

## **Strategies For Promoting Sustainable Development Of Dairy Cattle Breeding In Agricultural Enterprises Of Ukraine**

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**Abstract-** The article is devoted to the development of dairy cattle breeding, which now represents an open socio-economic system of interconnections between the branches of the agrarian economy. The process of strategic management of the dairy industry is generalized, which is a constant response to the need for changes that are caused by the influence of environmental factors. The article gives recommendations for the improvement of the strategic planning process for the development of dairy farm enterprises. The authors examine the existing approaches to defining the concept of "strategy", which is an important definition in the theory of strategic planning. The factors of uncertainty of the external environment, to which the enterprise must flexibly adapt, is specified.

The generalization of the fundamental and theoretical developments of domestic practice and foreign experience gives grounds to believe that the dairy industry is a response to changes that are caused by the influence of environmental factors.

Based on data from the State Statistics Service of Ukraine, a survey of the activities of agricultural enterprises - producers of dairy products and research of scientists. It was proved that the result of strategic management of dairy cattle in the long-term, may be: the production of affordable by volume and price of environmentally safe dairy products; conservation of natural resources based on resource-saving technologies; in the social sphere.

Based on the use of economical and mathematical methods, prospects for the development of dairy farming in agricultural enterprises have been calculated, which make it possible to predict further reduction of the number of unprofitable farms in the corporate sector of the agrarian economy, since the production of milk can not be sustained for a long time.

Reasonable strategic approaches for each type of sustainability of farms of the corporate sector of the agrarian economy, taking into account the parameters of development of agricultural enterprises for milk production.

It has been proved that the efficiency of animal husbandry depends to a large extent on the rational normalized use of live and settled labor, therefore the normalization of labor and material resources plays an important role in solving the pressing problems of animal husbandry.

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The research found that the strategic prospects for the development of consumer personal peasant farms depend primarily on the income level of rural households and cities with which they are in family relationships, as well as on the socio-demographic situation in rural areas.

**Keywords:** agricultural enterprise, dairy cattle breeding, economic sustainability, sustainable development, commodity producers

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## 1. INTRODUCTION

Dairy cattle breeding represents an open socio-economic system, the development of which occurs under the influence of numerous factors of the external and internal environment, as well as multi-level interrelationships between the agrarian economies. Ensuring sustainable development and effective interaction of all subsystems and components of milk production necessitates the optimization of elements and interconnections between them, which structurally form the magnitude of parameters of the investigated branch on the basis of strategic planning.

Strategic planning is a process of substantiation and selection of strategic priorities and directions of sustainable and effective development of the dairy cattle industry, which involves the unity of social, economic, scientific and technical, environmental and institutional factors and conditions, the development of decision making on this basis and the mechanisms whose implementation provides for improvement the competitiveness of the studied socio-economic system and its adaptation to the changing environment of the environment. Consequently, the process of strategic management of the dairy industry is a constant response to the need for changes due to the influence of factors of the environment. As the external environment in the present conditions is characterized by an accelerated rate of change that has a multi-directional impact on the development of the economy of the industry, according to management

decisions in real time, they are developed taking into account adaptation to changes.

## 2. ANALYSIS OF THE LATEST RESEARCH AND PUBLICATIONS

Theoretical positions and scientific-practical aspects of strategic planning, functioning and development of enterprises are covered in the works of domestic and foreign scientists, in particular: R. Acoff, I. Ansoff, J. Armstrong, O. Honchar, P. Drucker, W. King, G. Kondratska, D. Cleland, I. Kuznetsova, O. Kuzmina, V. Lyasko, T. Lubanova, G. Mintzberg, A. Mishchenko, T. Mostenskaya, M. Porter, I. Svinous, A. Thompson, R. Fathutdinova, A. Chandler and others. However, for the solution of problems related to the peculiarities of the organization of the process of strategic planning for the development of dairy farm enterprises, it is important to further study and develop the methodological principles of planning, taking into account sector specifics.

## 3. THE PURPOSE

The purpose of the article is to develop theoretical, methodological and practical recommendations for the improvement of the strategic planning process for the development of agricultural enterprises of dairy cattle breeding.

## 4. MATERIALS AND METHODS

In carrying out the research we used general scientific and special methods of research: analysis and synthesis (generalization of theoretical studies), econometric-statistical (research of the

current state and trends of agricultural enterprises of dairy cattle industry and industry), grouping, comparison (comparative analysis of research results), and also systemic, situational (generalization of the system of indicators of strategic planning of development, definition of the direction of development of enterprises in the industry), expert valuation (analysis of factors of external and internal environment, assessment of key factors of sector success), forecasting (calculation of forecast indicators of gross tax, productivity, livestock of cows in terms of agricultural enterprises and households).

## **5. RESULTS AND DISCUSSION**

Consider the existing approaches to defining the concept of "strategy", which is an important definition in the theory of strategic planning. Thus, the most accurate proposed definition of this concept A. Chandler, as "... setting the main long-term goals and objectives of the firm, approval of the direction of action and allocation of resources necessary to achieve these goals [1]. The mechanism of strategic choice of a firm, decision making and development of a program of actions is revealed directly. A further study in the works of K. Andrews [2] combines the above-mentioned definition of a strategy with the definition of F. Selsnika on "characteristic competencies" [3], and also generalized factors of uncertainty of the external environment, to which the enterprise must adapt flexibly.

