

Precision dairy technology

Heat detection activity meters

Case study:

Mark Billing, Colac, Victoria

Mark Billing's family has been milking at Craiglands Dairy, near Colac, Victoria, since 1928. The dairy farm now runs about 450 cows on a 280-hectare dryland milking platform. Summer crops such as millet, turnips, sorghum and lucerne, supplement perennial ryegrass pastures and grains and concentrates are fed in the bail.

Mark has been an active investor in new dairying technology since he installed a 44-bail rotary milking platform in 1994, and often works closely with Westfalia to test new products developed for the industry.

Not long after the rotary was completed, Mark installed Westfalia's automatic identification and computer systems to help monitor and manage the herd. Each cow was fitted with a collar and transponder that measured her average activity over a 12-hour period by recording her head movements. This information was fed into the farm computer system twice a day via a receiver that identified the individual cow when she entered the rotary platform.

In 2005 Mark upgraded the activity meter technology to Westfalia's Nedap meter, which records the cow's average activity every two hours. The more frequent recording has enabled Mark to more accurately detect heat activity, or oestrus, in the cows. Activity is compared to previous data on each cow. Any significant increase in activity for more than 12 hours (six readings over this 12-hour period) is a very good indicator of the cow exhibiting oestrus.

While Mark feels that leg pedometers may be more accurate than collar transponders in monitoring activity and detecting heat, he has weighed this against an increased chance of loss and damage. Mark has found the \$100 transponders to be quite robust and has not had to repair or replace any since he purchased them. The collars also last for an average of five to six years and allow for other technology such as rumination meters to be attached in the future.

Mark has an autumn calving and all 450 cows have their own transponders from their first calving until they leave the herd. Some farmers who calve twice a year or all year round may use the transponders on more than one cow during the year, which requires changes to the computer system to ensure accurate recordings.

Mark and his team use visual methods for heat detection and feel they have good visual detection procedures in place. He mainly uses the activity meter system as a backup. Mark estimates that the activity meter is able to pick up oestrus in about 30 cows that visual and manual techniques fail to detect. Using simple math, the benefit of detecting these 30 cows on heat is three weeks of milk at 2 kg MS/cow/day and \$6.00/kg MS or about \$7000 per year. Additional cost savings may come from fewer extra inseminations and reduced culling of animals that do not become pregnant in the desired joining period.

Mark will soon trial the next version of the activity meter on 100 of his cows. This version can download information to his smart phone so he can analyse data even when he is not in the office. This may help him to better plan the AI schedule when away from the farm and detect cows that are relatively inactive and close to calving.



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