

UDC 631.339.658

JEL R 11

MECHANISM AND ADVANTAGES OF COMPETITIVENESS AGRICULTURAL ENTERPRISES

*Reznik N.P., Professor, Dean of economic
faculty of the International University, Kiev,
Ukraine*

The problem. In a market economy and intense rivalry the key factor of competitive advantage of producers, the criterion for evaluating the effectiveness of their business is quality. In economic literature, the essence of quality of production is treated by the following concepts : quality – a totality of properties, characteristics of products, goods, services, work, labour, causing their ability to satisfy the needs and demands of people, correspond its purpose and requirements . Quality is a measure of conformity of goods , works and services standards and requirements , contracts, consumer demands.

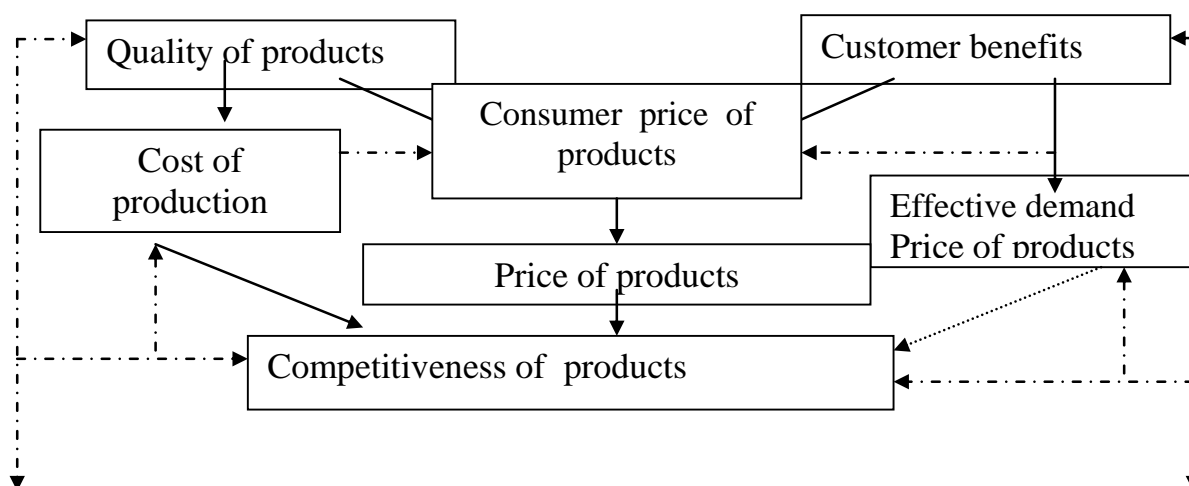
Competitiveness and quality are the concentrated significance of the totality of possibilities of any manufacturer to create, produce and sell goods and services [1].

The analysis of recent researches and publications. Description and features of competitive relations in social production became the subject of attention of many native and foreign scholars. Their efforts to the theory of competition are sufficiently being detailed, constantly enriched and developed. In theoretical works of Azoyev G., A. Brandenburh, P. Drucker, K. Marx, A. Marshall, J. Mill, M. Porter, K. Prahalad , D. Ricardo , J. Robinson, P. Samuelson, R. Fatkhutdinov, F. Hayek, G. Hemel, E. Chamberlin, J. Schumpeter, A. Yudanov and other foreign economists is formed the understanding of the role of competitive relations as a fundamental element of the market economy, are shown their transformation with the development of economic systems. Among the works of Ukrainian scientists published in recent years should be highlighted the fundamental works of O. Alexandrova, I. Balabanov, L. Varava, A. Voronkova , Y. Ivanov, A. Kovtun, V. Pavlov, S. Pakhomov, L. Piddubny, S. Sawchuk, J. Smolin, N. Tarnavska, O. Tishchenko, T. Futalo, V. Chernega and many other authors.

