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Input for Documentation in Pig Fattening

Quality management and documentation, because of European and German legislation and trade arrangements for food and feed, have had fundamental effects on farms. Especially the influences on working time and costs are decisive in the acceptance of these topics in agriculture. Based on data from a pig fattening farm, these problems are analysed.

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Keywords

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In the last years quality assurance and quality management systems have become more and more important in agriculture business. Especially in the marketing orientated areas like fruit, potatoes and meat these systems are very popular. For arable farming and dairy farming the development is not so distinctive at the moment [1, 2].

The main target of the participating farms is the coverage of their marketing possibilities, which explains why in the marketing orientated areas quality systems are more popular. At the moment it can be observed that in times with only low supply, goods without certificate are demanded for the same price as goods with certificate. But in long-term view the farms expect better and more secure marketing possibilities with quality systems.

Material and Method

To analyse the aspects of working time and costs, which are heavyly discussed within the scope of quality management systems, these items are examined on a Hessian pig fattening farm. The farm owns 1700 places, 1200 in a new building and 500 in older buildings. It is a family farm with two permanent workers and two persons working as temporary staff in the peak season. Further the farm cultivates 120 ha arable land, which is not considered in the analyses.

Since 2005 the farm takes part in QS pig and Certified Quality Hesse (Geprüfte-Qualität-Hessen; GQ Hessen). Decisive for the participation was the statement of the slaughterhouse owner that in long-term view only QS pigs will be processed and the markdown of 0.02 €/kg for non QS goods.

The market prices of the first half of the year 2007 are the price basis for the cost accounting. A hourly wage of 15.65 € is estimated.

Table 1: Working time spent on quality management

Activity	Working time requirement (hours per week)
Bestandsregister Schwein pig inventory register	0,5
Wareneingangskontrolle incoming goods inspection	0,3
Futtermischprotokolle feed journal	0,3
Lagerprotokolle storage journal	0,2
Bestandsbuch Medikamente drug journal	0,2
Reinigungs-/ Hygieneprotokoll cleaning journal	0,5
Datenerfassung/-übertrag collection and communication of data	2
Checkliste zur Eigenkontrolle self checking	1,5
Fortbildung advanced training	1
Sonstiges miscellaneous	0,1
Summe total	**6,6**

Working time

The highest surplus load for the required documentation and traceability measures in fattening pig production is caused by the increased work load. *Table 1* shows that with two hours per week most time is spent for the data recording and the transmission into the existing documentation system. Most of the working time requirements are a result form the fact that the single data systems (feeding, livestock management, climate control…) are not interlinked with each other and therefore the respective data cannot be connected automatically. Further time-consuming working steps are the handling of the checklist for self control (1.5 hours per week) and time for further training courses (1 hour per week). It should be considered that the time is not required weekly but in blocks during larger periods. The required time of two hours for the documentation of the flows of merchandise covers also the requirements of the EU directives for food. As in the directives no special requirements about the kind of documentation are made, a simple filing of receipts would be enough. But in court the fixed procedures of the quality systems might have more expressiveness [3].

Costs for quality

Besides the working costs the costs for quality management are divided into costs for QM-construction costs and costs for organisation. In this analysis the construction costs comprise cost pools, which exceed the existing legal requirements. The QM-construction costs are the result of additional requirements like emergency and night lighting, the ventilation alert, activity possibilities for pigs and hygiene gate. Together with depreciation, interest, repairs and maintenance costs of about 1022 € per year arise in this area.

The organisation costs comprise special costs for hygiene (349.63 € per year), certification (200 € per year) additional check ups for feed and salmonella (399.43 € per year) and for consultation (820 € per year) which are associated with the participation in a quality system.

Table 2: Quality costs

	€ pro Jahr € per jear	€ pro Mastschwein € per fattening pig
Nutzen / benefits		
Verhinderter Preisabschlag avert markdown	9687,74	1,92
Gewinn aus Leistungssteigerungen profit of output increase	11466,94	2,27
Kosten / costs		
Arbeitskosten labour costs	5371,08	1,06
Baukosten building costs	1022,15	0,20
Organisationskosten organizing costs	1769,06	0,35
Gewinn / profit	**12992,39**	**2,57**

Cost-benefit-analysis

The cost-benefit analysis (*Table 2*) shows that with the participation in quality systems no surcharge for the sold goods can be achieved on the examined farm.

A markdown of 0.02 € per kilogram slaughter weight for non QS-certificated farms is rather avoided. With an average slaughter weight of 96 kilogram and about 5045.7 pigs sold per year (3.06 rotations per year / 3% losses), a loss of income of about 9687.74 € would be the consequence.

A clear advantage for the examined farm is the better knowledge of the production process due to the quality control. With a consistent implementation of self-checking and the associated hygienic measures, like it is fixed in the quality management systems, the average fatting performance can be increased from a daily weight gain of formerly 738 grams up to 789 grams. The lost rate could be reduced by 0.5 % to three of hundred and the feed conversion could be increased. Therefore the annual turn over of the farm increases by 348.85 animals on the same stable size. As the fixed costs are the same, an additional proceed of 11 466.94 € is generated.

By comparing the analysed costs for quality with the above mentioned monetary benefit from documentation and traceability a profit gain of 12 992.37 € per year or 2.57 € per sold fatting pig can be achieved.

But one has to keep in mind that 9687.72 € of this amount are only the avoidance of a price reduction without a monetary compensation, which did not exist in this way before the introduction of quality assurance systems.

Anyhow from an economic perspective the participation in a QS-System can be justified without regard of this value. In this case the benefit would only amount 3304.65 € per year or 0.65 € per fatting pig but would still be positive.

Conclusion

For the farmers which have to adapt step by step to the new challenges additional inputs are the result. The main part is caused by the additional working time needed for documentation and traceability. Missing data transfer protocols and a huge variety of quality programs raise the amount of time required unnecessarily. Often data are recorded double and have to be transferred by hand from one to another form. At this point a standardized data language for livestock breeding, like for example agroXML for arable farming, could lead to enormous time and cost savings [4]. Combined with an automatic data recording additional saving potentials are given.

A further possibility of optimisation is the harmonization of the existing quality systems. A first attempt is e.g. GQSHE [5], which combines as QM-Helping aid different legal regulations and specifications of the trade organisations on a common list. Therewith repeated recordings in documentation and self-checking can be avoided. But a fusion of the single trade standards to one can rather not be expected.

Besides the increase of working time further expenses result from the control costs and participation fees for the quality programs. Depending on the condition of the existing farm buildings further investments for required reconstructions could arise.

All these expenditures are faced by revenues caused by an increased efficiency of the production due to a better knowledge of the process. The provision of data sets with economic relevance from automatic recording systems would support this effect. By the increased benefit achieved the additional costs could be compensated. Furthermore with the participation in trade agreements the connections to the slaughterhouses can be strengthened.

Literature

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