DLQ Data Portal

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Abstract

For the automated data exchange the DLQ data portal was developed based on ISOagriNET. Hereby, the data transfer between the data processing centers, farms and industry can be carried out in real-time. The participating partners are able to generate information for an efficient herd management from the relevant data.

Keywords: data communication, ISOagriNET, automatic data exchange

Introduction

In Germany, several regionally acting data processing centers are evaluating the performance testing data and make the processed data available to the milk producers. These data processing centers are members of the German Association for Performance and Quality Testing (DLQ). The well-functioning data exchange between the data processing centers is essential, for example for the failure-free data transfer by a relocation of cattle between the regions. Furthermore, the data is sent to the specific national data processing center for the herd book keeping and the breeding value estimation. In return, the estimated data is made available to the milk producers after a plausibility check.

On the milk producers side a rapid increase of the herd sizes can be observed. This is associated with the constantly rising share in the use of electronic equipment. Beside the personal computer with herd management programs this includes the automatic milking system, the electronic milk quantity measurement and analysis, the pedometer and other sensors. These sensors can deliver important information for the herd management, like rumen pH, body temperature, heat identification, recognition of lameness and many more. The number of available data is increasing constantly.

One problem is that information is developed by different systems from partially different manufacturers and provided in a company-specific format. This situation occurs not only in the stable, but also in the communication with external partners. Thus, the farmer finds himself in a net of different data sender and data receiver while also being data sender and data receiver at the same time. The multitude of data sources creates a flood of interfaces and data which needs to be controlled in order to establish for the herd management early warning systems and recommendations for action.

The resulting difficulty for the milk producers is that constantly new products are offered for the existing technique and technology which mostly use manufacturer specific protocols. Also several communication partners may use different data exchange formats. However, for the farm manager it is important to take care of the production process and not

which data format or interface is used for which tool or partner.

ISOagriNET

The data processing centers of the DLQ members are aiming at an optimized and automated data exchange between each other. The described challenge in the data communication with the milk producers and companies is also considered in the planning for a uniform basis for the standardized data exchange. The idea was to create a platform which is functioning as a mediator between the organizations, the milk producers and their partners, and also the data processing itself.

After intensive and detailed inquiries and including the experiences made a new platform was developed based on the data transmission protocol ISOagriNet. The ISOagriNet protocol is an ISO standard (ISO 17532). This standard continues the success story of ADIS/ADED (ISO 1787 and ISO 1788 1-3) reflected by the million fold data transfer. Via this data portal it is possible to arrange the data exchange between the communication partners on an internationally accepted basis.

The advantage of the used protocols is the existence of functions which allows the automatic communication and also the recourse to a data dictionary which includes the description of the data elements. Thus, they facilitate a combined development and data exchange. Furthermore, scientific investigations on the performance of this communication have been carried out.

DLQ data portal

After numerous implementations of the ISOagriNET in pig farming the DLQ data portal offers a comprehensive application in the field of milk production.

The DLQ data portal presents a platform which enables the exchange of data and information in an automated way with communication in both directions. That means that either a successful data transfer is confirmed or a faulty transmission triggers an immediate reply stating the conflicting issues. Authorisation provided the specific retrieval of several data and information is possible as well as mass data transmission.

Thus, the term “DLQ data portal” does not stand for a platform which provides special actions via the internet browser by an operating user, but for a “silent worker” in the background handling the data communication automatically and efficiently.

One target during the development of the DLQ data portal, which was carried out in cooperation with several milk recording organizations within the DLQ, is to use existing acknowledged standards like the internet protocol (TCP/IP) and the ISOagriNET to be open to varying users and applications. Moreover, future trends in the field of data communication are to be kept in view to ensure investment security. Further considerations already exist.

During this joint development of the so-called “DLQ data portal” it was possible to concentrate development resources and to incorporate a wide spectrum of experiences into this framework. Thus, we achieved an effective and target-orientated process as well as an open structure allowing adjustments of the portal to the individual IT-infrastructure of the interested user. In addition, the replacement of labour-intensive processes for all communication partners should be achieved by the process standardization.

