DARYBUSINES

Technology on the Dairy Farm

New technology devices like neck mounted cow monitoring systems - help operators track status, location, and performance of cows anywhere on the dairy.

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Dairy producers have long understood the importance of visual cues in determining cows' fertility and health status. Since round-the-clock observation can be impractical and labor-intensive, especially on larger operations, many dairies are now turning to technology for cow monitoring solutions.

A wide range of sensors and systems are available for monitoring animal events and automatically sending alerts for changes indicating estrus, illness or calving. Devices range from neck and legmounted collars that transmit rumination and/or resting activity data wirelessly 24/7 to boluses that measure body temperature. Many of these high-tech tools require no special expertise beyond knowing how to use a smartphone or tablet.

In addition to reducing the need for direct observation, cow activity monitors can be used to:

Improve pregnancy rates

• Flag cows at risk for developing costly metabolic disorders or health problems

• Allow for early intervention for cows in prolonged labor and prompt care for newborn calves

• Gain insight into the impact of nutrition or other management changes on herd performance

 Reduce costs associated with lost production, involuntary culling or cow death

Improve animal welfare

Since cow monitoring technology has the potential to impact so many areas of your dairy operation, carefully consider your investment from different angles. Ask the following questions now to help determine the cow activity monitor that's right for you:

1. How accurate is the estrus

Questions to Ask When Choosing a Cow Activity Monitor

By Kim Parr

detection?

All dairy producers are challenged to maximize pregnancy rates and optimize calving intervals. To best assess the accuracy of a cow monitoring system, apply this simple calculation:

Heat Detection Rate x Conception Rate = Pregnancy Rate

With a typical Conception Rate value of 33%, a difference of 9% in Heat Detection Rate between two systems means a Pregnancy Rate difference of 3%, or an extra \$40 per cow, per year, in increased income.¹

A final consideration about accura y and estrus: Conception rates are an important but incomplete way to assess the accuracy of cow activity monitors in detecting estrus. In a recently published article, a prominent research veterinarian found that many new users of activity monitors were breeding cows as soon as they observed signs of heat.² Since cows are more likely to conceive when bred toward the end of the heat, not the beginning, this practice may reduce conception rates in farms that have recently



2. Which activity should I monitor – rumination, eating or resting?

Changes in rumination, eating patterns and resting activity all reveal different information about a cow's health status with varying degrees of accuracy. Increased restlessness is a classic sign of estrus, but a decline in rumination and/ or eating can mean anything from simple indigestion to the early stages of ketosis. The most effective systems measure more than one physiological symptom and correlate the data.

For example, rumination or feeding data alone aren't sufficient o tell us much about a cow's health status since many conditions can cause a drop in rumination or eating. But simultaneous drops in both rumination and eating can help pinpoint cows that are sick with a high degree of accuracy.

While most cow monitors are used for heat detection, others can alert you to health or metabolic disorders, lameness, calving and other events. Decide what matters most to your business, and let that guide your decision.

3. Is it a good fit or my farm?

A cow activity monitor should align with your business goals. A heifer-raising facility, for example, may be more interested in recording feeding and rumination, while a farm struggling with high calf morbidity may want a system designed to alert for dystocia.

Consider farm size, herd composition, housing and other environmental factors when choosing a cow activity monitor. Long-range radio capabilities and long-life bat-



Leg-mounted sensors that record resting activity are a valuable tool for detecting estrus, calving and other health changes.

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teries are obviously more important for a large commercial operation than a small family farm. Is Internet reception spotty or non-existent? If so, you'll want a system that keeps working even in the absence of a continuous Internet connection.

Are you planning for significant growth? You'll want a scalable solution that can be integrated into a software management system when the time is right. Combining sensor data with milk meters and management software presents the most accurate snapshot of the dairy at any given moment, and ensures you're making the most informed business decisions for your operation.

4. Is it user-friendly?

Virtually every cow activity monitor claims to be easy to use, and most are – but don't discount the learning curve required to interpret and apply the data, not to mention the labor involved in attaching hundreds or even thousands of sensors. The most user-friendly sensors can be attached in less than a minute on a restrained cow, and should not depend on completely accurate positioning to work. They should also be comfortable for the animals.

Attaching the sensors is just the first of many steps involved in installing and using your new activity monitor. Is the software intuitive and easy to learn? It shouldn't take more than 30 minutes of self-training to master the operation. Mobile-friendly, cloud-based systems that can be used across a range of devices are among the easiest monitoring solutions to implement for farms of all sizes. Will you want to access the data on a mobile device, even if you're o° the farm? Some systems allow users to remotely monitor individual animals or the entire herd from almost any computer, tablet or smartphone. Make sure your choice is easy on you, the crew -- and the cow!

Asking the right questions now can save you considerable time and expense later and smooth the path to successful cow monitoring for your operation. *

¹ Cabrera, Victor. UW Extension Money Economics.

² Villarroel, Aurora. Don't breed too early. Progressive Dairyman April 19, 2016, pp. 65-66.

