

## EVOLUTION OF MILK PRODUCTION IN REPUBLIC OF MOLDOVA AND THE ROLE OF QUALITY MANAGEMENT IN INCREASING THE COMPETITIVENESS OF MILK PROCESSING COMPANIES

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### **Abstract**

*Achieving the success in business, in conditions of hard competition from the local and international enterprises is connected with the notion of competitiveness. To be competitive in modern society, means to obtain a sustainable advantage compared to competitors by higher productivity and on this basis, regarding the cost, diversity, quality and permanently renewing the offer of products, thus ensuring higher profits of the organization. As we mentioned, the quality, is one of the elements, which takes a special place in ensuring the competitiveness of a product, together with other important factors as the price and the managerial system. The quality of a product determines the level of competitiveness of this product. In this scientific research is analyzed the quality management as a factor of increasing the competitiveness of milk production from the Republic of Moldova. The production of milk represents one of the most important sectors from the agriculture of the Republic of Moldova, which is mainly in households, where it is produced more than 95% from the total volume of milk. In agricultural enterprises is produced approximately two percent from the total volume of milk. The basic purposes of this investigation is: to analyze the evolution of milk production in Republic of Moldova; to highlight the role of the quality management in increasing the competitiveness of milk production; to describe the quality factors and their role in increasing the competitiveness of milk production.*

**Key words:** milk production, competitiveness, quality management

### **INTRODUCTION**

Milk represents an important animal origin food product. It is the most complete and easily assimilated by the organism foodstuff, being one of the most important food product from the human's nutrition, especially in the period of growth, because it contains all the necessary substances for the normal growth and development of the organism. The most evident proof is that the newborns live and develop normally, only with milk, long time after their birth (Golban, 2015a) [2].

Also, the milk, is called the „white blood” or the „health spring”, by its high value and it is strictly necessary in the feeding of the sick persons, old people and those who work in the toxic environment.

The fact that the milk is the most complete food product is reflected in more than one hundred nutritive substances necessary for the human's life, namely: over 20 amino acids, over 10 fatty acids, sugars-lactose, 25

vitamins, over 45 mineral elements, enzymes and other substances.

The caloric value of the milk and of the milk products is very high: one liter of cow milk contains 640-680 calories, one liter of sheep milk contains 1,400 calories. Compared to other food products, the nutritive value of one liter of milk, calculated in calories, is also very high, being equal to: 0.600 kg of beef; 0.750 kg of veal; 0.400 kg of pork; 8-9 eggs; 0.500 kg of fish (Golban, 2015b) [3].

Thus the milk production has a high importance for the national economy of the Republic of Moldova, being one of the most important sectors of the country's agriculture. More than ninety five percent from the total volume of the milk production is in households, and only a little volume of milk is produced in agricultural enterprises.

In order to increase the competitiveness of milk production, it is necessary to improve the quality management while producing the milk, both in households as well as in

agricultural enterprises.

The main purpose of this scientific research is to reveal the biggest role of quality management in increasing the competitiveness of the milk products, to familiarize the reader with: „*what does it mean – quality management?*”; „*what can we do to ensure the quality of milk production?*”; „*what are the management quality strategies*” in order to increase competitiveness of milk production.

It should be taken into account that implementing the quality management systems are very expensive, but „non – quality”, costs much more and leads to the decrease of the competitiveness of products, being very harmful to any agricultural producer (Porter, 1990; Stanciu, 2003; Kotler et al., 2006) [8,10,11].

In opinion of J.M. Juran, the quality management is defined by its functional aspects, which contains 3 main processes: „*quality planning*”; „*quality control*” and „*quality improvement*”(Juran et al, 1980) [5]. These 3 processes represent the steps which need to be passed for obtaining high quality products.

In this context, the paper present an analysis of the milk production from the Republic of Moldova and the role of quality management and its factors in order to increase the competitiveness of milk production.

## MATERIALS AND METHODS

In order to realize the scientific investigations were used the data from the National Bureau of Statistics [15] of the Republic of Moldova, Ministry of Agriculture and Food Industry, National Bank of Moldova and other economic sources concerning the quality management, competitiveness of enterprises, production.

As research methods were used: analysis and synthesis, induction, deduction, comparative method, logical analysis, graphical method.

## RESULTS AND DISCUSSIONS

In 2016, in Republic of Moldova was registered an increase of the global

agricultural production, compared to 2015, by 32%, constituting 118.6%, being determined by the increase of the vegetal production, by 26.0% and the increase of the animal production, by 3.1% (Fig. 1).

