

# Reproductive Management Practices Improve Fertility



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At the recent KY Dairy Partners Meeting, Dr. Ronaldo Cerri from the University of British Columbia explained some of the key management decisions associated with managing a reproductive program for improved fertility. Activity monitors, visual heat detection aids, and timed AI programs can all be used to achieve high fertility. His discussion was based on research conducted in his own lab and those of fellow researchers. Key points from his presentations are outlined below. If you would like to listen to any of these presentations or those of the other speakers, the recorded presentations are available on KDDC's website.

## **Presentation 1 entitled: Refining Reproductive Programs for Improved Fertility**

- Today, pregnancy rates of 30% are achievable regardless of the protocol/method used to determine timing for insemination. These protocols include visual heat detection, tail chalk, use of activity monitors, timed AI protocols, or a combination of these methods.
- Pregnancy rates for timed AI programs are affected by a farm's compliance at achieving the correct and timely administration of all components of a chosen synchronization protocol. All of the different synchronization protocols for timed AI give approximately the same results. Whereas, success when using estrus-based AI methods, i.e. visual heat detection, requires the training of qualified people to detect cows in estrus. Strength of estrus behavior is influenced by the health of cows (i.e. lameness and endometritis).
- Regardless of the method used for determining which cows are in heat and thus timing for insemination, all herds should consider using a timed AI protocol on some cows, such as cystic cows and those with previous post-calving uterine infections. A double ovsynch program can help increase ovulation and improve the chances these cows will become pregnant.
- Irrespective of the time post-calving cows are bred for the first time, cows need to all be bred by 100 days in milk. When cows are bred earlier in lactation or when using shorter voluntary waiting periods, i.e. 60 days, the number of pregnancies per AI is lower, but one has more chances for the cow to come back in heat if not pregnant and be rebred. Longer voluntary waiting periods (80 to 90 days in milk) increase pregnancies per AI but allow less time to get cows rebred if they are open from this service.
- With automated activity monitors, cows should be bred using the AM/PM rule. In research trials, no differences were seen in pregnancies per AI when first lactation or mature cows were bred with conventional semen from 6 to 18 hours after an activity monitor alert; thus showing a window exists for breeding cows. With sex-sorted semen, the number of pregnancies per AI decreases to 80 to 85% of rates seen with conventional semen. However, no advantage was shown in pregnancies per AI when cows were bred using sex sorted semen later or closer to ovulation (16 versus 22 hours post GnRH) than normally recommended.
- Double prostaglandin injections before GnRH in timed AI programs increased pregnancies per AI by 4.6% in multiple studies.

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## **Presentation 2 Entitled: Monitoring Behavior to Improve Fertility**

- One key when managing a reproductive program, or any component associated with management, is to use information or data generated to improve performance. This is definitely true for information gathered from activity monitors.
- Activity monitors do a good job at detecting when cows are in estrus, whereas health events are harder to detect because of daily variation.
- Sensors can record the timing of the first estrus after calving. The more times cows come into estrus before they are bred, the greater the fertility and the greater the chance a cow will become pregnant. By 30 to 40 days in milk, cows should show estrus. Cows that do not show an estrus by this time frame may be candidates for a timed AI synchronization protocol.
- Estrus is an important component of fertility and not all estruses are equal. Cows that display a greater intensity of estrus and duration have better fertility and fewer early embryo losses. If cows with a low estrus intensity are given GnRH at the time of breeding, the percentage of cows pregnant per AI increases. Since measuring the intensity of estrus on farm can be difficult, all cows may benefit from GnRH at time of breeding.