

# What's New in Dairy Reproduction?

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In July 2013, over 3,000 people from around the world gathered in Indianapolis, IN for the American Dairy Science Association annual meeting. The event allows scholars to present and learn about the latest research occurring in the dairy industry. A brief description of some of the presented reproductive management work is included below.

## **Breeding cows through the summer is a personal preference**

Researchers in Florida recently evaluated the effect delaying breeding during summer months has on a dairy herd's fertility and profitability. From June to September of 2007 and 2008, animals from a 5000 cow herd were classified according to the length of their voluntary waiting period as either regular (57-63 days), medium (64-84 days), or long (85-155 days). All cows were presynchronized and bred off observed estrus or, if not observed in estrus, bred using the Ovsynch timed artificial insemination (TAI) protocol.

A herd budget calculator, which took into account the reproductive performance of the different groups, was then used to calculate overall and daily net return of each cow while considering replacement heifer cost, feed cost, breeding costs, milk income, cow sales, and calf sales.

Although delayed breeding (a longer voluntary waiting period) improved reproductive performance for cows in their current lactation, overall and daily net return was not different between the groups for up to 6 years afterwards.

*Take home message:* Delaying breeding over the summer had no effect on cash flow under these conditions. The decision to breed or hold off breeding during the summer depends on the individual farm's situation and management preference.

## **Estrus detection vs. TAI**

A study between the University of Sao Paulo in Brazil and the University of Wisconsin, Madison considered the difference in pregnancies per AI at first service when breeding cows using TAI or estrus detection. Over 600 herds (approximately 84,000 cows) were classified as using either primarily TAI (>80% of cows bred using a TAI protocol) or primarily estrus detection (<20% of cows bred using a TAI protocol) and reproductive performance was compared. Additionally, the researchers looked to determine if milk yield would affect pregnancies per AI at first service for each group.

No differences in pregnancies per AI at first service were observed between the TAI herds and the estrus detection herds. Lower pregnancies per AI at first service were consistently observed in higher milk yield herds regardless of if they were using TAI or estrus detection for breeding. Further research on this topic is necessary because herds did not use only TAI or estrus detection. Additionally, the TAI protocol used may not have been consistent between herds.

*Take home message:* In this study, using TAI yielded similar herd level reproductive performance results when compared to breeding after estrus detection. Herds with higher milk production tend to have more difficulty getting cows bred at the first service than lower milk production herds.

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**Some cows show estrus better than others**

Using activity monitors, University of British Columbia researchers examined factors affecting the duration and intensity of estrus expression in cows. Nearly 800 estrus events were evaluated from cows monitored by the Heatime<sup>®</sup> (SCR Engineers) activity monitoring system. Estrus periods with high peak activity tended to be longer than those with low peak activity. Cows with body condition scores greater than or equal to 2.75 (out of 5.0) had longer estrus periods with higher peak activity. First lactation cows expressed estrus for a longer period than multiple lactation cows.

Milk production, disease episodes during the transition period, expression of secondary estrus signs, and follicle size did not affect peak activity levels. Pregnancy per AI was not affected by follicle diameter, peak activity level, or duration of estrus.

*Take home message:* Peak activity levels and length of estrus are highly variable and dependent on the individual animal. These study results suggest that younger cows and cows with greater body condition scores show greater estrus expression.