

# QUALITY MANAGEMENT: SECTORAL ASPECT УПРАВЛІННЯ ЯКІСТЮ: ГАЛУЗЕВИЙ АСПЕКТ



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In modern conditions of economy development the role of product's quality significantly increases, that is why the task of management by quality of commercial enterprises expands, acquire new values. Requirements to the quality of dairy products in the developed countries of the world are constantly growing, with emphasis on its ecological characteristics. As for the Ukrainian market, consumers are often faced with low quality and falsified dairy products that not only negatively affect its taste properties and is connected with a risk for the health of consumers. Economic activity in the market of milk products faces such problems as instability of economic situation, changes in internal and foreign policy of the State, as a result it leads to the low purchasing power of the population, lack of support of dairy enterprises by raw materials. Thus, the relevance of the fixed range of problems, their theoretical and practical significance, dynamism of modern economic changes and need to manage by them has led to the choice of the theme of the study.

Significant contribution to the solution of this problem has been made by famous researchers: Dragan O.I., Deineka L.V., Zainckovskij A.O., Marmul L.O., Mostens'ka T. L., Sabluk, P. T., Sychevsky M.P., Shapoval M.I., Sheludko E.I. and others. However, the question of implementation of European standards of quality upon food and impact of this process on the development of the food industry remain urgent today.

**Aim of research** is the grounding of main directions of the implementation of European standards of quality for the sake of competitiveness of national products and development of concrete proposals as for management by quality at the enterprises of dairy industry in Ukraine.

The concept of quality in the wide sense is a universal philosophical category, which covers as the phenomena of the external world, as the human consciousness. It is believed that the ancient Greek philosopher and scientist Aristotle (384 – 322 BC) was the first who analyzed the category of quality. He identified it as «type difference» of one entity from another, which belongs to the same species. Aristotle pointed out the variability of quality as a change of status of things, their ability to transform into its opposite.

To the category of product quality appeal while selecting items to meet both industrial and individual needs, production planning and evaluation of its results, determine of its complexity and efficiency, organization of labour, creation of new products.

There are many definitions of the concept of “products quality”, however, in our opinion, among them the best is definition of the European Organization of quality control: “Products is considered to be of good quality if at minimal expenditures throughout all its life-cycle it maximally promotes health and happiness for people who are attracted to its design and recovery with minimum expenditures for energy and other resources and at admissible actions upon environment and society” [4].

This statement clearly defines relationship between problems of product quality

and other vital human issues – saving the environment, rational use of natural resources, impact of the results of economic activity on the living conditions of people.

In order to streamline the terminology in the field of quality of the International Organization in Standardization (ISO), ISO standard 8402: 1994 was developed. In future this standard was finalized, included to the standard ISO 9000: 2000, adopted in Ukraine as DSTU ISO 9001-2001. Let's look upon the basic terms of quality, which are covered in this standard.

Quality is the level to which a set of characteristics meet the requirements. Requirement – is the formed needs or expectations that are clear to everybody or compulsory.

There are different classes of characteristics:

- ☐ physical (mechanical, electrical, biological, chemical);
- ☐ organoleptic (connected with human bodies of sense);
- ☐ ethical (politeness, honesty, truthfulness);
- ☐ time (punctuality, uptime, availability);
- ☐ ergonomic (characteristics of physiological or connected with human safety);
- ☐ functional.

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According to the scheme, shown in Figure 1, there must be complex, systematic approach to the management by all these activities. The famous American expert Edward Deming in the 1950s wrote that 85% of solution depends not on people, but on the quality management system.

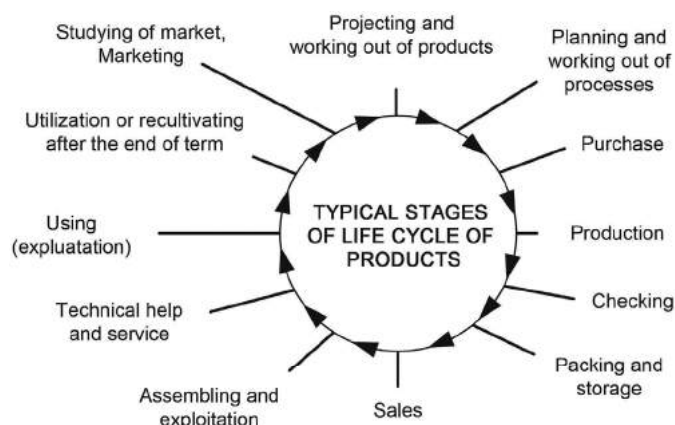
Managing by quality they understand as impact on the production process in order to ensure the required quality of products, i.e. normative and metrological assurance of the quality management system, evaluation of technical level of quality, conformity of correlation between technical standards of product quality and quality systems and their diligence [4]. Such understanding of management contains three items: the subject (who is affected), the object of management (the direction of impact) and the mechanism of impact.

