

Conception Rates in Dairy Cows Given Prostaglandin at Insemination*

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Even though prostaglandin F_{2α} (PG) is primarily used for inducing estrus, it also has roles in other reproductive processes (e.g. secretion of luteinizing hormone, uterine contractions, ovulation, and sperm/egg transport). Therefore, giving PG at AI may have some benefits. In a German study with 400 cows and heifers, a small dose of PG given intravenously at the time of AI improved conception rates by about 15 percentage points. Our objective was to determine if low doses of PG given intramuscular at AI would improve conception rates in lactating Holstein cows.

In Trial 1, 307 cows were assigned to an Ovsynch/timed AI protocol. At AI, 154 cows received 1 mL Lutalyse (5 mg dinoprost) and 153 controls received no treatment. Pregnancy rates (determined by ultrasonography 32 d after AI) were 37.0 and 36.6% in PG-treated and control cows.

In Trial 2, 451 cows were assigned to an Ovsynch/timed AI protocol. At AI, 226 cows received 2 mL Lutalyse (10 mg dinoprost), and 225 controls received no PG treatment at AI. Pregnancy was determined by palpation per rectum about 45 d after AI. A slightly greater proportion of PG-treated cows were confirmed pregnant compared to control (38.0 versus 30.2%; P=0.08).

An intramuscular injection of 10 mg dinoprost, given concurrent with AI, tended to improve pregnancy rates in dairy cows. However, this benefit was not evident with a 5 mg dose. Prostaglandin (10 mg dose) given concurrent with AI may have enhanced sperm function, uterine contractility, and ensured complete luteolysis. It will be interesting to determine if fertility could be increased significantly with larger (> 10 mg of dinoprost) doses of PG.

Take Home Message: Treating cows with prostaglandin at the time of insemination may have a small benefit, but the optimal dose and mechanisms involved remain to be determined.

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