

**FACTORS AFFECTING DECISIONS RELATED  
TO THE IMPLEMENTATION OF QUALITY  
MANAGEMENT SYSTEMS AND THEIR RESULTS  
IN THE OPINION OF DAIRY INDUSTRY COMPANIES**

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**Abstract.** It present in article factors affecting decisions related to the implementation of quality management systems and positive and negative effects of their functioning.

**Key words:** the quality management systems, dairy manufacturers, certification, HACCP

**INTRODUCTION**

In order to cope with greater customers' demands and also with domestic and European competition, dairy companies are forced to take special care of quality during the whole process of production. Nowadays quality is perceived as a main factor, which guarantees companies to remain on the agricultural and food products market. Achieving the demanded quality is not possible today without implementation of quality management system in the company, amongst which the key role in local companies play quality assurance and HACCP systems. Amongst them the key role in domestic companies have quality assurance system and HACCP system.

**RESEARCH METHODOLOGY**

Questionnaire investigation concerning quality management system according to PN-EN ISO 9001:2001 standard and HACCP system was conducted amongst dairy

manufacturers (EKD 15.5) whose production plants were located in Wielkopolska region and who were employing over 9 employees. The data obtained from GUS indicated that in the year 2006 there were 130 such companies. The questionnaires were sent to all of them. 20 questionnaires were sent back because of invalid head office address, with the note "address unknown". Respondents sent back 40 filled questionnaires, which gives representative sample of 36.36% of all dairy companies in the Wielkopolska region.

## **PREREQUISITES OF IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS**

Implementation of quality management system is a more and more popular and efficient method used to achieve success on the market. Because these systems are not obligatory, important motives for implementation of them are: the will to increase market share, increase of export and aspiration to maintain the competitive position. Implementation of quality management system can also increase the efficiency of work, because the company defines targets and scope of responsibilities for each employee. It is also possible to reduce costs, not only by increasing the productivity, but also by easier identification of products or services defects. In relation to this the process of improvement can be launched, which results in elimination of waste, redundant work and also lower number of complaints [Penc 1999].

Amongst investigated companies 27.5% have declared that they have implemented a quality management system. Furthermore 10% are implementing the system and 40% respondents have declared the will to implement this system in the future. Significant percentage of the questioned companies (22.5%) have declared that they are not implementing the quality management system and do not have the will to do so in the future.

The questioned companies gave various prerequisites of implementation of quality management system, from which the most recurrent were improvement of company functioning (93% of indications), fulfilment of customers requirements and expectations (93% of indications), increase in quality of products (86% of indications) and increase in the competitiveness of the company (86% of indications) (Fig. 1).

The main barrier in the implementation and certification of QMS is high cost related with this kind of project. Especially small and medium size companies have problems to generate extra financial resources, which could be allocated for this purpose. The questioned companies, apart from own resources, rest on EU resources (53% of indications). For the questioned companies the key costs related with the implementation of QMS are costs of audits, training, consultations and certification. Companies often perceive quality management as necessary in order to maintain competitive position, only few appreciates the possibility to reduce internal costs of low quality. There are more and more companies which have effectively implemented the system and noticed reduction in costs related with bad quality. If we improve particular elements of productive processes or service processes, we will simultaneously decrease the level of nonconformities, which contribute to decrease of costs related with bad quality. Of course the maintenance of system, training and development generates costs, but these expenditures are often lower than the benefits of implemented QMS.