In 2016 was registered an increase compared to 2015, of the vegetal production from the total agricultural production by 4%, constituting 72% (NBS, 2016). The animal production decreased in 2016 compared to the previous year by 4%, constituting 28%, out of which the production of livestock and poultry – 16.0%; milk – 7.9% (decreased by 1.5% compared to the previous year); eggs – 2.9%.

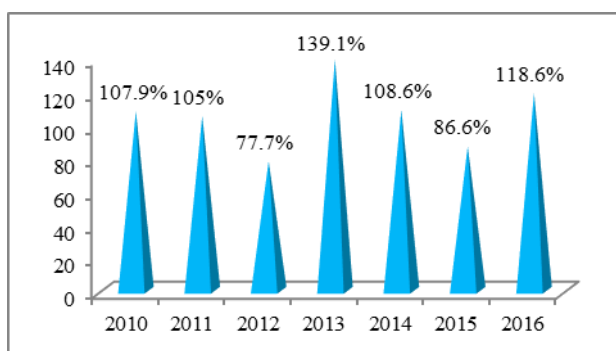


Fig. 1. The indices of the agricultural production in the Republic of Moldova during the period 2006-2012 (the previous year =100%)

Analyzing the agricultural production by categories of households, we can reveal that 42 % from the total volume of the agricultural production were obtained in the agricultural enterprises, 19% in peasant farms, 39% in the population households (Fig. 2).

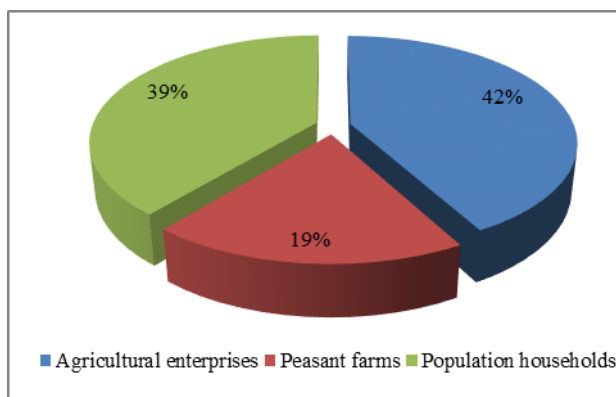


Fig.2. Distribution of the agricultural production by categories of households, 2016 (%)

From the total animal production, the production of milk represents one of the most

important.

Thus, from the analyze of the dynamics of the milk production during 2006-2016 (Fig.3), it is revealed that it decreased continuously, namely: in 2016 the production of milk constituted 513 thousand tonnes, which is less than in 2015 by 7 tonnes, and compared to 2014 it represents a decrease by 12 tonnes. In 2016 the share of the milk production from the total agricultural production constituted 7.9%, which is less than in 2014, by 1.5% (NBS, 2016).

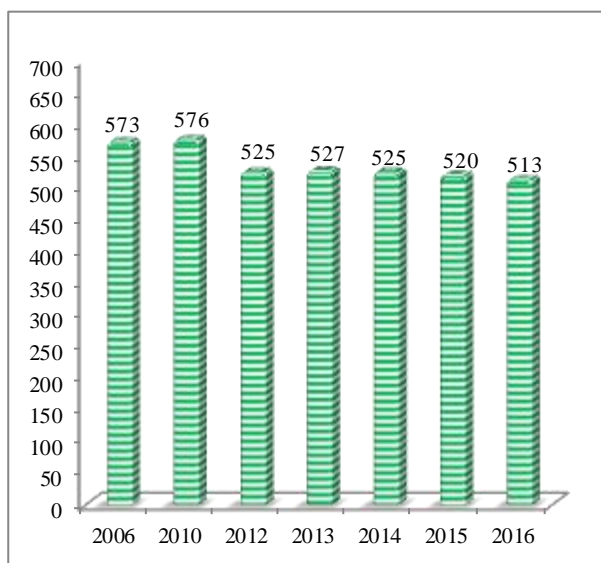


Fig. 3. The dynamics of the milk production in all categories of agricultural producers during 2006-2016, (thousand tonnes)

The most important volume of the milk production is produced in population households – 95%, while in agricultural enterprises is produced – 5% (Fig. 4).

The reason why the dynamics of the milk production is negative during the last years is the fact that the livestock of cows continuously decreased in the last years in all categories of agricultural producers.

