

# Texas Dairy Matters

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## **Improving Conception Following Ovsynch**

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Estrous synchronization programs came on the scene nearly 20 years ago. Many dairies have adopted the OvSynch protocol as a way to improve reproduction. With these protocols dairy producers can decide when it is best to breed a cow instead of hunting for the cows that are signaling they are ready to be bred.

Over the years, researchers have worked diligently to improve the number of cows that conceived, but there is still room for improvement. Two examples are: 1) presynchronization protocols have been added to increase the number of cows in the correct stage of the estrous cycle to respond to the treatments and 2) the timing for the second GnRH has been changed to 56 hours after the prostaglandin from 48 hours.

Recently researchers have been investigating how to insure complete luteolysis of the corpus luteum (CL) after the prostaglandin treatment. In several studies, cows with elevated progesterone levels at insemination had reduced fertility. Complete luteolysis results in reducing the circulating progesterone concentrations.

In an attempt to insure complete luteolysis, researchers in both Wisconsin and Florida have been adding a second prostaglandin to synchronization protocols. Most recently, the Wisconsin researchers compared one prostaglandin to two prostaglandins in an Ovsynch56 protocol in two studies. The control cows received a standard Ovsynch56 protocol where on day 0 cows received GnRH, seven days later they received prostaglandins, a second GnRH was given at 56 hours and cows were inseminated 16 hours later. The treatment group received a second prostaglandin 24 hours after the first prostaglandin.

Two different experiments were conducted to test whether the second prostaglandin improved the number of pregnancies per artificial insemination (P/AI). The first experiment was conducted using 344 cows on which a presynchronization protocol was used. These cows had

blood samples collected at the time of first prostaglandin and second GnRH to evaluate CL regression. The second experiment was conducted on 2148 cows in 11 commercial dairies in WI, CA, NY, PA, NM, and TX. Ultrasound was used for pregnancy diagnosis in all herds.

Based on circulating progesterone levels, cows in the first experiment were classified as having had complete or incomplete luteolysis of the CL. After one prostaglandin 83.0% of the cows were classified as having had complete CL regression, while 97.0% of cows receiving two prostaglandin treatments had complete CL regression. In the multi-herd study there was a tendency for improved P/AI when two prostaglandin treatments were used.

Data from the two experiments were combined for evaluation of the two treatments. Cows receiving two prostaglandins had an improved P/AI (37.6%) compared to cows receiving one prostaglandin (P/AI=34.4%). The improvement was noted in second and greater lactation animals rather than in first lactation cows. This is a 9.45% relative increase in P/AI.

From these studies, adding a second prostaglandin improves the number of cows becoming pregnant. Individual producers will need to evaluate whether the increased number of pregnancies justifies the additional cost associated with giving the second prostaglandin treatment. The cost could be minimized by only treating second and greater lactation animals since they are the ones that responded, but this adds another layer of complexity to the protocol.

<http://texasdairymatters.org>

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