To the research on the theoretical and methodological and applied aspects of the competitiveness of agricultural enterprises in the field of restructuring and transformation of methods of management are dedicated works of native agricultural economists: Mr. Berezovsky, O. Buzhyna, L. Yevchuk, V. Zbarsky, S. Kvasha , B. Lypchuk, M. Malik, S. Miller, W. Mesel - Veselyak, S. Nesterenko, P. Sabluk, P. Putsenteyla, V. Tkachuk, O. Ulianchenko, G. Cherevky, A. Shkolny. Through the efforts of these and other scientists are formed the conceptual principles of the agricultural sector on the basis of competitive factors of environment, the criteria for assessing the competitiveness of the industry , approaches to their competitive advantages and so on. The aim of the research is to methodize the research of domestic and foreign scientists and to foundate the vector of competitiveness of agricultural enterprises.

The main material. It is considered that the term «competitiveness» is wider than the concept of «quality». The last one is the main component of competitiveness, which leads to its level, but not the only one (picture 1).

The quality of a product has a direct impact on the efficiency of agricultural production. Raising of a cattle breed characteristics, the improving of productive land properties (increasing its fertility) makes it possible to obtain with the same number of animals from the same cultivated area a much larger number of necessary products to society.



Picture 1 – Mechanism of competitiveness

In our country the quality of goods is evaluated and controlled by the state. It gets a particular importance in conditions of a market economy, as this is a strong indicator lever of a non-price competition. The Law of Ukraine dated 27, December 1997 № 771 «About quality and safety of food products and raw materials» (as amended and supplemented by the Law of Ukraine on October 24, 2002 № 191 -IV) provides a specification of quality food as a range of properties of food that determines its ability to provide the needs of the human body for energy, nutrients and flavoring substances, the stability of consumer characteristics and expiration date [2]. On January 1, 2004 in the country the purchase of milk is produced by the new state standard (Table 1). A distinctive feature of the new ISO 3262-97 is that besides the current classification of raw materials harvested further is highlighted the milk of the highest quality.

Table 1 – Organoleptic milk indicators

indicator	Standard for quality of milk		
	high, first	second	Non-grade
consistence	Homogeneous liquid without sediment and flakes. Freezing is not allowed		May contain cereal protein, solids.
Taste and smell	Clean without outside odors and flavors, not peculiar to fresh milk		Strong feed flavor and odor
		Lower in winter -spring period weaker - strong- feed	
Colour	white to light cream		creamy, from bright gray to gray

Content of toxic elements, aflatoxin MI, antibiotics, substances that inhibit, radionuclides, pesticides, pathogens and somatic cells in milk must correspond to the standard norms in force.

Physico-chemical parameters of milk must correspond the standards specified in the table. 2. rate of mass fraction of fat content of milk is 3.4%, basic rate of mass fraction of protein is 3.0%.

