

Texas Dairy Matters

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ACTIVITY MONITORS AND SYNCHRONIZATION

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Recently studies were conducted to determine whether activity monitors could eliminate the need for timed AI protocols completely. Two recent experiments, however, indicated that activity monitors are not able to achieve the high AI submission rates that some companies were claiming for the simple fact that some cows did not display estrus.

Wisconsin researchers fitted 42 cows with an activity monitor system (collar) and a mounting detection system (Kamar[®]). The cows were synchronized and allowed to come into estrus. Cows were then examined by ultrasound to determine ovarian activity and occurrence of ovulation. In this small experiment, evaluating activity monitor and mounting detector devices

- 67 and 62%, respectively, of cows were observed in heat and ovulated;
- 7 and 12%, respectively, of cows were not observed in heat and ovulated;
- 5% of cows were observed in heat and did not ovulate; and,
- 21% of cows were not observed in heat and did not ovulate.



Therefore, when estrous detection was based on an activity monitor system and a mounting detection system 28 to 33% of cows were not observed in estrus.

In a study presented this year, Wisconsin researchers evaluated the insemination pattern and pregnancy per AI (P/AI) of cows that were fitted with activity monitors and were submitted to the Ovsynch protocol with estrous detection (ED), to the Presynch/Ovsynch protocol with ED, or to the Presynch/Ovsynch protocol without ED (100% timed AI). In this study, 70% of cows that received two PGF_{2α} presynchronizing treatments were observed in estrus; whereas approximately 57% of cows that were not presynchronized with PGF_{2α} were observed in estrus. The P/AI of cows inseminated in estrus was 30% and the P/AI of cows inseminated at fixed time was 36%.

These numbers are very similar to those reported by Minnesota and Florida investigators. In these studies the percentage of cows that were inseminated in estrus after two presynchronizing injections of PGF_{2α} ranged from 50 to 62%. On the other hand, P/AI of cows inseminated in estrus ranged from 27 to 44% and P/AI of cows inseminated at fixed time ranged from 21 to 41%. The results from these studies suggest that activity monitors may perform just as well as detection of estrus based on tail paint removal and that P/AI of cows inseminated when observed in estrus based on activity or tail paint removal may be similar. However, both methods are extremely dependent on farm and personnel.

Field observations of two herds that adopted the activity monitor systems for estrous detection and abolished the use of fixed time AI for first postpartum AI demonstrate that there is a high risk of significantly increasing the variability in interval to first AI, increasing the interval to first postpartum AI, and reducing AI submission rate and pregnancy rate. Although this was not data from a controlled study, it was possible to observe that once timed AI protocols stopped being used in herds that adopted the activity monitoring system their pattern of first postpartum AI started to resemble the pattern of first postpartum AI before timed AI protocols were widely adopted.

Activity monitors are an additional tool which can aid in improving estrous detection; however, they do not detect 100% of the cows in estrus so a robust synchronization program is still vital as a tool to insure that all cows receive timed AI by a certain day-in-milk.