Like any process of management, management by quality is carried out by the

*In the article it is proved that dairy industry takes one of the first places in the structure of food industry of Ukraine and it is the leading branch in solving the food problem of the country. It is grounded the basic directions of implementation of European standards for the sake of rising the competitiveness of national products and it is composed the proposals as for the management by quality at the enterprises of dairy industry in Ukraine.*

*У статті доводиться, що молочна галузь є однією з провідних у харчовій промисловості України, водночас вона є такою, що забезпечує вирішення харчових проблем країни. Обґрунтовуються основні напрямки запровадження європейських стандартів, що мають на меті підвищення конкурентоспроможності українських продуктів, а також запропоновано підходи до управління якістю на молочних підприємствах України.*

Fig. 1. Circle of quality stages of life cycle of products



implementation of managerial functions. Various sources give following list of functions: planning, motivation, organization, control, information, decision-making and implementation of measures.

While managing by quality, general functions of management are defined and acquire a somewhat broader meaning:

- quality policy;
- planning of quality;
- training and motivation of staff;
- organization of work with quality;
- quality control;
- information about the quality of products, needs of the market and of scientific and technical progress;
- development of the necessary measures;
- decision-making by the head of enterprise;
- realization of measures;
- interaction with external environment (quality issues with suppliers, customers, public authorities).

All functions are closely related and their consistent implementation is a process of quality management. Food safety is one of the main elements of the well-being of the population. This process involved a wide range of subjects, including the producers of raw materials, processing and packaging businesses, traders, official food safety inspection services and consumers. The official control service plays a key role and has significant influence on the organization of the work of other subjects.

The dairy industry takes one of the first places in the structure of food industry of Ukraine and is the leading element in solving the food problem of the country. Milk as one of the main basic food products plays an important part of a healthy diet.

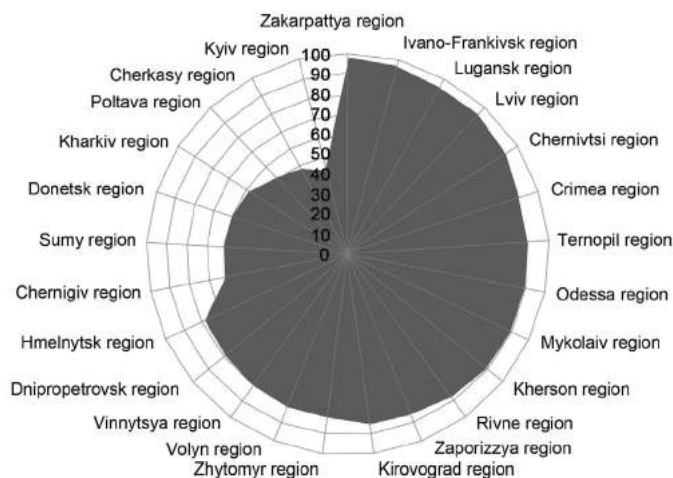
Today, this industry is characterized by sharp contrasts - some producers are developing successfully, others are on the brink of survival. Under the conditions of reduction of volumes of high-quality raw materials, reduction of consumption, low buying power of the population, processing enterprises are forced to work on the verge of profitability.

At the moment the market of milk and dairy products in the country is characterized by a significant reduction of the number of cows in farms of all types, decrease in the volume of milk production, rising prices, decrease in the level of effective demand and, consequently, the amount of consumption of dairy products.

Significant impact on the reduction of milk production (1991 – 22408,6 thousand t, 2012 – 11388,6 thousand t) led to a drastic reduction in the number of dairy cows. In the first half of 2013 in Ukraine it was produced 5539,9 thousand t of milk. Production volumes thus grew by 0.6% comparatively with the same period last year, including in agricultural enterprises – on 1.5%, in the farms of population – on 0.4% (table 1).

