Managing reproduction
Using activity monitors to increase on-farm herd reproductive performance

Dairy farmers can optimize cow reproduction by inseminating a cow soon after it goes into heat or estrus. Cows in estrus may appear restless, have increased movement, and stand to be mounted. Detecting cows in heat takes time and labour and can be difficult since estrus behaviours are often short and sporadic. University of Guelph researchers are investigating how activity monitors can increase estrus detection and herd reproductive performance.

Department of population medicine professor and dairy herd specialist Stephen LeBlanc, and master’s student Craig Leroy, are using activity monitors on cows from three commercial herds around Guelph. Small tags are placed around the cows’ leg or neck to detect movement and increase estrus detection efficiency. The activity monitors alert the producers when one of their cows exhibits increased activity, a likely indicator of estrus.

Data are captured on a chip inside the activity monitor tags and transmitted to a computer or sent by text to a cell phone several times daily. The system lets producers step away from their herds, yet provide around the clock estrus detection, says LeBlanc.

“These monitors work quite well,” he says. “The technology is becoming popular among producers. We want to know how they can best use these systems.”

Producers are now wondering when to inseminate cows following estrus detection, says LeBlanc. The optimum window to inseminate appears to be between six and 16 hours after the threshold activity level has first passed, he adds. However, the exact timing is not clear.

LeBlanc wants to identify the best time to inseminate by examining the natural variation in times from when the system says a cow is in heat to the time a cow is inseminated. He also wants to determine if there are economic benefits to conducting multiple inseminations daily. This will help producers gain a more precise and optimized breeding time, he says.

Another component of LeBlanc’s research is to determine the activity monitors’ accuracy to detect cows in heat. If correctly detected, cows in heat should have low blood progesterone levels when inseminated.

Next, LeBlanc will determine the proportion of cows that were not detected by the activity monitors. This will help determine the level of intervention required by producers, because they cannot rely on activity monitors alone, says LeBlanc. Producers can still use activity monitors to breed their cows between 70 to 80 per cent of the time, he adds.

“Managing reproduction in dairy cows is a chronic challenge for dairy farmers,” says LeBlanc. “We know these activity monitors can save a lot of labour, but we need to determine how to optimize their use for best performance and efficiency.”

Results from LeBlanc’s research will be available next summer. He is optimistic his findings will let him compile specific advice for producers on how best to use activity monitors.

Anna Wassermann is a student writer for the University of Guelph’s office of research. Dairy Farmers of Ontario funded the research.