding season. On a random day of oestrous cycle (Day 0), Alpine ($n = 10$ NUL and 10 MUL), Nubian ($n = 10$ NUL and 10 MUL), and Saanen ($n = 10$ NUL and 6 MUL) goats received 30 µg of d-cloprostenol intramuscularly (IM) and an intravaginal sponge containing 60 mg of medroxyprogesterone acetate, which was maintained for 6 days (Day 6). At 24 h before sponge removal (Day 5), goats received IM 200 IU of Novormon 5000 (G-eCG) or saline solution (G-Control). NUL and MUL goats of each breed were assigned equally into one of the two treatments. Transrectal ultrasonography was used to assess ovarian parameters, and teaser goats detected oestrus every 12 h from sponge removal to ovulation or until 96 h after sponge removal. The results are described as mean \pm s.e.m., and categorical results are presented as percentages. The normal distribution of the residues of all variables was determined by the Shapiro-Wilk test and for homoscedastic by Levene test. To evaluate interaction between treatments and parity order, the general linear model (GLM) was applied. Parametric variables were subjected to Student's *t*-test. Nonparametric variables were analysed by Mann-Whitney test, Chi-squared test, and Fisher's exact test. Values of $P < 0.05$ were considered significant. According to the breed and parity order, Nubian and Saanen goats showed no difference ($P > 0.05$) in reproductive parameters. Alpine goats had a longer ($P < 0.05$) interval from sponge removal to onset of oestrus (SROE) in MUL (61 ± 14.0 h) than NUL (38.5 ± 12.7 h), longer interval from onset of oestrus to ovulation (IEOV) in NUL (33.5 ± 11.9 h) than MUL (19.5 ± 13.4 h), and the number of ovulations was greater ($P < 0.05$) in MUL (2.2 ± 0.9) than in NUL (1.3 ± 0.5). In goats either receiving eCG or not, Alpine and Nubian goats had no difference ($P > 0.05$) in SROE, IEOV, interval from sponge removal to ovulation (SROV), percentage of animals that ovulated, diameter of the ovulatory follicle, and number of ovulations. Saanen goats had a higher ($P < 0.05$) percentage of animals that ovulated in G-eCG (87.5%) than G-control (25.0%). Regardless of parity order and breed, SROV was longer ($P < 0.05$) in G-control (73.2 ± 9.8 h) than in G-eCG (65.1 ± 10.2 h), and the percentage of animals that ovulated was greater ($P < 0.05$) in G-eCG (96.4%) than in G-control (67.9%). In summary, in short-term protocols for oestrous synchronization in cyclic dairy goats, the addition of eCG led to a shorter interval from sponge removal to ovulation and increased number of animals that ovulated.

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115 Presynchronization and reutilization of progesterone devices during a 6-day CO-Synch protocol for fixed-time artificial insemination in beef heifers

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Ovulatory response to the initial gonadotrophin-releasing hormone (GnRH) of the CO-Synch protocol is affected by circulating progesterone (P4) and follicle size. In addition, heifers that ovulate to initial GnRH treatment have greater fertility after AI. Thus, the aim of this study was to assess the effect of (1) presynchronization (Presynch) before a 6-day CO-Synch protocol and (2) P4 device reuse (new vs. second use) on ovulatory response, oestrous expression, and pregnancy per AI (P/AI) in beef heifers. Yearling beef heifers ($n = 233$) were randomly assigned in a 2×2 factorial design to the following treatments: (1) Treatment (Presynch): (1a) Presynch + 6-day CO-Synch with new P4 device; (1b) Presynch + 6-days CO-Synch with a once-used P4 device; (2) Control (no Presynch): (2a) 6-day CO-Synch with new P4 device; (2b) 6-day CO-synch with once-used P4 device. Presynch consisted of insertion of a new P4 intravaginal device (CIDR, 1.38 g of P4; Zoetis) on Day -17 and removal of the CIDR on Day -11 concurrently with 500 µg of cloprostenol sodium. On Day -9, all heifers received either a new or once-used (used) CIDR and 100 µg of gonadorelin acetate (GnRH, Parnell Inc.). Six days later (Day -3) CIDRs were removed, 1000 µg of PGF was administered, and an oestrous detection patch applied (Estroject, Rockway Inc.). At 72 h after CIDR removal, 100 µg of GnRH and AI using 3 different sires was performed. Pregnancy was determined by ultrasonography 31 days after AI. A subset of heifers ($n = 151$) were examined on Day -9 and Day -3 by ultrasonography to assess ovulation to Day -9 GnRH. Data were analysed using GLIMMIX (SAS 9.4; SAS Institute Inc.). Presynch heifers had larger follicle diameter on Day -9 (12.7 ± 0.3 vs. 10.4 ± 0.3 mm; $P < 0.0001$), greater ovulatory response (84.6%; 66/78 vs. 52.05%; 38/73; $P < 0.0001$), greater oestrus expression (90.6%; 106/117 vs. 78.4%; 91/116; $P = 0.03$), and expressed oestrus earlier (49.8 ± 1.0 vs. 53.1 ± 1.1 h; $P = 0.01$) compared with controls. There was an interaction for treatment and CIDR on oestrous expression, whereas a lesser ($P = 0.003$) percentage of control heifers with new CIDR showed oestrus compared with all other groups (Table 1). Heifers treated with a used P4 device tended ($P = 0.08$) to have greater P/AI (52.1%; 61/117) than those with a new CIDR (40.5%; 47/116). In conclusion, presynchronization before initiation of a 6-day CO-Synch increased follicle diameter, ovulatory response, and oestrous expression, but did not affect fertility. The earlier onset of oestrus in Presynch heifers warrants further study on timing of AI.