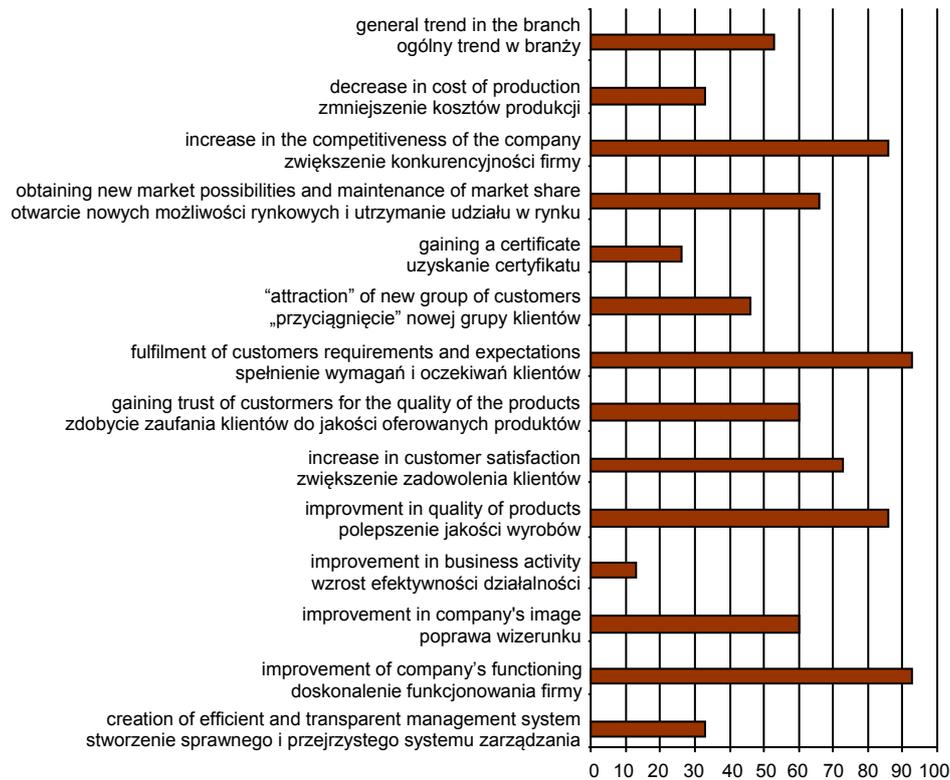


Fig. 1. Prerequisites of implementation of the QMS in the companies which are during the process of implementation and which have already implemented the QMS (%)

Source: own research.

Rys. 1. Przesłanki decydujące o wdrożeniu SZJ wśród firm wdrażających i mających wdrożony SZJ (%)

Źródło: badania własne.

## THE EFFECTS OF QMS IMPLEMENTATION IN ASSESSMENT OF RESPONDENTS

Dairy companies indicated the positive effects related with the implementation of QMS (Fig. 2). The results confirm some of the prerequisites, which motivated the companies to implement QMS, amongst others 66% of the respondents indicated obtaining new market possibilities and maintenance of market share. 36% of respondents confirmed achieving this positive result.