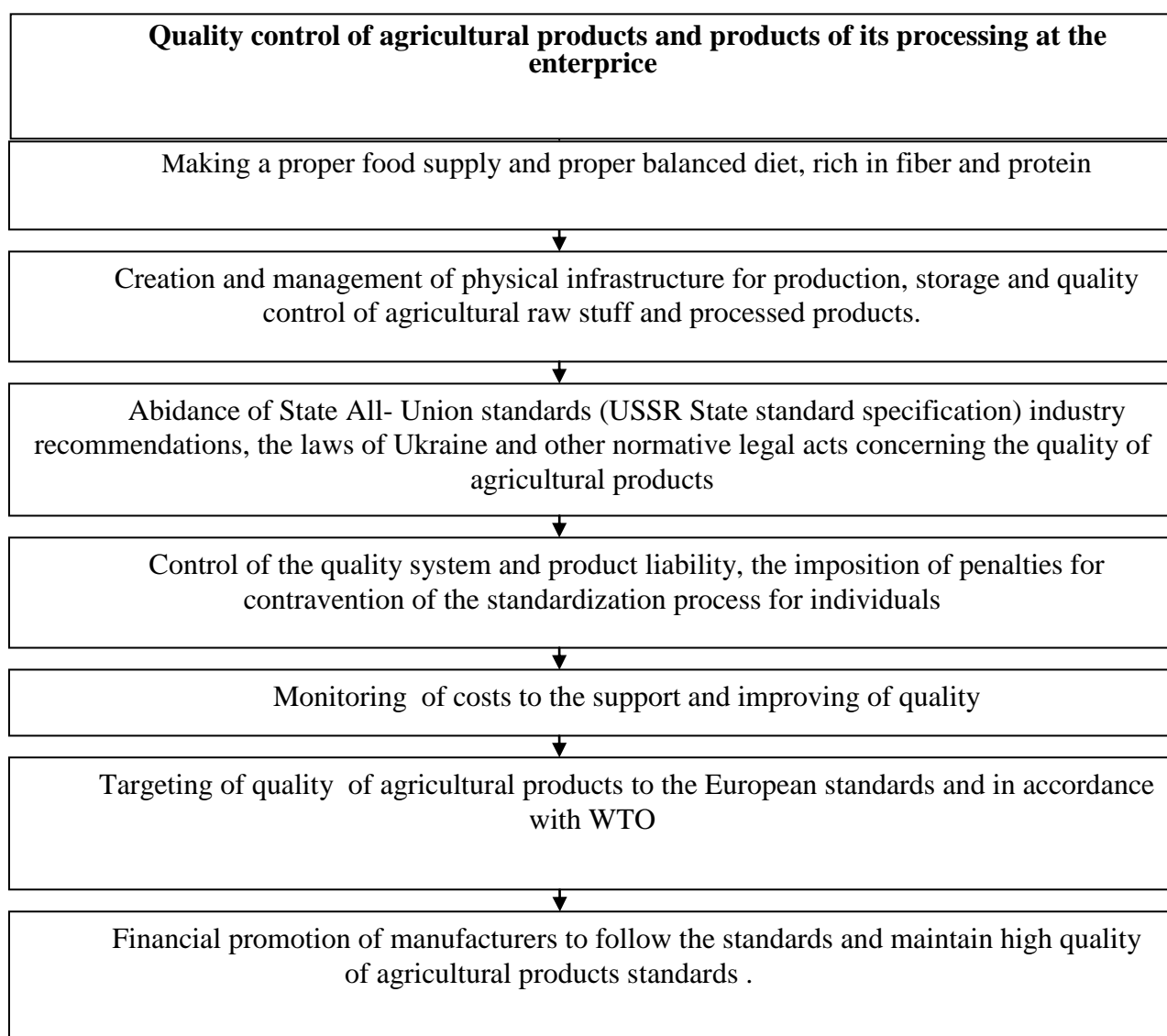
In Section 5.3 to the purchase is set the frequency of quality control of milk at reception - mass fraction of fat - daily in each batch, mass fraction of protein at least twice a month.

It should be noted that today the problem of quality of agricultural products is simply solved, and especially of dairy.

Table 2 – Physico - chemical parameters of milk

indicators	Rate for the standards of milk			
	high	first	second	Non-grade
Acidity, ° T	from 16,00 to 18,00	from 16,00 to 18,00	from 16,00 to 20,99	less 15,99 or more than 21,00
Group of purity not less than	I	I	II	III
Density kg / cubic, not less than	1028,0	1027,0	1027,0	Less than 1028,9
Freezing Point, ° C	Not higher than minus 0,520			Higher than minus 0,520

The quality of domestic «dairy» is so low, that at the terms of entry of Ukraine to WTO and with the purpose of its achievement by the standards of quality of ES, Ukrainian dairy industry needs some intervention from foreign partners. We offer the next algorithm of optimization of the control system at the quality of agricultural products at the enterprises of Zaporizhzhya area (pic. 2).

**Picture 2 – The quality management system of dairy products at the enterpric**

The American specialist, who is known for the questions of quality, Edvard Deming in 1950 marked that by 85 % the solving of the problem of the quality of products depends on the quality of

control system [3]. The question of quality management in the system of increasing of economic efficiency of agroindustrial subcomplex in the context of eurointegration is actual enough nowadays [4; 5; 6].

The quality management of products is a major factor of long-term success of any enterprise. The primary aim of agricultural enterprises in the conditions of market economy is providing of high-quality and competitive commodity. Practical experience shows that this purpose is more frequently achieved at the enterprises with higher, more modern producing potential.

The ministry of agrarian policy of Ukraine together with NNC «Institute of agrarian economy» of UAAN developed some branch recommendations - «Order of payment for milk depending on a sort, the content of fat and albumen according to the requirements of DSTU 3662-97», which are used for payment of commodity producers of enterprises of different patterns of ownership, including the private farms, for their selling milk to the processing enterprises depending on quality.

