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NEW RESYNCRONIZATION PROTOCOL IMPROVES FERTILITY

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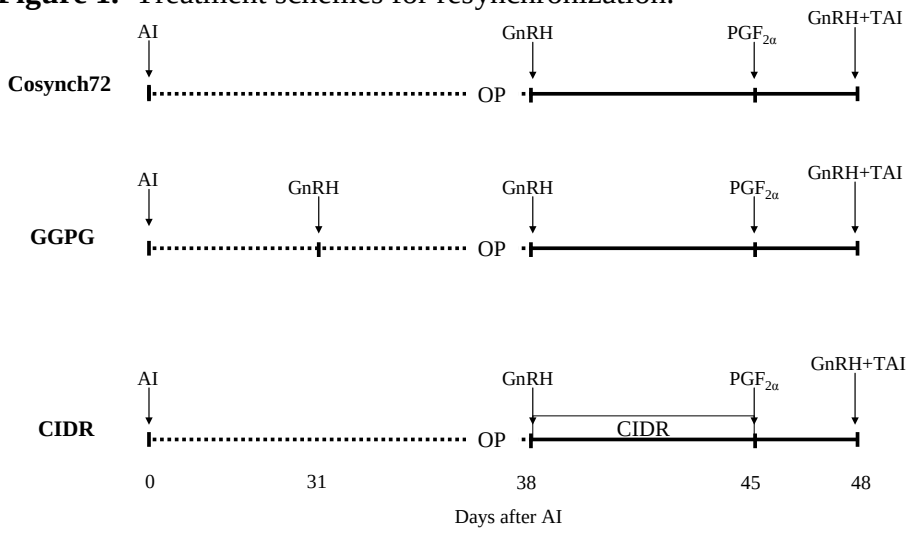
Timed AI (TAI) protocols developed in the last 15 years have improved synchronization of the estrous cycle for first postpartum AI. Unfortunately pregnancies per AI (P/AI) have remained low (< 50 %), resulting in a large proportion of open cows that need to be re-inseminated. Resynchronization of open cows is recognized as one of the biggest challenges in managing today's dairy cows.

Cows that fail to conceive to first postpartum AI have a harder time getting pregnant. Not only are they less fertile, but also we are limited to what we can do to resynchronize cows, particularly while pregnancy status is unknown (i.e. before pregnancy exam).

Among herds that use TAI for re-insemination of open cows, most resynchronize the estrous cycle with the Ovsynch protocol (d 0 – GnRH, d 7 – $PGF_{2\alpha}$, d 9 – GnRH, and d 10 – TAI) or a variation thereof (i.e. Cosynch-72). However, the timing at which the resynchronization protocol is initiated is quite variable and dependent on when pregnancy exams are administered (i.e. ultrasound less than 32 days or palpation greater than 32 days post-AI).

As with first postpartum AI, one of the limiting factors to the success of resynchronization protocols is the synchrony of the estrous cycle at the start of the TAI protocol. Cows starting the TAI protocol between day 5 and 9 of the estrous cycle have improved P/AI. The length of the estrous cycle of lactating dairy cows is approximately 22 days. Thus, intuitively starting the resynchronization protocols at 27 to 31 days after AI would result in improved P/AI. However, only 10.1% of open cows

Figure 1. Treatment schemes for resynchronization.



return to heat at 22 days after AI and only 43.5% of them return to heat 20 to 24 days after AI. Therefore, starting the resynchronization protocol based on days since previous AI is not likely to be a successful strategy. Alternatives to 'presynchronize' the resynchronization protocol have to be developed and implemented.

In a study conducted in CA and AZ, three resynchronization protocols were evaluated. Cows were examined for pregnancy 38 days after AI. All open cows started the resynchronization protocol (Cosynch-72) on the day of diagnosis (re-insemination 48 days after previous AI). One third of the cows received a GnRH injection one week before pregnancy exam (presynchronization with GnRH – GGPG) and another third received a CIDR insert for 7 days starting on the day of open diagnosis (from the day of start of the resynchronization protocol until the $PGF_{2\alpha}$).

Figure 1 depicts treatment schemes with open pregnancy diagnosis (OP) occurring at 39 days post AI. Cows presynchronized with GnRH before the start of the resynchronization protocol and those treated with a CIDR insert during the resynchronization protocol had greater P/AI at 90 days after re-insemination compared with cows receiving only the Cosynch-72 (31.2, 29.5, and 22.1%, respectively). Further, there was no difference on interval to re-insemination (49 days after previous AI). An economic analysis demonstrated that presynchronization with GnRH and treatment with CIDR inserts resulted in greater returns per pregnant cow than the Cosynch-72 protocol alone ($ 36.40, 33.30, and 27.50, respectively).

In summary, utilizing the GGPG protocol improved P/AI and increased return per pregnant cow. In addition, the GGPG injections occur on the same day of the week with the exception of the TAI day. The GGPG protocol may be an improved alternative to current resynchronization programs.