

Pregnancy Establishment in Dairy Cows Supplemented With Progesterone Before and After Timed-AI

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One of the causes of poor fertility in high producing dairy cows is inadequate progesterone (P4), a key hormone of pregnancy. Therefore, we determined the efficacy of an intravaginal insert containing 1.55 g of P4 (PRID; Fertiline; Vetoquinol Canada Inc.) given before and after timed-AI (TAI) on pregnancy per TAI (P/TAI) and pregnancy losses. Lactating dairy cows, at three locations, were assigned to receive an Ovsynch protocol with (n=294) or without (n=314) a PRID. The Ovsynch protocol consisted of two injections of 100 µg GnRH (Fertiline; Vetoquinol Canada Inc.) 9 d apart and one injection of 500 µg cloprostenol (PG; Estrumate, Schering Plough Animal Health) 7 d after the first GnRH. PRIDs were inserted concurrently with first GnRH and removed at PG treatment. Cows were TAI 12-16 h after second GnRH. Body condition (BCS, 1-5 scale) was recorded at TAI. Ultrasonographic examinations were done in all cows at first GnRH, at PG, at TAI and 24 h after TAI for response to treatment and at 32 and 60 d after TAI for confirmation of pregnancy. Four days after TAI, cows that ovulated after second GnRH were re-assigned to receive (n=230) or not (n=222) a PRID for 7 d (2 x 2 factorial). Blood samples were taken for P4 determination at PG treatment, at TAI, and at 4 and 11 d after TAI. The PRID treatment before TAI decreased the percentage of cows with early ovulations (5.8 vs. 11.1%), and increased P/TAI only in cows at 2nd breeding or greater (43.8 vs. 24.3%). Overall P/TAI was 35.7%. Cows ovulating to first GnRH, cyclic cows, and cows with BCS ≥ 2.75 had increased P/TAI but the addition of PRID treatment to these cows did not affect P/TAI. The PRID treatment after TAI did not affect P/TAI but reduced pregnancy losses (6.1 vs. 11.4%) between 32 and 60 d of gestation. The reduction in pregnancy losses tended to be significant in acyclic cows receiving a PRID (5.6 vs. 33.3%). Plasma P4 concentration at PG treatment (before TAI) was linearly associated to P/TAI, but this linear association between P4 and P/TAI was only partially evident when P4 concentrations after TAI were considered.

Implications: Progesterone supplementation before TAI increased P/TAI in cows at 2nd breeding or greater. Progesterone supplementation before TAI decreased pregnancy losses, particularly in acyclic cows.

Research supported by Agriculture Funding Consortium, Alberta Milk, Alberta Agriculture and Rural Development, and Westgen. We thank Schering-Plough and Vetoquinol for their in-kind support and Jamie Kratchkowski for her technical support.