All above means, the higher the content of fat and the content of albumen in milk which is sold, the more there must be its amount in the test mass on the set base indexes and the higher money profit yield of these farms for their products. The high content of fat in milk, as it was said before, has an influence on its charges at the production of dairy products. For example, for the producing of 1 kg of dairy they make the charges of raw material: the content of fat - 3,2% - 26,8 kg, 3,7% - 23,0 kg, 4,0% - 21,5 kg or, accordingly, on 14,2 and 19,2% less.

Table 3 – Content of fat and protein in milk sold by agricultural producers of Zaporizhzhia Oblast, %

Districts (raions)	Fat content			Protein content	
	2008	2012	2013	2012	2013
Berdyansk	3,75	3,79	3,77	3,14	3,14
Vasylivka	3,64	3,59	-	3,00	-
Velyka Bilozerka	3,68	3,67	3,59	3,06	3,06
Vesele	3,80	3,66	3,63	3,18	3,15
Vilniansk	3,74	3,60	3,58	3,11	3,11
Huliaipole	3,64	3,58	3,56	3,05	3,05
Zaporizhzhia	3,64	3,49	3,43	2,99	2,99
Kamianka-Dniprovska	3,73	3,66	3,65	3,18	3,15
Kuibysheve	3,69	3,63	3,64	3,05	3,02
Melitopol	4,05	3,69	4,08	3,19	3,20
Mykhailivka	3,62	3,68	3,67	3,17	3,15
Novomykolaiivka	3,67	3,65	3,64	3,00	3,00
Orikhiv	3,65	3,65	-	3,10	3,10
Polohy	3,67	3,60	3,62	3,10	3,16
Pryazovske	3,73	3,73	3,75	3,18	3,16
Prymorsk	3,71	3,74	3,70	3,13	3,10
Rozivka	3,59	3,64	3,60	3,06	3,10
Tokmak	3,85	3,80	3,76	3,16	3,16
Chernihivka	3,78	3,70	3,65	3,04	3,06
Yakymivka	3,64	3,77	-	3,00	-
Total in the region (oblast)	3,71	3,67	3,65	3,09	3,10

Source: According to the data of the regional administration of agricultural development of Derzhobladadministration

The level of the content of fat and albumen in milk in the districts of this area is characterized by this table. From which it is evident that only for the last five years (2008 - 2013) on the average for areas the content of fat in milk reduced on 0,06% (from 3,71 to 3,67%). Thus the noted tendency of growth there is only in the Berdyansk and Melitopol districts

In 2008 - 2013 the content of fat in milk on the farms of all districts exceeded a normative base index. Annually the farms of Melitopol, Berdyansk and Priazovsky districts have the most high content of fat in milk. In these districts the content of fat in milk, for example, in 2012 was 4,08 - 3,75%. Milk, which is produced on farms in Zaporizhzhya and Gulyaypil'sky districts, is characterized annually by low content of fat, that is connected with a non-observance of technology of milking the cows and insufficient feeding of animals.

The data analysis of fat content in milk shows the periodicity of its reducing measure according to the official announcement of Decisions of Government of Ukraine about the reducing of base content of fat. So it was at the beginning of 80th of the last century, when the base the content of fat in milk was reduced from 3,8 to 3,7 %, so at the end of 90th at was announced the reducing of base content of fat from 3,7 to 3,6 %. The same happened in 2004 after the decision of the Government of our country about the establishment of national base fat content at the level of 3,4 %.

In 2013 middle actual the content of fat in milk in this area was 3,65 %, although in previous years, beginning from 2008 the amount of the content of fat in milk increased. It is explained by insufficient control of the content of fat in milk from the side of specialists of agricultural organizations, that enabled the workers of dairy-processing enterprises to understate the actual the content of fat in milk that came to processing. Severe observance of sanitary-hygenic requirements at milking and roughing-out of milk, rapid and well cleaning, immediate cooling after milking to 4+; -2°C allows to keep the products in isothermal capacities more than 20 hours without the decline of its quality. In non-refrigerated milk, after milking the amount of bacteria in motion of 4 hours is increased in two times, and pathogenic staphylococuss for 6 hours in 150 times. In the milk of group 1 of cleanness there are to 500 thousand of microbes in 1ml, group 2 - to 4 millions, group 3 - to 20 millions, and in low-grade - over 20 millions Therefore it is very important to cool milk directly after milking and keep it in the special capacities to ordering to processing.

