

# Precision dairy technology

## Heat detection activity meters

### Case study:

#### John and Caroline van Adrichem, Togari, Tasmania

John and Caroline van Adrichem came to Tasmania from the Netherlands in the late 1990s. After milking up to 350 cows through a 50-bail rotary system near Smithton, in the state's north-west, they moved to another dairy at nearby Togari and installed three Lely A3 automatic milking system (AMS) robots in 2009. John, Caroline and son Arjan now milk 255 cows with four robots on their 80-hectare dryland milking platform. They calve 80% of their cows in spring and the remaining animals in autumn.

With the AMS increasing the efficiency of milking and reducing the need for staff to be on-site around the clock to monitor the herd, John decided to purchase Lely activity meters helps ensure that regular heat detection activities continue to be supported.

"You can be the best farmer in the world, but you can't be there 24 hours a day," he said.

Each activity meter transponder is attached to a collar and sits against the side of the cow's neck. It uses an acceleration sensor to measure the duration and intensity of the cow's movement. The transponder also features an optional microphone system that records rumination activity. The activity and rumination systems monitor the cow's activity in two-hour time blocks and send data to a computer program every time the cow comes into the dairy for milking.

John does not routinely use any visual heat detection methods, but instead relies solely on computer data to identify cows that have peaks of activity and drops in rumination activity. John has found that the computer software's default settings work well to identify those cows on heat with minimal false positives and he has not needed to adjust these settings for his herd.

Computer data is checked twice each day during the mating season. Cows that display increased activity or a sustained drop in rumination are identified and flagged.

Herd records and individual activity/rumination charts of these cows are examined to identify the animals that have a peak of activity that coincides with a drop in rumination. These cows are almost always on heat (or in oestrus) and are drafted off and inseminated.

John has found he can easily use the system to identify pregnancies in nearly 90% of the mated cows. Those cows that have little change in activity and rumination after insemination are considered to be pregnant. The remaining cows are checked by the veterinarian and 80% of these are found to be pregnant. John is also able to identify those cows that are not cycling, or are not cycling regularly, and will have the veterinarian examine these cows.

John also uses rumination data from the system to assess herd health. A drop in rumination is a good indicator that a cow may be becoming sick or is lame. If either the feed management or feed quality changes, John can follow the herd's rumination activity and make the necessary adjustments at an early stage. When there is plenty of lush green grass during spring, for example, John often picks up a drop in rumination in his herd. He can quickly adjust the ration by providing more fibre at this critical time.

John has found that the \$200 transponders are quite robust. Though he has had to replace flat batteries in some transponders over the first five years of use, this has been covered by warranty.

Over this time John has learnt to trust the technology. By combining the activity and rumination data for each cow, he is confident that he can accurately detect those cows on heat.

"After 4 years, I wouldn't want to go without this monitoring system now," John said. "I've found that it's nearly bulletproof".



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