By providing the specific portal clients by DLQ an easy portal integration into the user’s software, for example in herd management programs, is be achieved also on farm level. Many of the currently used communication channels like mailbox, email and other proprietary transmission paths could become redundant with the use of the DLQ data portal and the

implementation of the clients on farm. The data communication is channelled by an extensive circulation among the communication partners.

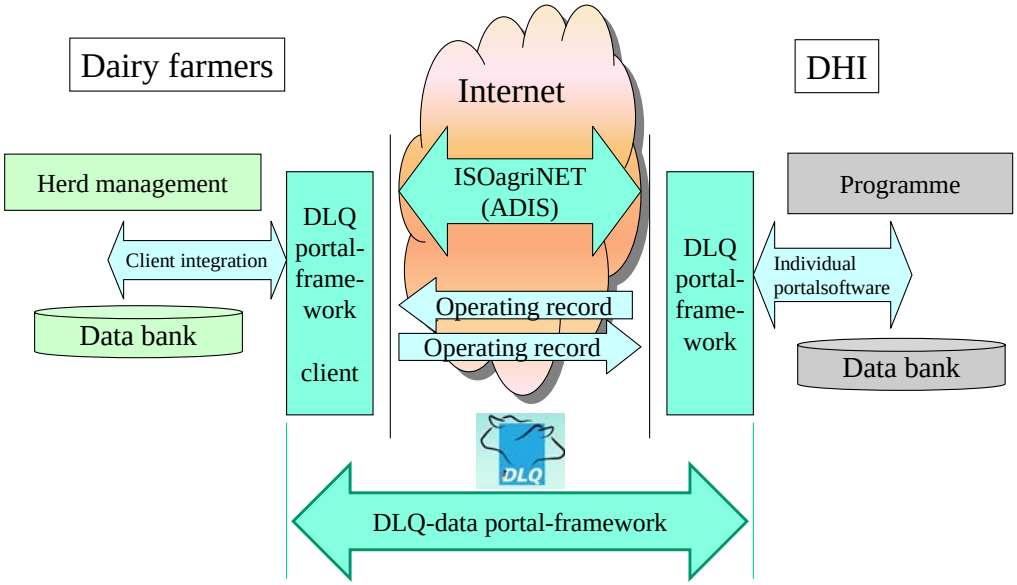

Figure1. Scheme DLQ-data portal-framework client.

Additionally, the practical usability and future security of the ISOagriNET protocol is demonstrated by the DLQ data portal framework. Also, the hope is to provide new impulses to the discussions within international committees.

Application

Currently, there are already data portals in action at milk recording organizations, which were involved in the development of the DLQ data portal framework. Portal servers are used in the milk recording organizations of the federal states Baden-Württemberg and Bavaria for their health monitoring and, also, in the milk recording organization of North Rhine-Westphalia for communication among other things with the portable data acquisition devices and self-developed software KessQuick. A research server based on the DLQ DP framework is to be provided in the near future.

The use of the DLQ data portal is of particular interest in combination with the automatic milking system and the communication with the milk recording organizations and data processing center. Carrying out milk performance tests in automatic milking systems creates special demands on the communication partners, i.e. farm, milk recording organization, and data processing center. This applies especially to the transmitted data volume and the interfaces. With their standardization a homogenous and manufacturer independent high quality data exchange will finally be offered to all agricultural farms. This applies also to supplying data as well as to receiving data on both sides. Thus, also the manufacturer benefit largely, as they do not have to clarify every data exchange individually and labour-intensively with each single communication partner.

Conclusion

A new path in the data communication has been taken with the development of the “DLQ data portal” and the provision of the portal framework by the DLQ. This path has its roots in the

experiences made in last decades made by using of standards like ADIS/ADED in the milk production, the performance testing and the breeding value estimation. The DLQ data portal is an answer to the current requirements on the data communication between the partners in the milk production.