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Evaluation of the Impact of Activity Detected by Automated Monitoring Systems on the Ovulation Time and Fertility of Dairy Cows

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Collaborating Partners: Dairy Research Cluster 2 (DFC), BCDA, NSERC

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Contribution from DIREC: \$ 10,494

Objectives:

- Determine the impacts of estrous expression, as measured by an automated activity monitors (AAM), on ovulation times and ovulation failure of dairy cattle.
- Determine if BCS or lameness affect ovulation times and ovulation failure of dairy cattle.
- Find out if low intensity estrus have greater ovulation failures and greater variation in ovulation timing that could explain the lower fertility previously observed.

Activity Description:

- 850 estrus events from 293 high producing dairy cows were used.
- Estrous expression was quantified using a collar-mounted AAM (Heatime).
- BCS, gait score, stage of lactation and parity were collected at alert.
- Ovulation time was determined by ultrasonography every 12 hr.
- Ovulation failure was considered as the absence of a corpus luteum after 7d.



Results:

- Estrus events with low estrous expression were more likely to ovulate earlier than those with high estrous expression.
- Ovulation failure was higher in estrus episodes of lower intensity compared with those of high estrous intensity (3.5 vs. 11.0%).
- Lameness animals were 1.7 times more likely to have an ovulation interval above the median length of 25 hr, but did not impact ovulation failure. BCS was not found to impact ovulation times nor ovulation failure.
- Estrous expression was found to impact fertility, whereas animals with higher expression of estrus had greater pregnancy per AI than those with low estrous expression (38.3 vs. 22.7%)

Key Messages:

- Estrous expression has been shown to impact fertility within this study, but the reasons behind these differences still needs further investigation.
- We found that animals with low estrous expression had higher rates of ovulation failure and were found to ovulate earlier than those with high estrous expression.
- The physical health of the cows was found to impact fertility, but only lameness (and not BCS) was shown to impact ovulation times.
- Contrary to our hypothesis lame and skinny animals were not more likely to have ovulation failure than those in more ideal physical health.

Acknowledgements:



DIREC Mission Statement:

The BC Dairy Association actively funds research and education projects. Our objective is to facilitate, encourage and financially support projects and programs that have been identified by the BCDA to benefit the BC dairy industry.