In this time, as well as before the introducing of new DOSTU, the test mass of milk accounts only coming from its physical mass and the content of fat:

$$M_3 = M_f \times \frac{Zh_f}{Zh_b}, \quad (1)$$

Where: M3 – the test mass of milk;

Mf – the physical mass of milk;

Zhf – the actual content of fat in milk %;

Zhb – the base standard of mass part of fat in milk %.

The mass part of albumen is counted only at the estimation of quality of the sold products, and it does not have an influence on a size of money profit yield:

$$B = C \times M_f \times \frac{Zh_f}{Zh_b} \times \frac{B_f}{B_b} \times K_s, \quad (2)$$

Where: B - a profit yield for the sold products;

C – the price of one unit;

Bf – the actual content of albumen in milk %;

Bb – the base standard of mass part of albumen in milk %;

K_s - the coefficient of grade of milk.

It is conditioned that correlation of actual mass part of fat to the base size is higher than analogical correlation of the content of albumen. In 2013 the actual fat content of milk on the average for areas exceeded the base index in 1,074 times, in 2012 - in 1,076 times, the correlation of the fat content was, accordingly, 1,030 and 1,033 times.

In 2012 - 2013 the content of albumen in milk both on the average for areas and on its districts, except Zaporizhzhya, exceeded the requirements of DOSTU. The most high content of albumen in milk was on the farms of Melitopol'sky, Veselivsky, K-Dniprovsky, Priazovsky, Mikhaylivsky, Tokmacky districts, which supply the products to PP «Molokozavod-OLKOM» in Melitopol, VAT «Berdyansk miskmolochnyi factory», VAT «Veselivskiy factory of the dried fat free milk», VAT, «Priazovskiy cheese factory», VAT «Dniprorudnenskiy cheese factory».

On the farms of Prymorsky and Berdyansky districts which supply the milk to LTD «Priazovskiy cheese factory» and VAT «Berdyansky dairy factory» the content of albumen in milk is a few below (3,13 - 3,14%). The increasing of the content of albumen in milk in these districts is possible by perfection of forage rations of cows - satiation of rations by the stems of enhanceable content of phytalbumin. The amount of fat content in milk is always higher than analogical index of the content of albumen. Coming out from this it is defined the correlation of these rates, the amount of fat that shows how many times the content of albumen in milk is higher. The calculations showed that on the average for the area the content of fat was exceeded by the content of albumen in 1,17-1,19 times. In the districts of the area the rejection was 1,135 - 1,223 in 2013, that means a higher difference in the absolute value of these indexes.

Forming the cooperative stores in villages at organization of purchasing milk and bringing it to the processing enterprises on the set agreed prices, especially in raw material areas, will provide the trouble-free process of production on dairy factories, permanent use of producing capacities and financial rotation of money with the decline of prime price and receiving the excess profit.

For determination of the test mass of sold products it is suggested to involve in practice of managing a conditional fat- albumen unit (UZHBO), which is a complex index which characterizes the quality of milk at mass part of fat and albumen, calculated in percents on the offered formula:

$$UZHBO = \frac{Z_{h_f} + (K \times B_f)}{2}, \quad (3)$$

where K – is a coefficient of correlation of base standard of mass part of fat and albumen in milk.

UZHBO at the normative indexes of content of fat and albumen can be counted by a formula:

$$UZHBO = \frac{Z_{h_n} + B_n}{2}, \quad (4)$$

where Z_{h_n} – normative content of fat in milk %;

B_n – normative content of albumen in milk %.

$$UZHBO = \frac{3,4 + 3,0}{2} = \frac{6,4}{2} = 3,2$$

Consequently, taking into account the content of fat and albumen in milk its test mass can be set at level – 3,2%.

