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A quality management system for dairy farms

Analysis of the influence of the constructional, technical and organizational aspects

The aspect of quality management is becoming more and more important in dairy husbandry. From the respective regulations and trade agreements, guidelines are being developed, which have a direct influence on the process engineering of the farms. By analyzing a quality management system in practice, the constructional, technical and organizational effects are examined and assessed. It can be shown that extensive changes are especially necessary for documentation.

Although the milk price is rising at the moment, on a long time basis the dairy farmers will have to deal with problems on the milk market. Because of the sometimes only low payments for milk only a few farms are able to work cost-covering. A forward-looking development is difficult to realize under these conditions. The main focus of the farmers is therefore the medium-term economic security of their farm.

Despite this situation other mid- and long-term developments on the milk market should not be ignored. Based on the trade and food processing industry more and more aspects of quality management are pushed into the agricultural production. Through this farmers are confronted with a world of thought, which is influenced from the other sectors. An example is the understanding of the term "quality". A lot of farmers understand the request to take part on a quality management system as a global accusation that their product is bad. They understand quality as product quality. But in the food industry this term has developed like e.g. in the automobile industry. For them quality is the error-free production-process, since a good product can only be produced with a good process.

With the directive concerning traceability and the EU hygiene package also the legislator demands a system of quality management for the whole food chain. Here the legislator goes away from the exclusive control by the government, but requests a strict self control of the food sector by independent certification systems between trade, processing industry and producer.

Quality management systems for milk

The dairy sector is in the beginnings of the development of a special quality management system. Other agricultural sectors e.g. vegetables, potatoes and fattening pigs have already developed their systems further. Well-known is at this point ot time only QM-Milk which - on closer look - only fulfills the legal minimum requirements. As a possibility for a modern certification system in the dairy sector the referring modules within GlobalGAP could serve. In principle it can be said that the different quality management systems of this level do not differ fundamentally in their requirements.

Materials and Methods

On two dairy farms GlobalGAP test audits have been performed on basis of modul 1 (entire farm), 5 (entire livestock) and 7 (dairy cows). 199 audit points have been analyzed per farm. The results are shown in table 1. Critical must criteria have to be fulfilled 100 percent. Non critical must criteria have to be fulfilled 90 percent and the recommendations serve as impulse for the further development of the quality management system of the farm.

Table 1: Results of the test audit

	Farm K									**Ø**
	Major Must			*Minor Must*			*Recommendation*			
Modul	1	5	7	1	5	7	1	5	7	
fulfilled	0.0%	60.3%	64.0%	40.7%	61.5%	30.4%	47.6%	71.4%	20.0%	49.7%
not fulfilled	100.0%	20.7%	36.0%	25.9%	30.8%	60.9%	47.6%	14.3%	60.0%	36.2%
not-applicable	-	19.0%	0.0%	33.3%	7.7%	8.7%	4.8%	14.3%	20.0%	14.1%
	Farm Q									**Ø**
	Major Must			*Minor Must*			*Recommendation*			
Modul	1	5	7	1	5	7	1	5	7	
fulfilled	11.1%	72.4%	92.0%	34.6%	80.0%	83.3%	33.3%	57.1%	77.8%	63.6%
not fulfilled	88.9%	12.1%	8.0%	26.9%	13.3%	16.7%	52.4%	21.4%	11.1%	22.6%
not-applicable	-	15.5%	0.0%	38.5%	6.7%	0.0%	14.3%	21.4%	11.1%	13.8%

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Keywords

Quality management system, dairy cattle, barn construction

It could be shown that none of the two farms was currently able to pass the audit. Between 20 and 35 per cent of the audit points have not been fulfilled. Similar examinations in pig keeping have shown a nonperformance of 15 to 20 per cent.

Especially the critical areas of the farms, which have been determined with the examination, have then been compared with other dairy farms.

Buildings

Generally it can be said that modern dairy cow stables show in the direct animal areas only small deviations from the QM-system requirements. The deviations are more in the border area of the buildings.

Often there is no separation between milk tank, milking room and milking parlour ,e.g. with lockable doors to achieve that the individual persons (e.g. driver of the milk truck have only access to their area.

Furthermore the storage of cleaning agents is often problematic as the safeguarding and sorting does not fulfill the requirements. Also only insufficient facilities for the hygiene of the employers exist close the milking parlour.

In the area of feed storage there are deficiencies concerning protection against contamination and vermin.

Technology

In the technical area audit deviations were located in the cleaning processes of transport vehicles for feed. The problem is not that the vehicles were not cleaned at all, but in the planning and definition of an orderly cleaning routine. Especially on parts which are difficult to access dirt can accumulate.

Partially it can be noticed that the machines have no measuring devices or the devices are only hard to access. These are simple sensors like temperature sensors on boilers or elapsed hour counters on a milking machine. Therefore it is difficult to document the appropriate data. Also the stable lighting is not protected against damage everywhere so that slivers can fall in the feed e.g.

Organization

Most audit deviations can be found in the area of organization and documentation. In principle a lot of requirements of the QM-system are accomplished, but without a defined working procedure and without documentation of the activity. Therefore after the event, e.g. in the case of damage no documents exist about the fixed procedure or the direct realization.

Only a sporadic annually self-control is carried out on the farms. Even if hired workers are employed on the farm in most times no complete health and safety concept (first-aid-box, telephone list, protection measurements…) exist for the employees.

For single process steps like cleaning measures, management of breakdowns in the area of milk, feed or water or management of pharmaceuticals often no written working procedures or employee trainings exist.

Documentation is a big problem in general. Even for areas in which the process steps are regular, the audit requirements are not met since the work is not documented. Here sometimes simple items like control of the cleaning temperature, date of servicing for the milking cluster, cleaning of the cubicles or kind of cleaning agent for the milking machine are not documented.

Costs and proceeds

Currently the market for certification of dairy farms is in its initial stages. A market analysis has shown that depending on the type of certificate, scope of certification and structure of the audit, costs between 590 and 910 € without value-added tax for a dairy farm with 200 cows and arable farming can be assumed..

The opposite are the proceeds. Experiences from arable farms, on which quality management systems like GlobalGAP for potatoes or QS for fruit and vegetables are already more established, show that a higher produce of sales hardly ever exists. Nevertheless a quality management system pays in most cases. One aspect, which is often mentioned, is the risk minimizing for government controls like cross-compliance. An item, which comes most farmers in mind only in the course of time, is the cost reduction caused by mistakes avoided, which have been revealed by the more intensive reflection of the production process within the scope of quality management.

Conclusion

In summary it can be said that the introduction of quality management systems for dairy farms should be no fundamental problem for modern farms. The biggest difficulties should be found in the area of management.

Here considerations for the areas of employee, emergency and risk management with adequate working procedures are necessary.

An important item is the implementation of a documentation system, which are only partly existing at the moment. Therefore the development of an automatic documentation system should be accelerated to avoid an additional work load for the farm manager. Problems with data structure and net working of the single devices exist which are already known from the area of arable farming. First approaches of documentation systems for livestock husbandry have been realized with IT FoodTrace and agroXML [1, 2].

One of the biggest problems might be to convince the farmers of the advantages of a quality management system.

Literature

Books are marked by •

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