# Cow behaviour changes in response to deterioration in health

September 26 2014

When a cow develops mastitis, her behaviour changes and the quality of its milk deteriorates. The stockperson can detect the signs of inflammation in the milk when the cow is milked, but is it possible to recognise the signs of this diseases in other ways and even earlier?

A dairy cow becomes restless four hours after it contracts bacterial mastitis. Simultaneously, the other symptoms of a steadily progressing inflammation such as increased body temperature and swelling of the udder become evident. However, an attentive stockperson may be able to detect the signs of an incipient inflammation in milk two hours before this, shows the doctoral dissertation of Jutta Kauppi, head of Animal Production Research at MTT Agrifood Research Finland.

"The study showed that it is in the milk that the first symptoms of a disease can be detected , while changes in a cow's behaviour acted as an indicator for a change in the cow's health," says Jutta Kauppi, summing up the results of her study.

However, it is difficult to detect behaviour changes and alterations in milk quality early enough. At a conventional milking stall, mastitis is often detected as late as during a milking session, and when using a robot milking system, in the worst-case scenario, when a cow has failed to enter the robot for milking or when it has several failed milking attempts in its history. Kauppi's doctoral dissertation sought to identify critical points in cow behaviour pointing to deterioration in the cow's health.

"Changes in cow behaviour, including restlessness, proved promising indicators for an incipient change in health status. To our surprise, changes in milk composition were identifiable before such symptoms were evident, whereas an infrared camera was able to detect inflammatory alterations in the udder four hours after the inflammation had set in" says Jutta Kauppi.

The study also investigated alterations in cow behaviour in relation to successful completion of robotic milking procedure, as well as in dairy management practices and changes in the milking method.

## Technology provides extra set of eyes for the stockperson

In addition to the stockperson's good eye for cattle, technology is heavily used in the modern cowshed in feeding cattle, in ensuring a successful completion of milking, and in monitoring cows' health and activity levels. Because some cows are naturally more active than others, technology alone is insufficient detect decreasing health status of a cow.

"We have a host of excellent software applications and production technology at our disposal, but it is the stockperson who knows its cattle and play the vital role in the interpretation of the signals that technical tools produce and in the decision-making regarding treatment," says Jutta Kauppi.

"In modern large herds and high-tech cowsheds, the stockperson's skills and a well-functioning interaction between the stockperson, the cow and technology become pronounced," she continues

Research on animal welfare and on welfare technologies will increasingly target at early detection of signals that predict a health

problem of an animal. This will enable the launch of preventive measures at an earlier stage than before, affecting the process of a cow contracting a disease and shortening the recovery time.

"Mastitis is extremely harmful for both the farmer and the cow. When an inflammation has gained a footing, the cow is seriously ill. The milk extracted from the cow is also unsuitable for the food chain, causing substantial loss due to treatment with antibiotics because it goes literally down the drain. With regard to the cow's well-being and the financial impact caused by the disease, warning signals should be intercepted as early and comprehensively as possible," Jutta Kauppi concludes.

Provided by MTT Agrifood Research Finland