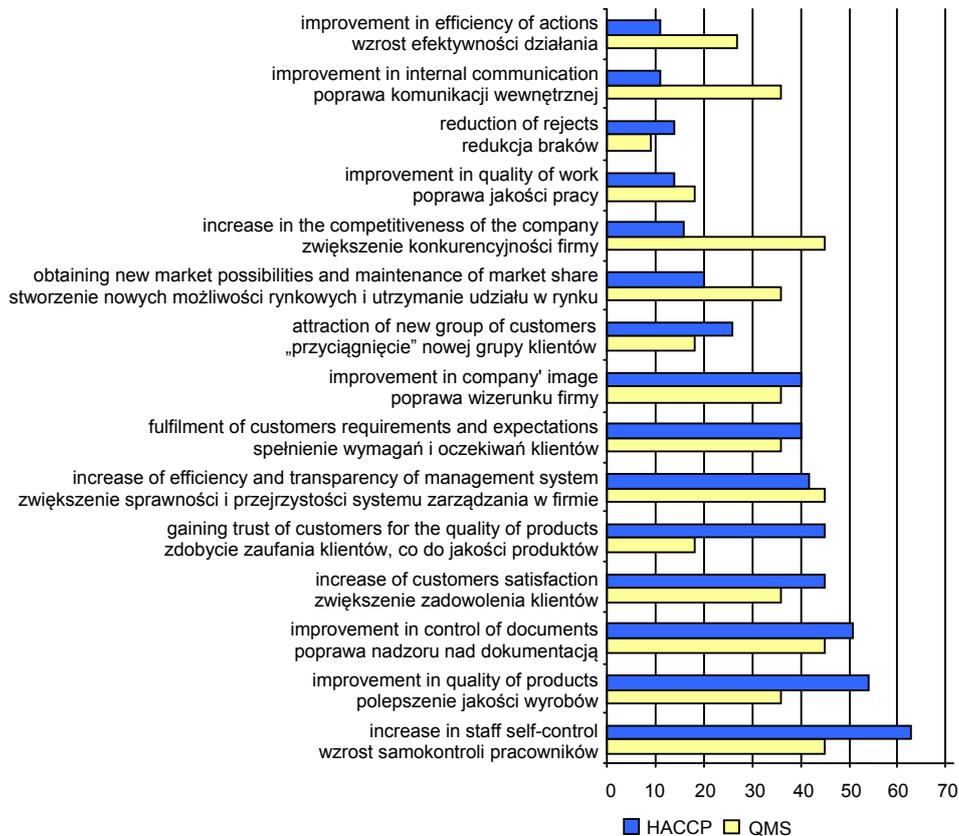


Fig. 2. Positive effects of implementation of QMS and HACCP system in assessment of companies (%)

Source: own research.

Rys. 2. Pozytywne skutki wdrożenia SZJ i systemu HACCP w ocenie przedsiębiorstw (%)

Źródło: badania własne.

Generally indicated benefit resulting from the use of QMD is improvement of company functioning, mostly in the scope of management system, increase in employee awareness and setting order in the documentation. A significant fraction of questioned companies noticed a positive change in their image, which is reflected in behaviour of the customers, who express their product satisfaction and also feel, that the company customized in a greater degree to their requirements than before implementation of the system. As a consequence some of the companies were able to attract new group of consumers, thanks to which these companies could sustain their competitive position and the market share. This system contributed, in questioned organisations, to improvement of the quality of products, improvement of quality of work through, for example, improvement in internal communication (36% of indications made by companies with implemented QMS), as well as improvement in company competitiveness (45% of indications).

Some of the questioned companies noticed also negative effects of QMS implementation. The most often indicated inconvenience was the increase of bureaucracy (63%), increase of unit costs (45%) and also decrease in efficiency of work (27%). Indicated negative effects result from the requirements of ISO 9001 standard, which oblige the company to establish certain procedures and maintain records to provide evidence of conducted operations. Before implementation the companies did not have to document certain actions. That is why after implementation of QMS they notice a significant increase in bureaucracy. But the question is – if owing to all of these records the company is able to fulfil the customers requirements, achieve repetitive quality of products and in case of nonconformity is able to identify the products and call them of from the market quickly and efficiently, is not this “apparent” bureaucracy an advantage?

### OBLIGATORY IMPLEMENTATION OF HACCP SYSTEM

HACCP system (Hazard Analysis and Critical Control Point) is a method used to assure food safety. The aim of this system is to prevent food from health hazards before they appear. This system puts pressure on monitoring of production process together with its surrounding environment, that is infrastructure, suppliers and so on. Generally there are many requirements which must be fulfilled and actions which must be carried out at all levels of production and distribution of food and forage, in order to assure food safety (Figure 3).

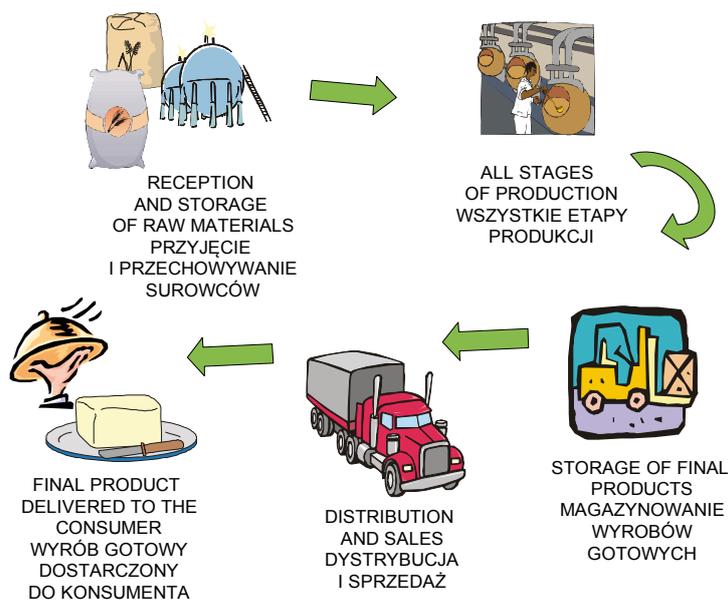


Fig. 3. The scope of HACCP system

Source: own research.

