

Modifications of the Heatsynch Protocol for Natural-service Breeding in Dairy Cows.

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Hutterite dairy farms utilize natural service as a component of their breeding program. Most of those herds use the “Heatsynch” program, which is a slight modification of Ovsynch. An injection of estradiol cypionate (ECP) 24 hours after the injection of PGF2 α (PG) is given in lieu of the second injection of GnRH. We investigated whether the administration of a progesterone-releasing vaginal insert (CIDR; Zoetis Canada Inc., Kirkland, QC) and/or delaying the administration of ECP would improve fertility in lactating dairy cows subjected to a Heatsynch and bred by natural service. In this preliminary study, a total of 112 lactating dairy cows (56 were presynchronized with 2 PG 14 days apart) were blocked by parity and DIM and every week randomly assigned to one of four treatments: 1) *Control-24*; 100 μ g GnRH (gonadorelin acetate; Fertiline, Vetoquinol NA Inc., Lavaltrie, QC), 7 days later PG (500 μ g of cloprostenol; estoPLAN, Vetoquinol NA Inc.) and 24 hours later 1 mg ECP (Estrus; Rafter8, Calgary, AB); 2) *Control-36*; as previous treatment except ECP was given 36 hours after PG; 3) *CIDR-24*; 100 μ g GnRH im, and CIDR for 7 d. At CIDR removal, PG was given im and 24 hour later ECP; 2) *CIDR-36*; as previous treatment except the ECP was given 36 hours after CIDR removal. All cows were exposed to bulls 24 hours after ECP treatment. Body condition score (BCS; scale 1 to 5) was recorded at the initiation of Heatsynch. Transrectal ultrasonography was performed at CIDR insertion, and 32 and 60 days after breeding to determine presence of CL (cyclicity) and pregnancy status, respectively. Data were analyzed with PROC GLIMMIX (SAS 9.3). Overall cyclicity, conception rate at 32 days and pregnancy loss were 82, 42 and 9%, respectively. Neither administration of a CIDR nor interval to ECP affected the overall conception rate. However, cows in the Control group had greater ($P<0.05$) conception rate if the ECP was given at 24 rather than 36 hours after PG (54 vs. 32%). Conversely, CIDR-treated cows had numerically greater conception rates if ECP was given at 36 hours after PG (46 vs. 36%). We also found that CIDR treatment increased ($P<0.01$) conception rate in non-presynchronized cows (50 vs. 35%) and tended ($P<0.08$) to increase conception rate in those with a BCS of ≤ 3 (47 vs. 33%).

Take Home Message: ECP should be given at 24 hours after PG in cows subjected to a Heatsynch without CIDR. In cows that are not presynchronized or those in low BCS, addition of a CIDR and ECP treatment at 36 hours after PG is recommended. Implementation of these protocols increased the herd pregnancy rate from 17 to 29%.

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