Thus in 2016 the livestock of cows constituted 128 thousand capita in all categories of agricultural producers, which represent a decrease, compared to the previous year by 2 thousand capita, and a decrease compared to 2010 by 33 thousand capita (Fig. 5).

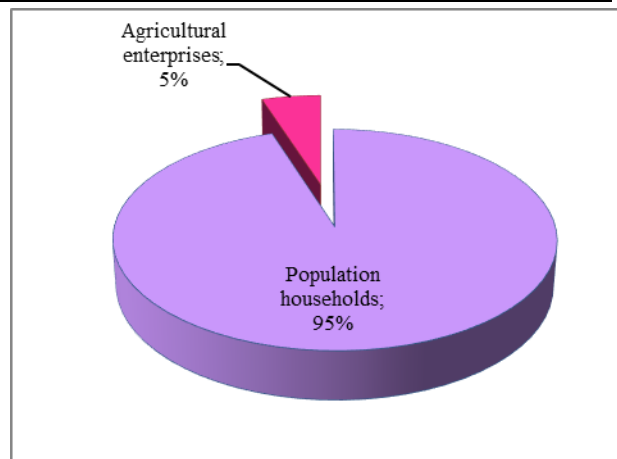


Fig. 4. The structure of the milk production by categories of agricultural producers, 2016

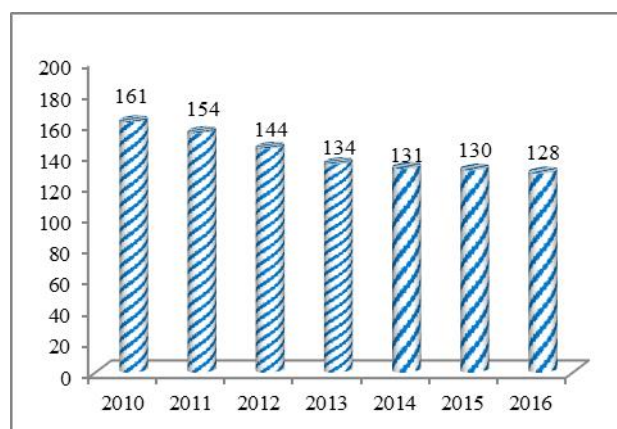


Fig. 5. The dynamics of the livestock of cows in all categories of producers during 2010-2016, (thousand capita)

The local production of milk and milk products is facing a high competition from the milk products imported from Ukraine, which in 2016 exported in Moldova 50.4% (2.7 mln USD) from total exports of milk, being followed by Georgia – 26.3% (1.4 mln USD) and Libya – 8% (0.4 mln USD) (Infotag, 2017).

In May, 2016, the Government of Moldova introduced restrictions to a large number of products originated from Ukraine, among which there were the milk products, establishing certain quotas, whose exceedance taxed at 10-20%. The decision was taken at the local producers' initiative, to protect the local market, being valid till the end of 2016.

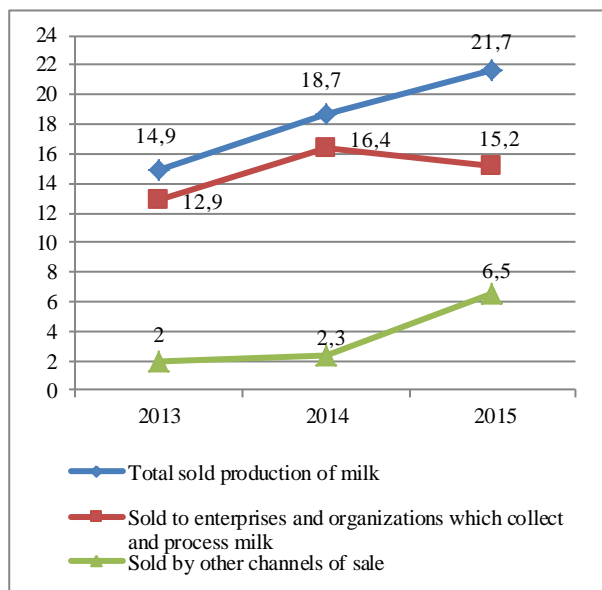


Fig. 6. Sale of milk production by type of enterprises during 2013-2015, (thousand tonnes)

Analyzing the Fig. 6 regarding the sale of milk production by type of enterprises during the 2013-2015, we can reveal that the total sold production of milk in 2015 constituted 21.7 thousand tonnes, out of which the biggest volume of milk production was sold to enterprises and organizations which collect and process milk – 15.2 thousand tonnes, which represent a decrease compared to the previous year by 1,2 thousand tonnes and by other channels of sale – 6.5 thousand tonnes, which represent an increase by 4.2 thousand tonnes, compared to the previous year.