Correlation of fat and albumen in milk and also the content of UZHBO characterize the data of table 4.

The method of determination of the content of UZHBO with calculations of the actual content of fat and albumen will be shown on the example of average information at areas.

$$UZHBO_{2009p.} = \frac{3,67 + (1,133 \times 3,09)}{2} = \frac{3,67 + 3,50}{2} = \frac{7,17}{2} = 3,585;$$

$$UZHBO_{2010p.} = \frac{3,65 + (1,133 \times 3,10)}{2} = \frac{3,65 + 3,51}{2} = \frac{7,16}{2} = 3,581$$

The highest content in milk of UZHBO you can find in the products of dairy farms in Melitopol'sky, Tokmacky, Priazovsky, Berdyansky, K-Dniprovsky and Veselivsky districts. Milk, which is produced on the dairy farms in Zaporizhzhya and Gulyaypilya districts, is characterized by the low level of content of UZHBO (3,41 - 3,51%). It means that in milk which comes to processing from these districts has low content of fat and albumen.

The use in calculations of milk which came to processing enterprises, taking into account that which is recommended by UZHBO at the level of 3,2% will render positive influence on the cost of negotiation of a unit of products and on general money profit yield. We will show it on the example of recounting of milk which actually came to its test mass.

In 2013 the farms of districts of the area sold milk with the content of fat 3,6% and albumen – 3,10% in an amount 271280 c, 63205,5 thousands of Uah of money profit yield are got, there is 1c – 232,99 Uah at the average price of selling.

Table 4 – Content of conventional fat-protein units in milk, sold by agricultural producers of Zaporizhzhia Oblast

Districts (raions)	Ratio of fat and protein content, times		Content of conventional fat-protein units (CFPU), %	
	2012	2013	2012	2013
Berdyansk	1,207	1,200	3,673	3,664
Vasylivka	1,197	-	3,495	-
Velyka Bilozerka	1,199	1,173	3,568	3,528
Vesele	1,151	1,152	3,631	3,599
Vilniansk	1,158	1,151	3,562	3,552
Huliaipole	1,174	1,167	3,518	3,508
Zaporizhzhia	1,167	1,147	3,439	3,409
Kamianka-Dniprovska	1,151	1,159	3,631	3,609
Kuibysheve	1,190	1,205	3,543	3,531
Melitopol	1,157	1,275	3,652	3,853
Mykhailivka	1,161	1,176	3,636	3,602
Novomykolaiivka	1,217	1,213	3,525	3,520
Orikhiv	1,177	-	3,581	-
Polohy	1,161	1,168	3,556	3,566
Pryazovske	1,173	1,202	3,666	3,642
Prymorsk	1,195	1,194	3,643	3,606
Rozivka	1,190	1,161	3,553	3,556
Tokmak	1,195	1,190	3,701	3,670
Chernihivka	1,217	1,193	3,547	3,558
Yakymivka	1,257	-	3,585	-
Total in the region (oblast)	1,84	1,177	3,585	3,589
On the basis	1,133	1,133	3,585	3,581

At actual data content of fat and albumen in milk of UZHBO will be:

$$УЖБО_{факт.} = \frac{3,65 + 3,10}{2} = \frac{6,75}{2} = 3,38\%$$

The test mass of milk here will be - 3744139 c.

$$M_3 = \frac{271280 \text{ ц} \times 3,38\%}{3,2} = \frac{916926,4 \text{ ц}}{3,2} = 286540 \text{ ц}$$

For milk in the test mass taking into account UZHBO of the farms of the area would get a money profit yield in a sum – 66760,95 thousands of Uah.

$$232,99 \text{ Uah.} \times 286540 \text{ c} = 66760,95 \text{ thousand Uah}$$

A difference in a money profit yield in behalf of commodity of producers of milk makes 3555,45 thousands of Uah (66760,95 thousands of Uah – 63205,5 thousands of Uah).

At such money profit yield the selling price of centner of milk is 246,10 Uah (66760,95 thousands of Uah / 271280 c), or 13,11 Uah more.

An income from selling the products is 9543,6 thousands of Uah (63205,5 thousands of Uah – 44388,8 thousands of Uah), or on 3555,45 thousands of Uah more.

