

ADDA

Advanced Dairying in Austria

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Added value of data exchange on dairy farms using the example of bacteriological milk examination

Due to advancing technology on dairy farms, data integration is becoming increasingly important with regard to professional herd management. As udder health plays an important role for dairy cattle, a pilot project has been conducted to allow the integration of data from the bacteriological milk examination with data from the Cattle Data Association. This allows a more targeted use of antibiotics. Furthermore, the cooperation in the project established a network for future projects in this area.



As a result of the advanced technology on dairy farms, a large number of information is available to the farmers, which are generated inside and outside the farm. In order to enable farmers to use these data more time efficient, it is indispensable to allow the exchange of data automatically. In practice, data are often generated by different hardware and software products, which makes data integration more difficult due to different data exchange formats of the communication partners involved. It will therefore be necessary to create structures to bring together these data sources in order to provide farmers with maximum support for herd management. Another challenge of data integration from different sources is compliance with legal data protection regulations, since this is often associated with lack of clarity in practice.

In work package 1 in the project ADDA, data flows were analyzed and, on the basis of this consideration, a data protection report was worked out which deals specifically with the data protection law situation in the process of data integration from different actors in milk production.

As an example of the usefulness of data integration for herd management at the farm, the integration of the bacteriological milk examination results into the database of the Cattle Data Association (Rinderdatenverbund, RDV) and the processing of the data in this database was developed in a pilot study. Therefore, a herd management tool can be made available to farmers in the field of udder health, in particular mastitis prevention and treatment.

In the preparation of suitable treatment protocols for mastitis, influence factors such as the timing of infections or the identification of the risk group in the herd are important in addition to the mastitis pathogen. The combination of bacteriological examinations and the existing broad data base of the RDV makes it possible to identify precisely these problem areas and thus the establishment of management strategies for the reduction of udder problems. The farmer is currently provided with an extensive module for the early detection and monitoring of udder health on the basis of the data from the routine milk recording system and diagnostic data. By supplementing the results of the bacteriological examinations, essential information is obtained

which allows a more complete picture of the herd situation. Data from the pilot study included 250 farms, 17 veterinarians and 6 laboratories. In order to integrate these data in the RDV and to obtain relevant statements, guidelines were prepared for the standardization of the analytical methods of the laboratories. In a further step, interfaces were defined and implemented to enable the laboratories to access the RDV database. Through the integration of the laboratory data, a tool has been developed in RDV to enable farmers to assess the udder health of the farm as a whole and the individual animals through its RDV access. Benchmark parameters have been developed that allow comparisons between farms and provide the farmer with information on the status of his herd with other herds.

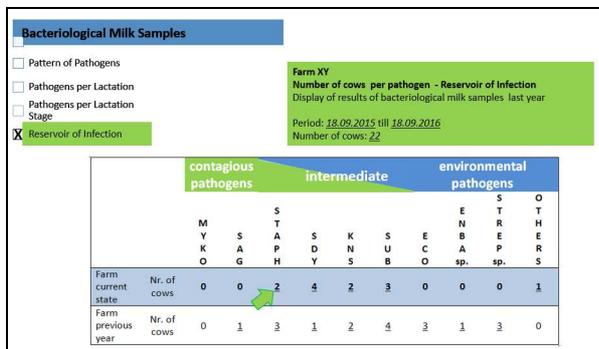


Figure 1: Example of preparation of the results of the bacteriological milk examination for web application for udder health



Consequences and Effects

Using the example of the data integration from the bacteriological milk examination in the RDV, it can be seen that this allows a targeted use of antibiotics in mastitis treatment, which can

contribute to a reduction in antibiotic use in dairy cows.

Another benefit of work package 1 is the establishment of a network in the area of data exchange, which provides a good basis for further projects in this area.

In cooperation with work package 3, economic aspects were analyzed and the motivation of the farmers to implement the results in practice was thus increased.

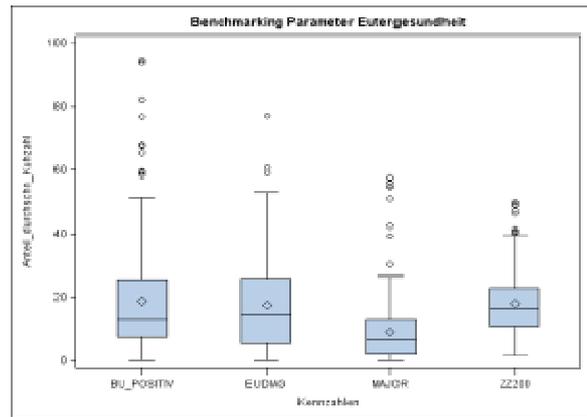


Figure 2: Boxplots with selected variables: proportion of cows with positive pathogen detection (BU_Positive), percentage of cows with udder diagnosis (EUDIAG), cows with major pathogen (MAJOR) and proportion of somatic cell count results over 200,000 (ZZ200) based on the average cow number on farms in control year 2016 (Anzahl_durchschn_Kuhzahl). The red line represents the height of the parameters of an ADDA sample farm.

Contact and Information

K-Project ADDA
 Vetmeduni Vienna
 Institut für Milchhygiene,
 Veterinärplatz 1, 1210 Wien, Austria

Project coordination

Univ.-Prof. Dr.med.vet. Martin Wagner
 T +43 1 25077-3500
 Martin.Wagner@vetmeduni.ac.at
 www.vetmeduni.ac.at/adda/

Project partner

Organization	Country
ZuchtData EDV Dienstleistungen GesmbH	Austria
Rinderzucht Austria (ZAR)	Austria
Veterinärmedizinische Universität Wien	Austria
Universität für Bodenkultur Wien	Austria
Leistungskontrollverbände	Austria

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