Rys. 3. Zakres funkcjonowania systemu HACCP

Źródło: badania własne.

Food safety is the notion that has two aspects:

- is a feature of food itself – means lack of health hazards in it;
- is related with the process of production/distribution of food – certain stages of this process and actions, which must be carried out by the producer in order to assure safety of production/distribution and through this achieving the safety of consumers.

Food safety should be a matter of concern for all companies taking part in its production and distribution and also for legislative institutions and bodies.

Technological and sanitary state of dairy industry in Poland is satisfactory. Most companies have permission to sell products to EU. In July 2003, according to data of Main Veterinary Inspection only 48 production plants fulfilled the requirements of EU. Assembly lines, energetic installations and environment protection installations were systematically modernized. These investments were supported by EU resources (SAPARD and SPO). Within framework of SAPARD there were 324 contracts signed for subsidy of over 410 million PLN to investments of overall value of 990 million PLN [Pietrzak and Szajner 2006]. Over 80% of investments were related to adjusting to veterinary standards. Now the number of production plants, which fulfil the sanitary and veterinary requirements of EU is 245 [Pietrzak and Szajner 2006].

The dairy industry companies in the scope of hygiene are obliged to comply with the Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs and also to the requirements of Annex II and Annex III Section 9 of Regulation (EC) No 853/2004 of the European Parliament and of the Council stating detailed regulations for hygiene in relation to food of animal origin. Requirements for microbiological safety are in Commission Regulation (EC) No 2073/2005 on microbiological criteria for foodstuffs from 15 November 2005.

Because of the obligatory use of HACCP system 87.5% of questioned companies (35 companies) confirmed having it implemented. Remaining 5 companies declared being during the process of implementation. Amongst the questioned companies 60% declared that the implemented HACCP system is not integrated with other system, 22.5% of respondents indicated integration with QMS, and 17.5% with OHS system.

Implementation of HACCP system, like implementation of QMS according to ISO 9001, is related with the need to engage substantial financial resources of the company. 62.5% of questioned companies used their own resources, but as external resources some of the companies indicated:

- subsidies from EU – 27.5%,
- bank loans – 17.5%,
- government subsidies programs – 7.5%.

After implementation of the system the company still has to bear costs, this time related to the functioning of the system. These are mainly the costs of improving the quality of products, repairs, modernization of infrastructure, audits, training, materials, costs related with remuneration for system coordinator and consultants.

## **THE EFFECTS OF HACCP SYSTEM IMPLEMENTATION IN ASSESSMENT OF RESPONDENTS**

Because of the obligatory use of HACCP system the questionnaire did not contain question about prerequisites of its implementation. The respondents stated, that the positive effects of HACCP system implementation are mostly: increase in self-control of employees (63% of indications), increase in quality of products and improvement in documentation control (51% of indications) (Fig. 2). In case of negative effects of HACCP system implementation the companies emphasized two aspects: increase of bureaucracy (68%), increase of unit cost (42%).

On the basis of conducted research it can be noticed, that in comparison with QMS the respondents outline more benefits resulting from implementation of HACCP system. Within the framework of positive effects of the implementation of QMS according to ISO 9001 in assessment of dairy companies gives percentage advantage comparing to HACCP system in only 5 aspects:

- improvement in efficiency of actions,
- improvement in internal communication,
- increase in the competitiveness,
- obtaining new market possibilities and maintenance of market share,
- increase of efficiency and transparency of management system.

The remaining indications within the positive effects, which result from implementation of HACCP system give great percentage advantage in comparison to QMS (Fig. 2).

## **QMS AND HACCP SYSTEM IMPLEMENTATION DIFFICULTIES**

The process of implementation of management systems in companies encounters often difficulties resulting from the system guidelines or from the production personnel. In case of implementation of HACCP system there can be a great difficulty to adjust the infrastructure to GMP/GHP requirements. Assuring adequate conditions in that field guarantees efficiency of the system. Bureaucracy and difficulties to change mentality of staff (60%) were the most difficult for questioned companies during implementation of QMS. In case of HACCP system besides the above difficulties (bureaucracy – 50% of indications, mentality of staff – 55% of indications) large percentage of indications concerned difficulties with high adaptation costs (53%). The data analysis shows that the process of implementation of HACCP system was the longest – 29% of questioned companies indicated that it took 9 to 12 months. The same percentage declared it took more than 12 months. In case of implementing QMS – the process of implementation lasted from 6 to 9 months (45% of indications).