The level of profitability of production of milk is:

$$\frac{9543,6}{44388,8} \times 100 = 21,5\%$$

thousand of Uah against 15,0% actually without subsidies.

Implantation of this index is also actual in connection with the tendency of decline of consumption of milk and dairy products by the population with the simultaneous growth of consumption of low-caloric dairy as for the production of which the raw materials with high content of albumen is necessary.

Conclusions. Due to the research of the current condition of agricultural production it became possible to determine the strategic direction of increasing and improving the quality of products as market competitiveness criteria :

– Improving the quality of animal feed and feed quality. In 2013, feed consumption per head in average in the region amounted to 39.0 c. r.units. , that is not enough. In areas where the cost of feed per head is higher than c.r. units 35.0. (Berdyansk - 36.4 ; Veselivske - Guliaipilskiiy 35.8 - 40.2 ; Zaporizhzhya- 39.1 , K - Dniprovske - 36.5) is steadily increasing animal productivity ;

– Lack of food is increased by protein deficiency. On average, one r.unit have 85 - 90 g of digestible protein instead of 105 - 115 g at a rate that causes loss of production;

– Increasing in grain the proportion of specific weigh of legumes which in total in grain feed crops should be 11 - 13%;

– Increasing in the concentrated feed being fed to animals (except pigs and poultry) the proportion of specific weigh of feed;

– Compliance with the terms of optimum providing of feed, deviation from which leads to the loss of nearly 1/3 of nutrients. Terms of providing of feed is a factor of 50 - 70% «determines their quality indicators: the content of variable energy and fiber, soluble sugars, crude protein;

– Increasing of specific weigh of legume crops -clover, lucerne in structure of seeding of perennial herbs;

– The increasing of role of protein feeds of plant origin in the diets of cows affected especially after the 2004 introduced a new State All- Union standard R52054 - 2003 «Natural cow milk –a raw,» which focuses on protein content in milk;

– To improve the genetic potential of dairy cattle the wider use of the best breeds in the world – holshtynofryzyska which is characterized by the highest genetic potential efficiency, the best

form of udder, high speed milk flow, better adaptability to machine milking and feed efficiency;

– Extensive use of industrial crossbreeding of dairy cattle breeds with meat breeds that can increase the live weight of cattle, implemented, reduce cost price of production, increase slaughter outcome;

– Minimizing the reasons that lead to underproduction - animal diseases and their death;

– Improvement of productivity of farm animals in average milk yield in the region of milk per cow: up to 4000 kg per year, average daily live weight gain of cattle to 700 g ,pigs - 550 g;

– Following veterinary and sanitary rules of milk production at dairy farms in the region.

The observed ways of improving the quality of products can not be solved in isolation from each other. The best way of solving problems is improving of a product quality and economic efficiency of its production so it is a comprehensive implementation of highlighted problems above , the increasing intensity of the livestock industry on a sufficient and full feed base , on it depends the possibilities of increasing of livestock population and increasing of productivity ,which determines the growth rate and the level of livestock production. Therefore, strengthening of food supply is really important.

References:

1. Нестеренко С. А. Основні напрями підвищення конкурентоспроможності підприємств / С. А. Нестеренко // Збірник наукових праць Таврійського державного агротехнічного університету. –2012. – № 1 (17). – Т. 2. – С. 58–64. – Серія: Економічні науки.

2. Нестеренко С. А. Конкурентоспроможність сільськогосподарських підприємств : управлінський аспект : [монографія] / С. А. Нестеренко. – К. : ТОВ «Аграр Медіа Груп», 2013. – 483 с.

3. Деминг Э. Выход из кризиса / Деминг Э. [пер. с англ.]. – Тверь: Альба. – 1994. – 498 с.

4. Mark Keough Buying Your Way to the Top / Mark Keough // Director. – April. – 1994. – P. 75.

5. Michael E. Porter Strategy and the Internet / Michael E. Porter // Harvard Business Review. –March. – 2002.

6. Millson M. R. Wilemon Strategic Partnering for Developing new Products / M. R. Millson, S. P. Raj // Research Technology Management. – 1996. – V.39. – №3. – P. 41-49.