



What is behind mastitis treatment registrations?

Svennesen, Line; Enevoldsen, Carsten; Klaas, Ilka Christine

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5.1

In-line milk analysis and identification of health and reproduction events

Jens Yde Blom

Biological Specialist, Lattec I/S, Slangerupgade 69, DK-3400 Hillerød iyb@lattec.com

Sensors to monitor health and reproduction events have been developed in recent years in order to save labour time and secure a high degree of detection of events that need the attention of the farmer. The systems enable the farmer to overlook and manage larger farms. Early diagnose of diseases also improves animal welfare as discomfort associated with disease is minimized due to early intervention. So far, measurements in milk have been available to farmers either on-line (electrical conductivity, colour, Somatic Cell Count) or off-line (California Mastitis Test, bacterial culture, Somatic Cell Count, Progesterone and lately the PAG pregnancy test). A number of systems based on cow activity have been developed to monitor heat, and some of these systems also include monitoring of chewing activity. Many systems, however, deliver huge amounts of unprocessed data, which leaves the user with laborious data filtering. One major obstacle to most sensing systems is that they are stand-alone systems, and therefore the farmer has to combine the output from these systems with other available data in order to make a management decision.

Recently an online system for the management of mastitis, ketosis, reproduction and protein feeding has been developed in Denmark, the Herd Navigator™. The system will automatically sample milk during milking from selected cows, analyze for four milk constituents. The analytical data are analyzed in biological models together with other cow specific data and presented to the farmer on the farm computer as advice with a Standard Operations Procedure attached. The Herd Navigator™ can be considered a “Whole System Approach”, as it selects cows in need of measurements, a sensor system, biological algorithms, data condensation and issue of timely warnings to the farmer of specific states of the cow, together with suggested intervention procedures, set up by the farmer in the Herd Management System.

The advantage of analysis of time series of specific milk constituents over unspecific data is obvious. A system using specific constituents can issue specific diagnoses, and in particular the continuous measurements of milk progesterone have the advantage of also detecting silent heats, ovarian cystic conditions, abortions and pregnancy.

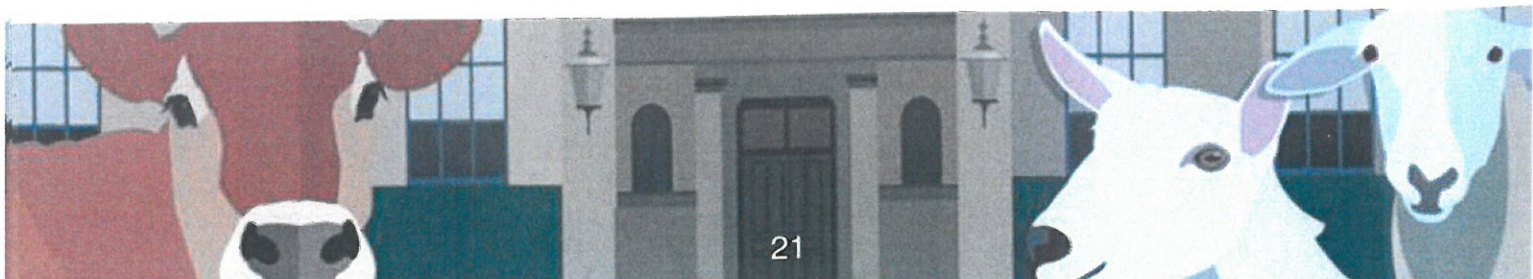
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What is behind mastitis treatment registrations?

Line Svennesen, Carsten Enevoldsen & Ilka C Klaas

University of Copenhagen, Faculty of Health and Medical Sciences, Department of Large animal Sciences, Grønnegårdsvej 2, 1870 Frederiksberg C, Denmark lis@sund.ku.dk