Analysis of statistical data of the State statistics of Ukraine gives grounds to assert that the number of cows in 2013 in agricultural enterprises, in comparison with 2007, decreased to 791 thousand cows, as compared with 1991 year – for 5972 thousand cows.

Fig. 2. Part of farms of population in milk production in regions of Ukraine in 2012, %



The largest increase of milk production in January-June of 2013 comparatively with the first half of 2012 is recorded in Zaporizhzhya (+6.1%), Ternopil (+5.6%), Kharkiv (+3.2%), Rivne (+3.0%), Poltava (+2.6%) and Kyiv (+2.4%) regions. At the same time milk production decline took place in Crimea (21.8%) and Donetsk (-3.2%), as well as its slight reduction in Sumy (-1.6%) and Lugansk (-1.5%) areas.

Farms of population remain major producers that form the offer of milk. Their part in the market is up to 77.7% in 2012. Among the regions where population farming in 2012 had the largest part of separately allocated Zakarpattia (98.35%), Ivano-Frankivsk (97.25%) and Lviv (95.86%) regions (fig. 2).

The smallest part of a share (< 60%) in the structure of milk production personal farms of population occupied in Poltava (52.14%) and Cherkassy (48.5%), Kyiv (44.25%) and Kharkiv (59.14%) regions where this sector has kept its position in the agricultural enterprises and received a new development at the expense of reconstruction in recent years, farms and construction of new modern livestock complexes. At the present stage of development of agriculture in the WTO good's sector of cattle breeding is no longer able to meet the needs of the processing industry in the high-quality raw materials. Production possibilities of farms of population do not allow forming a powerful amount of raw materials, and sanitary conditions of receiving milk from them does not provide the proper quality and compliance with accepted Government standards.

An important aspect of the industry analysis is the determination of its export potential. The main external market for dairy domestic enterprises is the market of the Russian Federation. Except Russia, the most important country-exporter of dairy products over many years is Kazakhstan. Dessert-yogurt products are exported mainly by Moldova. Butter is exported to Kazakhstan, Azerbaijan, Moldova, Turkey, Belarus, Armenia. Germany, Poland, United States, Singapore, the Netherlands, Latvia. China exports only milk protein and dry milk which they use in their manufacture.

According to data of the State statistics, in January-November of 2012 export of dairy products from Ukraine totaled 144,5 thousand tons (508,1 million dollars). The largest share had cheese – 62,5 thousand t (43.3%), 41.5 thousand tons of condensed milk, serum-22.3 thousand tons.

Table 1. Structural dynamics of milk production in Ukraine, thousand tons

Year	Categories of farms	Period	
		I quarter	I half year
2012	All categories	2063,9	5505,5
	Agricultural enterprises	565,9	1276,3
	Farms of population	1498,0	4229,3
	Part of population managing, %	72,6	76,8
2013	All categories	2088,4	5539,9
	Agricultural enterprises	581,6	1295,2
	Farms of population	1506,8	4244,7
	Part of population managing, %	72,2	76,6

Import of dairy products in Ukraine for a variety of reasons is negligible. The country imports certain types of dessert-yogurt products and high-quality cheeses. Import to Ukraine is unprofitable due to rising of world prices for other dairy products such as butter, evaporated milk. So, in 2010, Ukraine has reduced import of products of milk production in 27.1%, i.e. 33.6 thousand t, totaling 113.1 million. dollars.

Taking into account all the above mentioned data, we can identify the main factors reducing the quality of milk-raw, among them: violation of sanitary-and-hygienic conditions of milk production, failure to comply with the requirements of cleaning, cooling the milk after milking, poor initial quality control, violation of the terms and conditions of transportation. As a result, milk provided for the processing does not meet the applicable standards in microbiological indicators, take place the enlarging of norms of content of antibiotics, pesticides, plant substitutes, counterfeit milk with water and etc.

The appropriate for Ukraine system of verification of safety and quality of food products is focused on the end result. To analysis come separate product samples that are chosen by controller. In case of positive results, the good quality of product is confirmed and the whole part is good for implementation. However, this approach does not guarantee complete safety and absolute quality of this product.

Principally different positions in food safety, which are compulsory for EU countries, are set out in the directives of European cooperation Council HACCP (Hazard Analysis and Critical Control Points). In the base of HACCP system there is the assessment of dangers that can affect the food product during its production, storage, sale and use. Among such hazards can be both microorganisms and chemical compounds that are relevant for our country.

