

INTERPLANT INFORMATION MODEL FOR PIG FATTENER IN FOOD CHAINS

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SUMMARY

Extended documentation and self-control obligations also challenge the Farm-level primary production and cause additional work. In order to appropriate information for health and quality management a continuous inter-enterprise data flow and information processing is needed. The article shows how a consistent flow and processing of information can be guaranteed for owners of fattening pigs, by an online based documentation system, supported by analysis of information requirements. In connection with an interplant Data Warehouse the presented model envisions a joint use of information systems for fatteners and their services like veterinarians and advisor services.

Keywords: interplant information system, health and quality management, meat chain information, advisor service

INTRODUCTION

Legal requirements, especially by the EU-hygiene package (178/2002; 852, 853, 854, 882/2004 and 183/2005), as well as quality assurance systems from the private sector (DIN ISO 9000, QS, IKB, etc.), allege documentation and self-control obligations on producers of the food chain. Nevertheless, independently created isolated soft- and hardware solutions allow no optimum use of already digitized data for the quality and health management. Timely management of running processes avoids mistakes at the earliest on all production stages of breeding to trade (PETERSEN et al., 2002). If you look at the tasks of farmers and their advisor services as an element of a socio-technical closed loop system, the person takes the function of the regulator of a control path (PETERSEN, 1985). The area of responsibility the human adopts is controlled on the basis of descriptive, comparative and predicting processes. In pork based production chains the necessary categories of information are to be obtained by interlinking of the independent operating data systems which assure prompt and continuous data flow to the timely management of biological, technical and organizational processes.

MATERIAL AND METHODS

A five-stage model was applied by the integration of an on-line-based documentation system onto an interplant system of information and communication which takes into consideration organizational, technical and professional aspects. The model was modified by SCHULZE

ALTHOFF (2006) and includes the following stages whereas the first two stages are for planning and the following three for modelling and implementation:

1. Analysis of the actual and target information needs and ambition stage from pig fattener, advisor services, feed advisor services and veterinarians
2. Analysis of potential user and user groups and interplant unit of organisation
3. Development of the model, implementation and further developments
4. Reproduction of necessarily data inputs
5. Analysis of the interplant data

The central element here was to evaluate the information needs of different user groups. The data concerning actual and target information needs were collected by expert interviews with system provider, technical and veterinary advisers. For the questioning of 400 fatteners a standardised questionnaire was used. The questionnaire referred to the present state of the documentation and information systems in the stage of fattening as well as the needs and future arrangement of interplant systems. During the questioning period all together 187 questionnaires were send back and 183 were taken in account. In context to advancement of existing structures of information in service organisations, persons responsible in cattle utilization cooperatives, feed manufacturers and veterinary associations gave information. Involved were:

- *Service organizations of the animal mediation* from which it is demanded to deliver homogeny piglets within the agreed time in a defined quality, the same demands on the fatteners in regards to the pigs for the slaughter process.
- *Feed suppliers* who besides the advisor services are obliged to deliver feed in verified quality, given composition and in time.
- *Organisation of advisor services* which require in particular team counselling tailored information exchange between advisors and fatteners (PETERSEN et al., 1999).
- *Authorities and controlling institutions* which secure mutual obligations from the areas of quality assurance, animal, environment and consumer protection.

A product analysis showed the potential of existing software solutions for farmers. The developed model is currently tested upon practical feasibility and validation with the support of two system partners and one farm cooperative.

RESULTS

Demands of livestock owner

The evaluation shows that at present 64% of the interviewee rely on handwritten data documentation, 36% apply self-made software solutions, for example Excel, or rather special software fitted to their needs. Because level programs fulfil legal requirements only partially and therefore applying such methods in quality and health management is limited (PETERSEN et al., 2007). 83% of the interviewees fulfil legally prescribed documentation requirements as for example continuance accounting, by means of paper documentation. The entire daily documentation effort: 43% of the questioned masts estimate max. 5 minutes, 48% require 5–10 minutes and the remaining 9% require more than 10 minutes. With regard to the frequency of the documentation 28% of the interviewees document daily. 35% devote themselves 2–3 times a week to this task, 37% once a week or more seldom. Against the trend of documentation 75% of

the questioned fattener used computer-supported feeding systems, again 83% of the systems are isolated systems. Future demand of interplant information is estimated as very important in the area of feeding, preventive health management and evaluation of carcass. Traceability of the commodity flow as well as binding to existing systems is regarded as important. 44% of the questioned fatteners support a networking of data from offshore and post stored steps of pork production chains, under the condition that these are compatible with existing systems and important interplant information is made available. The decision concerning the way prospective supply of information from the fattening farm will be handled, half of the interviewees see the information handled via e-mail and an online system, the other half persists furthermore on paper or by verbal means.