Recordings of mastitis treatment data are often used for welfare assessment and mastitis control in herd health management and research, based on national or regional databases. Treatment data available in central databases may be incomplete, and the decision whether to treat mastitis with antibiotics or not is highly dependent on management and farmer's decisions. In larger herds with several employees the selection of cows for antibiotic treatment may be very complex. Knowing what is behind the registered mastitis treatment cases is essential to evaluate whether changes in mastitis incidence are caused by changes in health or changes in management policies. To our knowledge, the complete path from mastitis detection to registration in a central database, including the interaction between several actors in larger herds, has not been investigated previously. The aim of our study was to describe the path from detection to registration of mastitis cases and understand the interaction between different actors in the process of selecting cows for antibiotic treatments. We did a qualitative case study in a Danish organic farm milking approximately 600 cows. All actors involved in detecting and treatment of mastitis were interviewed and observed during their daily routines. The employees' registrations of observed cases of mastitis were evaluated together with the herd veterinarian's treatment records and registrations in the national database. The study confirmed that the selection of cows for antibiotic treatment is complex. Three levels of actors: milkers, herd manager and herd veterinarian had different definitions and treatment thresholds affected by e.g. weekday, staff rotation, previous treatments and somatic cell count. Drying off single quarters was used as an alternative to antibiotic treatment. Important loss of information occurred between milkers and herd manager, whereas the veterinarian registered almost all treatments in the database. In conclusion, the 'human decision factor' related to detection and registration of treated mastitis cases may be more important than biological and management-related risk factors. Thus, we suggest to always attempting to answer the question “what is behind the registrations” prior to any use of the registrations for research or management, and to expect every herd to be unique.



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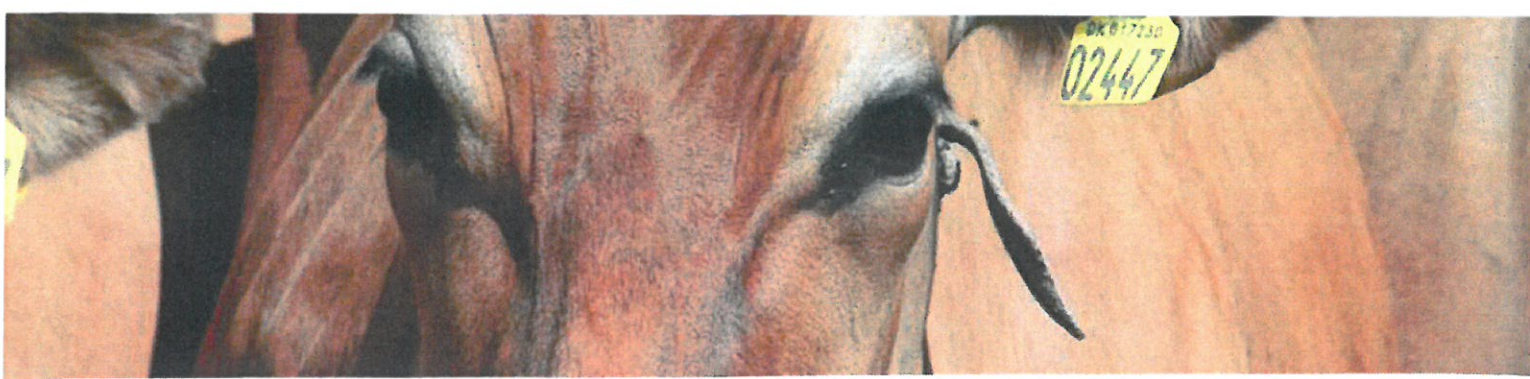
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The DairyCare Action will focus the talents, skills and resources of researchers, industry partners and stakeholders in the dairy-foods chain onto the topic of dairy animal health and welfare. European dairy farms are getting larger. Dairy cows remain in focus, but there is growing interest in other dairy species. Milking technology is advancing, as is biotechnology relevant to animal wellbeing. European consumers prioritise animal wellbeing and product quality, whilst recognizing the importance of global food security and the need for increased milk production. Relevant research is happening across different disciplines (biological, ethological, technological and socioeconomic) and in many different and diverse parts of Europe. The Action will obtain maximum value from this research by networking, coordination and avoiding duplication. It will disseminate the many outputs widely to researchers, industry, dairy farmer end-users, consumers, policy makers and society generally. It will ensure that European dairy research remains world-leading, that European dairy animals are the best cared-for in the world, and that European consumers can take pride in European dairy industries that are competitive, responsible and sustainable. Visit our website www.dairyreaction.org

