

IT-Network-Solution for 2 Million cows in Austria and Germany (Rinderdatenverbund, RDV)

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Abstract

The milk recording organizations (MRO) in Austria and Germany (Bavaria, Schleswig-Holstein and Baden-Württemberg) are jointly developing software to collect and to process recorded performance data (milk and meat) of cattle (Zuchtdata, 2013). To realize this by a common network an own company named „Rinderdatenverbund“ (RDV) was founded with a decentralized data processing system. The RDV is a decentralized IT-solution, which can be adapted to regional configurations and offers different software packages to various users.

Keywords: milk recording, IT-network solution, herd management, animal health

Introduction

The milk recording organizations (MRO) in Austria and Germany (Bavaria, Schleswig-Holstein and Baden-Württemberg) joint their forces to develop a common software in the fields of milk and meat performance data recording, cattle breeding, health and farm advice. To realize this common network, an own company named „Rinderdatenverbund“ (RDV) was founded. The participating organizations represent about 54.000 livestock farms, keeping more than 2 Million cows (LKV BW, 2014).

Each MRO maintains an own IT-department and is running an “Oracle” data base. The data model, data structure and the programs in use are basically identical for all partners. The decentralized IT-structure enables the partners to adapt the IT solution to their different regional configurations and circumstances, increasing the attractiveness of the system. All programs for the different users, e.g. farmers, vets and advisors are online solutions.

The online programs of the RDV replace step by step existing PC-based programs. The aim of the RDV is to collect and to process all relevant data of the cattle sector in order to make them available to the farmers, vets and advisors. For the programming, a simple and user friendly utilization, clear structures and a high data safety have the highest priority. The efforts of the RDV are at present focusing on the integration of further data into the system. This data are coming from automatic milking systems (AMS), sensor derived data and laboratory results.

Formation of the RDV

The RDV was founded in the year 1999 from the Austrian MRO's and the MRO of Bavaria. The MRO's of Baden-Württemberg and Schleswig-Holstein joined the RDV in the year 2003 and 2008 respectively. Together, the IT-software engineers of the MRO partner's developed the RDV to an innovative and comprehensive IT-solution for the cattle sector. Today, over 20 Million animal data is made available to the 54.000 users of the RDV. Caused by the large number of 2 Million cows in the RDV, the system can be maintained on a low-cost level.

Structure and services of the RDV

The RDV offers different software packages to various users:

- RDV-Classic: common platform for MRO's and breeder associations (BA), enables data recording and processing with different modules:
 - Module Animal: Administration of animal core data, artificial inseminations, calving's, performance data and analysis on animal level
 - Module Farm: Administration of operational farm data and analysis on farm level
 - Module Controlling: Generation and process of control lists for the milk and meat performance testing
 - Module MRO: Administration level for the MRO's; administration of service areas and members
 - Module BA: Administration level for the BA's; administration of service areas and members
 - Module Breeding: Selection of bull dams, optimal mate selection, search of candidates for genomic selection
 - Module Auction: Organization of sales, auctions or shows

- RDV-Farm (RDV4M): Software for dairy farmers for herd management and analysis (Zuchtdata, 2013); all data of the milk and meat performance test together with the health monitoring data are made available online to the dairy keepers. 35 % of the members are currently using this tool, while the number of new users is steadily increasing.
 - Module Animal: Summarizes animal information, e.g. all results of the official milk controls, the artificial inseminations, calving's and veterinary diagnosis, which are clearly structured and displayed. It represents thus an electronic version of the stable register.
 - Module Farm: Display of data from the monthly official milk control to be sorted according to different criteria. The module allows an easy and fast identification of problematic animals, as well as the recording of inseminations. Action and work plans can be generated.

- Module Animal health: This module is divided into several sections, e.g. overview on veterinary diagnoses, udder health, fertility and metabolism. The integration of further sections is scheduled for the future. The section “diagnoses overview” displays all records of the vet’s diagnoses and all observations of the farmers made in the frame of the health monitoring program. The section udder health, fertility and metabolism allow a detailed description of the herd’s status and an exact benchmarking.
- RDV-App: Android and IOS-App for farmers which enables a mobile data collection and access.
- RDV-Vet: Online program for vets allowing an integrated health monitoring of the herd. Analogue to the RDV4M for farmers, this program was developed for veterinaries participating in the health monitoring of dairy farms. Practicing vets use this program to identify suspicious animals and to analyze dairy stock problems, before they aggravate. High importance in the program was given to a clear structure and visualization of the data, as the vets are supervising a larger number of farms.
- RDF-Feed: For partners of the RDV, an online program for the calculation of feed rations is available and is used by farmers and MRO technicians alike. Results of feed analysis are transferred automatically to this program via interface. The feed data base is maintained and regularly up-dated by the administration of the MRO’s and facilitates its use.
- RDV-Optibull: This innovative online-program enables an optimal mate selection and completes therefore the above mentioned RDV services. After the definition of a specific breeding objective by farmer and adviser the optimal mate for each cow is selected, taking genetic defects and inbreeding into account.

Future development of the RDV

The partner organizations of the RDV use and develop the internet portal of the German head quarter for performance testing (DLQ) as interface for external data sources. Additional data is planned to be integrated into the RDV-Farm program (RDV4M) via this portal (e.g. data generated by sensors, pedometers, laboratory analysis, slaughterhouses), to allow further statistical evaluations. Besides, spectral data of the milk analysis are collected and stored. Out of this spectral data, new parameters with high value of information for the herd management will be generated and directly provided to the farmers via the RDV-Farm (RDV4M) program. This will allow faster actions and ease the decision making process for farmers.

Summary

The RDV is a network solution used by milk recording associations (MRO's), farmers, vets, technicians and advisers in the fields of milk and meat performance data recording, cattle breeding, health and farm advice services. Through several software packages and online-services the RDV advanced to an important tool for herd management and cattle breeding. Through the integration of additional data, the RDV will soon be able to provide new parameters for farmers to enhance an easy and rapid decision making. Within the last 10 years, the RDV developed thus a complete IT solution for the cattle sector, not only increasing food safety, but also increasing the efficiency of animal production.

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