profi
MAGAZIN FÜR PROFESSIONELLE AGRARTECHNIK
SPECIAL REPRINT
11/2019

Field report: Gea DairyMilk M6850 somatic cell count sensor

Counting cells during milking

In 2018, Gea introduced a retrofit sensor for their robotic milkers which analyses quarter milk samples for somatic cell counts by class during each milking. We explore how the system works in practice. Martin Zäh reports

When we visited Thomas Gamb's dairy farm and asked him about his experience of the Gea DairyMilk M6850 cell count sensor which was installed in late 2018, we were quite surprised by what he told us: "Since we took up automatic milking and counting cells online by quarter sampling, we no longer automatically regard the individual animal as the sole factor in increased cell counts. In fact, we more often also take a look at the feed and the ration." He has found that cell counts rise dramatically when urea levels increase. Consequently, whenever they change the ration, Thomas becomes very vigilant.

The Gamb family farms a 120-head herd of dairy cows and are real milk production pros. This is illustrated by two indicative figures: The average somatic cell count per millilitre of composite tank milk was 150,000 before they took up automatic milking. The change to auto milking caused a brief increase before the counts started to steadily decrease again. Today, the average cell count is 100,000 which increases slightly during the summer months. But let's start at the beginning...

Flakes, puss or blood in the milk are clear signs of a clinical mastitis that usually requires immediate veterinary treatment. Yet a subclinical mastitis is equally serious. It usually develops from an acute mastitis that has turned chronic. In this condition, the changes in milk are not yet visible, but the lab analysis shows a signifi-

Gea offers a practical cell count system for its robotic milking systems. Pictures: Tovornik

cant increase in somatic cell counts.
Cell counts above 200,000 in the tank milk suggest a serious udder health issue. If the cell count increases to more than 400,000 per millilitre, this may result not only in the dairy refusing to take delivery but also in a 10% reduction in yield.
But it takes time before the farmer gets the alert warning from the dairy and before the lab results are available. Tracing the actual cause is difficult, and it is nearly impossible to take prompt action.

Enter the DairyMilk M6850 cell count sensor from Gea. The firm offers the sensor for its robotic milkers Monobox, DairyRobot R9500 and the DairyProQ rotary parlour for which the sensor is also available as a retrofit system. Since the prototype went on trial in 2016, 70,000 milk samples have been taken from all major breeds and in all relevant countries and the results compared with the sensor results. Last year, the technology was ready to enter production. What is so remarkable about the Gea cell count sensor is that, once installed, it incurs almost zero follow-up costs because the sensor doesn't require any reagents. Maintenance and durability, too, bring no major surprises, which is rather unique.

Yet the firm didn't want to tell us how exactly the patented sensor works. All we can say is that it isn't an optical system but instead an exclusively physical technology called EPT which stands for 'Electrical permettivity threshold'.
The scans are taken and analysed during the milking. After each milking, the counts are compared with the previous ones by means of proprietary software. Animals that produce cell counts of less than 500,000 per quarter do not even show up in the alert list which lists only those animals that show an increase by two classes between two milkings – for example from less than 250,000 to more than 500,000 or from less than 500,000 to 2,000,000. An animal is also immediately listed when the cell count reaches class IV (more than 2,000,000 cells/ml per quarter).

A rapid increase in the counts in one quarter is usually indicative of a clinical mastitis. In Thomas Gamb's experience, the technology is so sensitive that the vet can be called hours before the condition becomes clinical. He says that a false alarm has been very rare.
Animals with a subclinical mastitis condition also appear in the alarm list. Yet every farmer knows that higher cell counts are not unusual towards the end of lactation, so they wouldn't necessarily get too worried and call the vet.

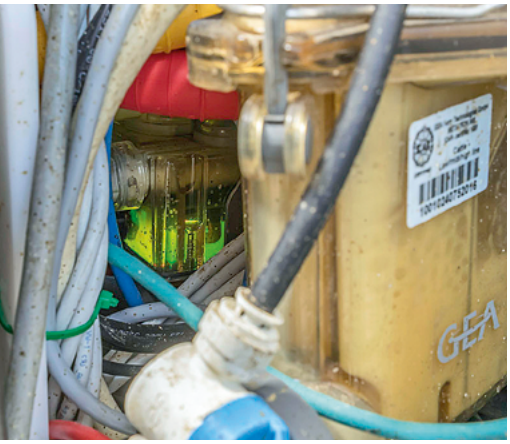
The best thing about the system is that the farmer can distinguish between a subclinical and a clinical mastitis fairly easily, thanks to the fact that conductivity and quarter yield measurements are carried out alongside the cell count.
The farmer then discusses the cell counts with the vet who advises on whether treatment should be initiated now or before drying off. The technology also places discussions on the routine use of antibiotic dry-off medication on a more objective footing.
In addition, Thomas Gamb assures us that any apprehension about farms drowning in statistics and alerts is more or less unfounded, because the accuracy of the technology is very high.

As for costs, the DairyMilk M6850 cell count sensor from Gea is priced at €5,100 excl. VAT. Add to this the costs for retrofitting the sensor to one milking unit which takes 2-3 hours, according to the manufacturer. This applies for the Monobox and the DairyProQ. As for running costs, these amount to approximately €15 for a new set of seals to be fitted during the annual service.
Speaking of service, Gea has herd managers based all over Germany. They go to the customer's farm and provide hands-on training on the system.

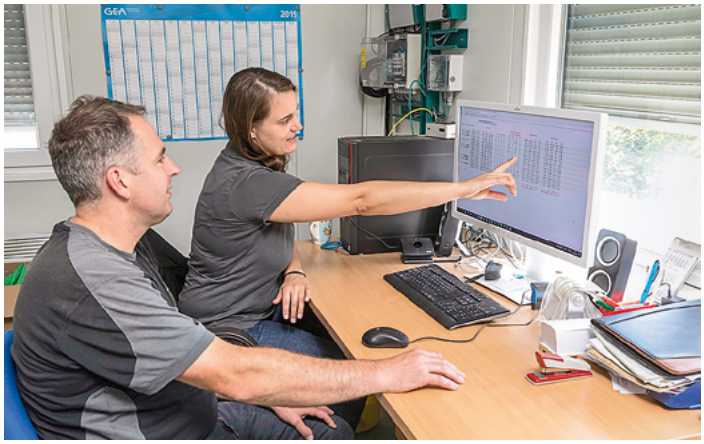
Martin Zäh

GOOD TO KNOW

- The DairyMilk M6850 sensor from Gea counts somatic cells by class in real time and per quarter.
- The system works mechanically and involves next to no operating costs.
- The error rate of the system is extremely low, since milk rate and conductivity are also measured.
- The retrofit technology is also available for Monobox, DairyRobot R9500 and DairyProQ.



Green or red? The colour of the indicator light signals to the farmer whether the retrofitted cell count sensor is working properly.



What do the figures tell me? Which list is important? Gea's herd manager Gudrun Hauser and Thomas Gamb occasionally go through the cell counts together.