

EUROPEAN MASTITIS PANEL CALLS FOR APPLICATION OF KNOWLEDGE AND TOOLS FOR PRACTICE

A significant amount of mastitis research has been done and is still going on in Europe. However, better coordination and data sharing is needed, whereas available knowledge and tools have to be adapted and communicated to the dairy farmers. This is the main conclusion from the 4th meeting of the European Mastitis Panel (EMP). Sixteen veterinary dairy experts from eight European countries attended the two-day meeting with two farm visits in May 2011. This year's meeting was held near Mantua, Lombardy in the northern part of Italy.



Exchange and application of knowledge

Most of udder health research and training for veterinarians in Italy is done at the University of Milan. There is not very much exchange between the 15 Italian veterinary faculties, but there is lively exchange of information with Europe and the USA. Italian scientists often take the opportunity to improve their knowledge of udder health in the *more*

U.S. When they return to Italy they bring new ideas and tools for practice. This was shown by Francesco Testa, a veterinarian from Bergamo. He explained how he uses different computerized tools for his practical work in the field. Examples include the decision trees for analyzing mastitis problems (Cornell University, US), a calculation method for economic losses due to mastitis (Lam, Schukken 1997) and the Herd Navigator[®] (a herd management program from Denmark). All tools have been translated and adapted to the Italian situation. After he finds all the weak points on the farm, he presents and discusses it with the farmers using modern media like videos and photos. Then, in consultation with the farmer, he develops individualized farm strategies with short, medium and long term goals to reach. *"Communication and training of staff are key issues. We have noticed that best diagnosis and therapy are useless, if the farmer does not change his daily work routine,"* said Francesco Testa.

High milk prices for specific products

In Italy, most of the 1.7 million cows are located on farms in the northern part of the country with 80-120 animals per farm. While the number of farms declines, the number of animals per farm increases. Italy's self-sufficiency of milk is only 75 percent, and therefore the Italians plan to continue to increase milk production. Due to the lack of land in the north of the country, the south of Italy is now the focus for future dairy farming. Projects on mastitis research support this target in that economically weaker area. The price of milk in Italy compared to its European neighbors is with 0,43 €/kg relatively high. However, dairy farmers producing milk with special quality requirements for the production of Parmesan cheese get 0.77 €/kg, whereas the milk of water buffaloes for the production of mozzarella is currently traded at the relatively low price of 1.20 €/kg. Eighty percent of the milk in Italy is processed for cheese and the well-known Parmesan cheese and Grana Padano are exported all over the world.

Spore-free milk

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The brothers Simone and Franco Minelli manage a farm in the Po Valley. The milk of their 120 Italian Friesian cows is processed into Parmesan cheese at the cheese dairy next door. To meet the quality demands of the Parmesan cheese, the animals are fed silage-free diets. Instead of spore-containing silage animals are fed hay and different energy food components. Simone Minelli is satisfied with the daily milk yield of 32 kg per cow at the current high milk price. The ration is structurally poor and has too many highly soluble carbohydrates. Marco Nocetti, veterinarian at the "Consorzio Parmeggiano Reggiano", said: *"The most important monitoring role of veterinarians is to prevent that bacterial spores from feces to enter in milk."* Clean cubicles and walking tracks, the avoidance of metabolic stress, milking hygiene and proper teat sanitation are especially important to keep milk free of bacterial spores, which could interfere with the Parmesan cheese production.

Italian cheese production

The milk for the production of Parmesan cheese is collected twice daily from the dairy and stored at 18°C. Before being mixed with the morning milk, the fat floating on top is skimmed off. Up to this point the Parmesan cheese is a raw milk cheese. In the course of the production process it is pasteurized at 55°C for 45 minutes and preserved for a total of 3 weeks in a brine, which pathogenic bacteria cannot survive. *"Our Parmesan cheese is safe to eat,"* says Giuseppe Bolzoni, veterinarian at the milk laboratory in Brescia. For the production of 1 kg Parmesan cheese 17 kg of milk is required. Milk has to be free of antibiotic inhibitors and at a low somatic cell count (<200). A high count disturbs the natural starter cultures such as Lactobacillus, so that it can cause gas formation in cheese.

Grana Padano cheese is another important export product for Italy. While 1 kg Parmesan costs the consumer about € 20, Gran Padano costs approximately half that on the supermarket shelf. *"The difference lies in quality and taste,"* said Marco Nocetti.

Grana Padano costs less because the cows are allowed to eat silage. As a cheese starter e.g. lysozyme is used in ways that effectively kills spores.

The European expert group was surprised to see 250 water buffaloes on the second farm called "Agricola La Valle". On this farm, water buffalo, originally from Asia, are kept under simplest conditions in a free stall barn. They are milked twice daily. The amount of milk reaches 8 kg/day with 8 percent milk fat and 5 percent milk protein. The animals are very robust and rarely sick. Mastitis rates and somatic cell counts are low and demonstrate good udder health. Their milk is processed in the private dairy into tasty buffalo mozzarella.

***Staphylococcus aureus* saga**

In Italy, Prof. Alfonso Zecconi has been inextricably linked with the extensive research on *S. aureus* for many years. Current research at the University of Milan shows the large variance of the different *S. aureus* strains: They differ in behavior, virulence and interaction with the immune system of the cow. There are four different enterotoxins produced by *S. aureus*, which can help to detect and determine the risk of infection on the farm. The origin of most strains are on the teat skin and secondly in mastitis milk. Normally there are several strains in a herd, but only one strain in a cow. Tests with experimental *S. aureus* vaccines have shown that due to the large differences of various *S. aureus* isolates in different regions, the immunological antibody response was not always available. Prof. Zecconi is convinced that an improvement of the cell-mediated immune response by neutrophils can help to fight *S. aureus* infections. Research on that is also run in Belgium.

Conclusion

The European Mastitis Panel has become a dedicated, well-established group of mastitis experts and an important platform for discussion and networking in Europe. *"What I love about this meeting is the exchange with colleagues from other countries,"* one EMP-member pointed out, *"In any case I take something home. This year it is successful udder health communication with the farmer in the field."*

Members are looking forward to the 5th annual meeting of the EMP that is scheduled for the United Kingdom in May 2012. The EMP-meeting is an initiative of and is supported by Intervet/Schering Plough Animal Health, a leading company in udder health solutions. For more information, see also www.EuropeanMastitisPanel.eu.