Demands on service providers

The mentioned experts indicate to extend their offer to specific farm analysis and intercompany comparison in the future. Further more the questioning of the experts proved the following need for action: conception of new evaluation possibilities as well as optimization of the data exchange between the Farm-level operations and own organization; technical realization of interplant information exchange and supply of up till now missing hard-, soft- and orgware; combination of the organizational and technical conversion drafts to the extension of the service offer and the data use. In all three areas the interviewees still see research demand and a considerable investment risk for own developments.

INTERPLANT INFORMATION MODEL

The pilot testing of the presented concept of an online based documentation system in interplant information management sees four user groups: Feed companies, breeding, fattening and slaughterhouses (figure 1).

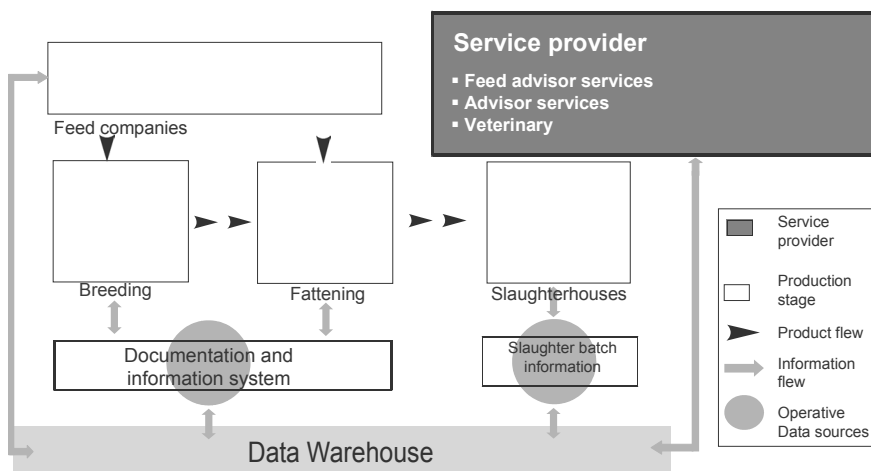


Figure 1. Interplant information model for farmers and their advisors services in meat chains

The model is closer explained only for the user groups pig fatteners and veterinarians. The farmer fulfils by input of specific information from incoming, out coming of the piglets medication and feeding the documentation and self-control obligations. Thereby it concerns a complementary documentation. Through the integration of data sources in the data warehouse digitized data from offshore and post stored steps are already illustrated by integration of surgical data sources in the documentation module. Thereby time-consuming and faulty double inputs are decreased. In addition to the PC version a transportable input device with scanning system or antenna supports the current input, at the same time required information can be called up directly with the working tasks in the stable. Using handwritten stable maps and transferring these onto a PC system is therefore omitted. The medicament document, application document and delivery document (this document is required by each delivery of medicaments in Germany by law) is for example an interplant record which is provided first in the practise software of the veterinarian. The veterinarian can electronically transmit the document by interfaces to the farmer. In the field of medication necessarily information can be documented online by the farmers as well as by the veterinarian. In addition the continuance book will be generated automatically. Data exchange before generating the medicament and application document makes it easier to specify the location and number of attended pigs. Additional entry masks make it possible for the veterinarian to fill in further information about the treatments. These can be used for specific analysis. If the farmer allows providing its veterinarian an insight into its data sets the veterinarian obtained the data concerted to their requirements. With the online platform veterinarian can document their visits, generate intercompany comparison, prepare visits and recognise aberration in an early stage. Entry masks for documentation in context of extended documentation or notification requirements e.g. during crises like food and mouth diseases support farmers and veterinarians by their business.

CONCLUSION

With the continuous spreading of the Internet on farms the need for on-line based documentation systems in connection with new DV-supported advisor services for farmer grows. The integration of such a communication potential in an interplant practised Data Warehouse system also assumes the reorganization of a number of service processes. Next development steps should be implement isolated software solutions into such interplant management system.

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