Staff training sessions play a significant role during implementation of QMS or HACCP system as well as during its functioning. The trainings for staff are conducted to remind them about the rules which are obligatory in the company, for example GMP/GHP, procedures and how they commit to the improvement of QMS/HACCP system. It is very important to set the right frequency of training sessions. In management systems, especially in HACCP, the most difficult thing is to change the mentality of staff (which is confirmed by the above research results), their habits and their con-

duct not always consistent with the requirements of GMP/GHP. Amongst the questioned companies as many as 57% of respondents declared carrying out training session few times a year, but training for staff conducted once in a year was indicated by 91% of questioned companies. In most of cases the training sessions are conducted by the system coordinator (60%). The companies usually send the system coordinator for external trainings, where concrete knowledge can be gained and then passed on to the rest of employees. However it cannot be forgotten that it is easier for external trainers, such as consultancy and certification bodies, to pass information to the production personnel and than it is easier to enforce compliance with certain procedures.

## RECAPITULATION

Contemporary companies function in more and more complex and dynamic surrounding environment. The rate of changes in technology of production is accelerating, new international markets are opening and customers requirements (mostly qualitative) are growing. It puts the management of many polish companies in new situation, in which they must verify so far applied methods of management. The quality of products, which is a necessary condition for efficient competition on the market, should be the priority of undertaken actions. Therefore QMS and HACCP system are necessary to achieve the demanded level of quality and food safety.

Most of the questioned organizations indicated, that the main reason for the implementation of QMS was improvement in functioning of the company, fulfilment of requirements and expectations of the customers, improvement in quality of products and increase in competitiveness of the company. Partially these prerequisites are reflected in the results of implementation, for example the competitiveness of the companies increased, the efficiency and transparency of management system increased and also the documentation control got better.

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The conducted research showed that Polish diary industry companies have in satisfactory manner adjusted to the obligation of implementation of HACCP system and moderate interest in implementing quality management system, which use is not obligatory. Despite the positive effects of implementation of QMS, the costs of implementation and certification are so high, that they become an insurmountable barrier.

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## CZYNNIKI WPLYWAJĄCE NA DECYZJE ZWIĄZANE Z WDRAŻANIEM SYSTEMÓW ZARZĄDZANIA JAKOŚCIĄ ORAZ ICH SKUTKI W OCENIE PRZEDSIĘBIORSTW PRZEMYSŁU MLECZARSKIEGO

**Streszczenie.** Obecnie jakość jest postrzegana jako czynnik podstawowy, gwarantujący utrzymanie się na rynku przedsiębiorstw rolno-spożywczych. Osiągnięcie pożądanej jakości nie jest dzisiaj możliwe bez wdrożenia systemów zarządzania jakością, spośród których największą rolę w przedsiębiorstwach rodzimych odgrywa system zarządzania jakością oraz system HACCP. Badania ankietowe dotyczące systemu zarządzania jakością według normy PN-EN ISO 9001:2001 oraz systemu HACCP były przeprowadzone wśród producentów wyrobów mleczarskich (EKD 15.5), mających swoje zakłady na terenie Wielkopolski i zatrudniających powyżej 9 pracowników. Badania wykazały dostosowanie się polskich przedsiębiorstw sektora mleczarskiego w zadowalający sposób do obowiązku wdrożenia systemu HACCP oraz umiarkowane zainteresowanie systemem zarządzania jakością, którego stosowanie nie jest obligatoryjne. Pomimo odnotowywanych efektów pozytywnych wśród jednostek, które posiadają SZJ, koszty wdrażania i certyfikowania są na tyle wysokie, że dla wielu przedsiębiorstw stanowią one barierę nie do pokonania.

**Słowa kluczowe:** system zarządzania jakością, przemysł mleczarski, certyfikacja, HACCP

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