

Ovulation Synchronization Programs for Improving Reproductive Performance

In 1995, Ovsynch was introduced by Pursely et al. It is a hormone protocol that synchronizes the time of ovulation. Because the program synchronizes ovulation rather than estrous, it was given the name Ovsynch, short for ovulation synchronization. The program consists of an initial injection of GnRH followed 7 days later by an injection of PGF2a. Forty-eight hours following the PGF2a injection, cows receive a second GnRH injection followed by timed artificial insemination (AI). The best time interval from the second GnRH to the timed AI has varied between studies. However, it seems that anywhere from 8 hours to 24 hours is acceptable.

This program can be incorporated into any breeding scheme for any number of cows. For instance, likely candidates for this program include cows that are open at the first pregnancy check or cows that have exceeded a predetermined days in milk (DIM) without showing heat. In both cases initiation of the Ovsynch protocol will insure that cows are rebred within 10 days of start of the protocol. If any open cow is found in estrous after she is started on the Ovsynch protocol, she should be inseminated according to detected estrous and discontinue the remaining injections.

Thatcher reported the Presynch system in 1998. It is a simple modification of the Ovsynch program designed to overcome one of its shortcomings. With Ovsynch alone, cows that are between days 14 and 15 of their estrous cycle (~10%) frequently fail to produce a new corpus luteum (CL) in response to the first GnRH injection. As a result, ovulation will not be synchronized and timed AI will fail in these cows. With the Presynch protocol, two injections of PGF2a are given 26 and 14 days prior to the initial GnRH injection in the Ovsynch program. This ensures that the majority of the cows will be between days 5 and 12 of their estrous cycle at the time of the first GnRH injection. Two separate studies have shown much higher pregnancy rates resulting from the Presynch program than the Ovsynch program.

The protocol recommended by the developers of the Presynch program is a first injection of PGF2a given at 39 DIM, followed two weeks later (53 DIM) by another injection of PGF2a. Thereafter, the Presynch program follows the protocol for the Ovsynch program: Twelve days after the last PGF2a, an injection of GnRH is given at 65 DIM. Seven days after the GnRH injection (72 DIM), cows receive a third PGF2a injection. Forty-eight hours later the second GnRH injection is administered (74 DIM). Timed AI can occur anywhere from 8 to 24 hours after this last injection of GnRH.

The major advantage of this program is the security it provides the producers. You could choose to limit the protocol to only those cows that did not become pregnant with your traditional "heat detect and breed" approach. The program provides a safety net that allows producers insurance that all cows will be bred by a certain date even if you have poor heat detection. If the program is instituted, so that the second PGF2a occurs around your voluntary waiting period (VWP), there will be many cows showing estrous. These cows can be inseminated like you normally would, and then discontinued from the Presynch program. However, the cows that failed to exhibit estrous will continue in the Presynch program. If at any point these cows show heat, they should be bred accordingly and taken off the program. The pleasing result is that all your cows will be bred by your target date for DIM, whatever that may be.

Courtesy of Kevin McSweeney, Research Associate ILM and ARBL, Colorado State University