As for the food safety control system in Europe, then in 2002 in EU was adopted the Decree № 178/2002 "About the establishment of general principles and requirements of law as for the food products, creation of European authority in food safeness and establishment of appropriate procedures in this brunch" The overall aim of this Decree is achievement of a high level protection of consumers interests. In the framework of this Decree was created the European authority on food safeness.

System of hazard analysis and critical control points (HACCP) was developed by the World Health Organization (WHO) and the Food and Agricultural Organization of the United Nations (FAO). This is an international system, which involves the identification, assessment and management by factors that negatively affect the safeness of agricultural raw materials and food products.

Use of the HACCP system allows moving from the evaluation of the safeness of the readymade food products to the development of preventive methods for its support. The system is based on seven principles recognized by the international community:

- 1) making of the analysis of unsafe factors connected with the production of food products at all stages of their life cycle, starting from breeding or cultivation, processing, production, storage, transportation, sale and consumption. Assessment of the conditions and possibilities of dangerous factors and determining the precautions for their control;
- 2) determination of critical points – operations, stages, processes that need to be controlled for preventing or minimizing the probability of influence of hazardous factors;
- 3) establishment of critical limits, which are needed to observe, to be sure that the critical point is under control;
- 4) creation of a monitoring system that enables to control technological process in critical points using tests or measurements;
- 5) development and application of corrective actions if monitoring results indicate deviations from the set critical limits;
- 6) development of verification procedures, which give the opportunity to ensure the effectiveness of the HACCP system;
- 7) documenting procedures and registration data, necessary for the functioning of the system.

System HACCP focuses attention directly on the process control parameters of technological process and evaluation of raw materials and the materials used for producing of food products, as well as implementing strategy "from farm to fork".

In accordance with article 20 of the law of Ukraine "About the safeness and quality of food products" to persons who are engaged in production or intro-

duction into circulation of food products should apply sanitary measures and proper production practice, systems HACCP and/or other systems to ensure safeness and quality during the production and circulation of food products.

It is necessary to note that in the Report of the International Finance Corporation (IFC) "Introduction of food products safety management systems in enterprises of Ukraine. Analysis of costs and benefits" it is noted that the estimated cost of implementing of HACCP on average milk producing enterprise in Ukraine is about 350,000 hrn. during the first year, which equals the lowest similarly global indicators. If the company already adheres to national standards, implementation of HACCP is relatively inexpensive.

The biggest benefit for dairy industry, associated with the implementation of HACCP, – access to new retail chains and supermarkets, because today such retailers as "Metro cash & Carry Ukraine" and "Fozzi group" require HACCP from their suppliers of dairy products. Expert discussions indicate that implementation of HACCP in dairy industry of Ukraine may double sales in this market segment.

The quality of dairy products affects the health of consumers. That is why leading producers have teamed up into the project "3 dairy products per day". It was organized by the dairy producers "Milkiland", "Lactalis", "Pepsiko", "Danone", as well as a world leader in producing of aseptic equipment and packaging company "Tetra Pak", in order to improve the quality and duration of life of Ukrainians.

Achievement of innovative competitive advantages of home enterprises depends, primarily, on Government support, scientific and technical and innovation policy, the introduction of modern technologies of production and enterprise management. The Ukrainian market of dairy products has a real opportunity to become quite a profitable business and a powerful exporter of dairy products of home production in European markets and the markets of other countries.

## CONCLUSIONS

Based on the above, we can conclude that in Ukrainian legislation regarding the control of food is not coordinated, and consequently, it undermines the base of the whole system of State control over food production. Questions that govern the legal and organizational bases for quality assurance and safeness of milk and milk products for life and health of the population and the environment during their production, transportation, processing, storage, sale, importation into the customs territory and the removal from the customs territory of Ukraine are regulated by the laws of Ukraine, normative-legal acts, standards ISO 9001. The main factors that determine the safeness and quality of dairy products, concerns the quality of raw materials.

The prime problem for Ukraine's accession to the EU is to ensure and guarantee standards of quality agrifood products. The experience of the European Union shows that the issue of product quality is dominant. This problem has not only the "external" aspect, but also directly related to the home consumer. Since the safe nutrition is key to the health of the nation.

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