As we observe the biggest volume of milk production was sold to the enterprises and organizations which collect and process milk.

Table 1. The evolution of milk production produced by agricultural enterprises and farms in territorial aspect during 2013-2015, tonnes

Region	Years			Deviation of 2015 with	
	2013	2014	2015	2013	2014
Chişinău Municipality	153	307	198	+45	-109
<b>North</b>	<b>6,521</b>	<b>8,656</b>	<b>9,874</b>	<b>+3,363</b>	<b>+1,218</b>
Center	4,046	5,145	5,009	+963	-136
South	2,640	2,656	2,309	-331	-347
UTA Găgăuzia	2,652	4,834	5,484	+2,832	+650
<b>Total</b>	<b>16,012</b>	<b>21,598</b>	<b>22,874</b>	<b>+6,862</b>	<b>+1276</b>

Analysing the evolution of milk production produced by agricultural enterprises and farms

in territorial aspect during 2013-2015 it is revealed that in 2015 the total production of milk constituted 22,874 tonnes, which represent an increase compared to 2013 by 6,682 tonnes and compared to 2014 by 1,276 tonnes (NBS, 2015). In territorial aspect we can observe that the biggest volume of milk production produced by agricultural enterprises and farms is concentrated in North Region of the country, where in 2015 was produced 9,874 tonnes of milk production, which represent an increase by 1,218, compared to the previous year, being followed on the second place by UTA Gagauzia, where the milk production constituted 5484 tonnes, which represent an increase by 650 tonnes compared to the previous year, and on the third place is the Center Region, with a total production of milk in 2015 equal to 5,009 tonnes, which decreased by 136 tonnes compared to 2014.

As it was mentioned above, the biggest volume of milk production in 2015, was produced by the agricultural enterprises and farms from the North Region, namely the rayons: Glodeni – 1,717 tonnes; Ocnita – 1,653 tonnes; Drochia – 1,572 tonnes; Făleşti – 1,228 tonnes; Floreşti – 1,106 tonnes.

The biggest milk processing enterprises are: JLC SA, compania “Alba”; compania “Lapmol SRL”; compania “Lactis SA”; “Fabrica de brînzeturi din Cahul”; “I.M. Heuveland SRL”; “Incomlac SA”, etc. [12, 13,14]

Within these enterprises an important role is dedicated to the quality management.

The “father of quality management”, is Joseph M. Juran, which said that: “quality is a problem of all” (Juran, 2000) [7]. The contribution of J.M. Juran in the development of the quality management is expressed in the fact that in his opinion quality must be improved continuously.

He defined the quality management by its functions in terms of “quality trilogy” (Juran, 1986; Constantinescu, 2002) [1, 6].

In his opinion the quality management is composed of three important management processes: *quality planning*; *quality control*; *quality improvement* (Fig. 7).

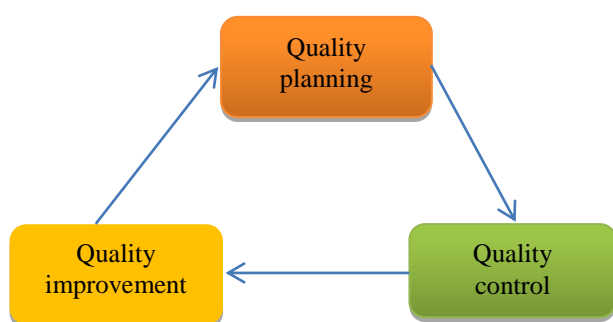


Fig. 7. The “quality trilogy” proposed by J.M. Juran

Briefly we will resume the “quality trilogy” below:

**The quality planning** contains the following activities:

- the establishment of the quality objectives;
- the client’s identification
- discovering the client’s needs
- development of the product’s characteristics
- development of the process’s characteristics

**The quality control** contains the following elements:

- choosing the subjects to be controlled
- choosing the measure unit
- establishment of objectives
- measurement of performances
- interpretation of differences
- actions towards differences

**The improvement of quality** refers to:

- Proving of the necessity of improvement
- Projects identification
- Organization of working teams
- The reasons diagnosis
- Remediation of the malfunctions
- Fight against the resistance to change.

In this sense at each milk processing enterprise are realised permanently actions of improving the quality of milk production.

