

Development of a High Fertility Timed Insemination Program for Dairy Heifers

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Objectives of the present series of experiments were to develop a timed artificial insemination (TAI) program for dairy heifers and to utilize a TAI program to evaluate the effect of flunixin meglumine (Banamine®; Schering-Plough Animal Health Corp.) on pregnancy rate and embryo survival.

In Experiment 1, 247 heifers were assigned randomly to a PGF/GnRH TAI (i.e., 2 injections of Lutalyse® [25 mg, i.m.; Pfizer Animal Health Inc.] given 14 days apart in PM; 60 h after the 2nd Lutalyse® injection heifers received a GnRH injection [Cystorelin®; 100 µg, i.m.; Merial Inc.] and were TAI) or a 5 day-CIDR/Synch TAI (intravaginal insertion of a CIDR® device [Pfizer Animal Health Inc.] and injection of GnRH in the AM; 5 days later in the AM the CIDR insert was removed and Lutalyse® was injected followed by a 2nd injection of Lutalyse® 12 h later; heifers were TAI and injected with GnRH at 72 h after CIDR removal). Blood samples for progesterone analyses were taken 7 days apart prior to initial PGF_{2α} or CIDR insertion from the respective groups to determine cycling status.

- The CIDR/Synch tended to have greater day 32 (53.1>46.2%) and day 42 (50.8 > 43.7%) pregnancy rates than PGF/GnRH (P~0.10); 4/9 non-cycling heifers of CIDR/Synch conceived vs 0/3 of the PGF/GnRH group.

In Experiment 2, 176 heifers underwent the CIDR/Synch TAI protocol. However, 2 injections of cloprostenol (500 µg AM/PM; Estrumate®, Schering-Plough Animal Health Corp.) were used to regress the CL at CIDR removal. Heifers at initiation of the CIDR/Synch TAI protocol were assigned randomly to receive injections of Banamine® (400 mg i.m.) at day 15.5 and day 16.0 (Banamine®) or no injections (Control).

- Banamine® treatment failed to alter either day 32 (59.6% Banamine® vs 59.8% Control) or day 46 (59.6% Banamine® vs 58.6% Control) pregnancy rates. Overall, 4/11 non-cycling heifers conceived.

In Experiment 3, 147 heifers underwent a UsedCIDR/Synch TAI protocol utilizing cloprostenol as in Experiment 2. A 5 day used CIDR was employed. Heifers at initiation of the UsedCIDR/Synch TAI protocol were assigned randomly to receive injections of

Banamine® (400 mg i.m.) at day 15.5 and day 16.0 (Banamine®) or no injections (Control).

- Banamine® treatment failed to alter either day 32 (60.5% Banamine® vs 62.0% Control) or day 46 (59.2% Banamine® vs 60.6% Control) pregnancy rates.

Pooled overall analyses of pregnancy rates for dairy heifers receiving the CIDR/Synch treatments (n=451), adjusted for experiments, were 58.3% at day 32 and 57.6% at day 46. In conclusion, Banamine® failed to improve pregnancy rate and or late embryo survival in dairy heifers, and a CIDR/Synch timed insemination program is very effective to optimize pregnancy rate in dairy heifers.

Notes