In this sense, Incomlac SA permanently supervise the manufacturing stages of production, which comprises (Incomlac, 2017) [12]:

1. *Input control of raw materials, components, package, tare for production;*
2. *Control of technological process in all manufacturing stages;*
3. *Microbiological and physico-chemical control of final products;*
4. *Control of the sanitary condition of the*

*enterprise.*

Within Incomlac SA exists special laboratory with equipment to continuously monitoring the quality of milk products. Incomlac SA is the first enterprise which passed the international quality management certification ISO-9001:2000.

In the same time the company JLC SA also has the main objective to improve the quality of milk products, which includes (JLC, 2017):

1. *Incoming control of the raw material, ingredients and materials;*
2. *Manufacturing control;*
3. *Control of the finished products;*
4. *The microbiological control of the raw material, ingredients, manufacturing and finished products;*
5. *Control of packages;*
6. *Control of sanitary conditions of the enterprise.*

But according to some studies (Ignat, 2013) [4], not all the milk processing enterprises have the certification according to the international quality management standards (ISO). From this point of view, this represents an obstacle to export the milk products on the international markets, influencing in a negative way the competitiveness of the milk products. Most of the milk processing enterprises included in their future development plan the international quality management certification.

Another factor which influences negatively the competitiveness of the milk products is the unstable and insufficient insurance with qualitative milk as raw material. It doesn’t exist a stable insurance of enterprises with milk production at competitive prices.

Another factor which influences negatively the competitiveness of milk products from Moldova is the country reputation especially from the “big bank theft”, which doesn’t inspire confidence in the quality of Moldavian products, although the products from Moldova are more qualitative and the prices on the export markets are much lower compared to those of competitors.

In the context of the above mentioned, the primary national interest of the Republic of Moldova is to develop a quality based competitive economy, able to cope with

current trends in international trade – globalization and liberalization of the food markets

The Republic of Moldova expressed its opinion to adhere to the European Union, where was elaborated the European Quality Promotion Policy. In order to be compatible with the European products, the Moldavian products must comply with the EU regulations and principles in the domain of quality.

The quality policy of the agri-food products must be oriented at least in two directions (Litvin, 2011) [9]:

-increasing the competitiveness of the economic agents by increasing the quality level of their products;

-increasing the effectiveness of the legislative and institutional framework regarding the protection of the rights and interests of the consumers.

Thus the milk products quality improvement represents an important objective at the state level, in conditions when many of the processing enterprises doesn't obtained the international quality management certification, in this context influencing in a negative way the exports of milk products, thus decreasing their competitiveness on foreign markets.

There must be improved: the legislative frame working order to ensure the quality improvement of milk products; ISO certification of processing enterprises, which will lead to higher exports on foreign markets, thus increasing the competitiveness. High number of individual producers who commercialize milk to the processing enterprises, determine high costs of transactions, in this sense being necessary to propose alternative solutions of commercialization milk, in order that the trade to be more organized and to decrease the costs, in this sense, increasing the profitability.

## CONCLUSIONS

The performed investigations give us the possibility to formulate the following conclusions:

1)Milk, as it is called “the white blood”, represents an important food product of

animal origin which is produced mostly (more than 95%) in households and a little part in the agricultural enterprises.

2)The dynamics of the milk production in all categories of agricultural producers during 2006-2016 reveals that milk production during the analysed period was continuously decreasing, from 573 thousand tonnes in 2006 to 513 thousand tonnes in 2016. The significant decrease of the milk production was determined by the decrease of the livestock of cows in all categories of producers: during 2010-2016, this indicator decreased from 161 thousand capita in 2010 to 128 thousand capita in 2016.

3)The highest volume of milk production is sold to enterprises and organizations which collect and process milk (in 2015 – 15.2 thousand tonnes) and little quantity of milk is sold by other channels of sale (in 2015 - 6.5 thousand tonnes)

4)According to the “father of quality management” – Mr. Joseph M. Juran, the quality management is composed of three important management processes: *quality planning; quality control; quality improvement*. In this sense, all the processing enterprises take measures to improve the quality of milk production, but a barrier in increasing the competitiveness of the milk processing enterprises is that not each enterprise has international quality management certification – ISO. Only those enterprises who have international certification can export milk products, in this way being competitive on the foreign markets, the rest can sell their products only on the local market.

5)The Republic of Moldova must improve its legislative framework regarding the quality of production to be in compliance with the EU requirements in the field of quality, thus developing a quality based economy, which will indispensable contribute to increasing the competitiveness of the agri-food products from Moldova.

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