A process that allows assessing the strengths and weaknesses of a strategic choice, the SWOT- analysis, along with the case method, have become the main tools of the theory of strategic planning, which determines the opportunities and threats of the environment, which determine the directions for their implementation. The term "strategic alternative" in the context of matching existing market opportunities and

capabilities of the firm at a given level of risk C. Andrews was replaced by "economic strategy". [4]. Note that the approach of I. Ansoff, the founder of the school of planning, compared with the concept of K. Andrews was more detailed and complex [5]. At the same time, the conceptual foundations for the choice of strategic alternatives had weaknesses, the adverse effect of which grew with increasing instability of the external environment. As an alternative, the concepts of the "rising strategy" by G. Mintzberg [6] and "logical incrementalism" by J. Quinn [7] appeared, in which much attention was paid to organizational processes, the essence of the chain of managerial decisions was revealed. The main conclusion was based on the fact that, unlike planning, the process of formulating a strategy is a creative synthesis, rather than a formal analysis [8].

Consequently, the fundamental foundations of strategic analysis and assessment tools were created, the strategic choice process, after formulating the strategy and plan in the school planning concept, was based on the priorities of the company's internal aspects. The urgent need to shift the focus from analyzing the company's capabilities to strategic analysis of the external environment, namely, the industry, market segment, in which it competes, found its solution in the conceptual approach to finding the competitive advantage of Porter [9]. It is noteworthy that the resource The approach to strategic management of J. Piercea and R. Robinson, which involves the existence of differences between firms, characterized by the presence of each of them a certain set of resources and unique opportunities for their use, Nasa to professional competence. [10] As the main object within the framework of the concept of dynamic abilities are considered the ability of the company to recognize the signals in the external environment, in accordance

with which it is advisable to develop strategic alternatives [11].

In substantiating the strategic priorities of the development of dairy farm enterprises, we were based on the above-mentioned theoretical developments, which are fundamental and universal in nature, which allows flexible adaptation of the production potential of the business structure to changes in the environment. Consequently, the process of strategic management of the dairy industry is a constant response to the need for changes due to the influence of factors of the environment. As the external environment in the present conditions is characterized by an accelerated rate of change that has a multi-directional impact on the development of the economy of the industry, according to management decisions in real time, they are developed taking into account adaptation to changes.

Obviously, ensuring the sustainable development of dairy farming in agricultural enterprises and private farms in Ukraine is possible on the basis of strengthening economic and social potential, increasing the efficiency of production, which will result in the supply of a quality and affordable product that satisfies the needs of potential consumers of milk and dairy products. It should be noted that the goals of development of each agricultural producer must be in line with the main strategic goal of the country's research industry, on the basis of which strategic priorities are determined taking into account the level of economic stability.

According to the results of the analysis of the sustainability of dairy cattle breeding enterprises, we have substantiated the following strategic priorities for each of the selected groups. Thus, enterprises of the volatile group must be fully focused on ensuring economic stability, it is expedient to pay attention to social issues to the organizational structures of the mixed group on the basis of strengthening

economic stability, and sustainable agricultural enterprises that have achieved economic sustainability should concentrate on strengthening the social and environmental potential and further improvement of their activities.

We believe that for the agricultural enterprises for milk production, the priority is to ensure economic stability, increase the volume of profits, which in the future can be directed towards the achievement of the social and environmental sustainability block. Strengthening human resources and creating favorable living conditions in rural areas will in turn increase labor productivity and interest in the final results, which will also contribute to economic sustainability. The introduction of non-waste and resource-saving technologies will reduce the environmental load and increase the efficiency of the production process. Consequently, each type of sustainability is complementary to the other two and the priority is to solve economic problems.

Consequently, the main directions of sustainable development of the dairy industry in agricultural enterprises are increasing milk production by increasing cow productivity, stabilizing livestock, carrying out the reconstruction of existing farms, their modernization and technical equipment, commissioning of new capacities, improvement of forage production, improvement of breeding-breeding work, improvement of reproductive qualities of animals, etc. [12].

The generalization of the functioning environment of dairy cattle breeding allows us to conclude that in Ukraine one of the best conditions in the world for the production of milk and dairy products has developed. At the same time, the problem of saturation of the market failed to fully solve even the most favorable years for the development of dairy farming years.

As is known, rational norm of annual consumption of dairy products in terms of milk is 438 kg per person, including milk - 182 kg; oils - 5,5; dairy cheese - 7.3; sour cream - 6,5; hard cheese - 6,5; skimmed milk and products from it - 15.9 kg. However, the level of dairy consumption in the country is clearly insufficient - in recent years, about 210 kg (55% of the

norm). At the same time, the consumption of milk and dairy products by the population in recent years has decreased by almost 8% (Fig. 1). Consequently, the main objective of strategic development of dairy farming is to achieve the production of quality and affordable products that would satisfy the rational needs of consumers.

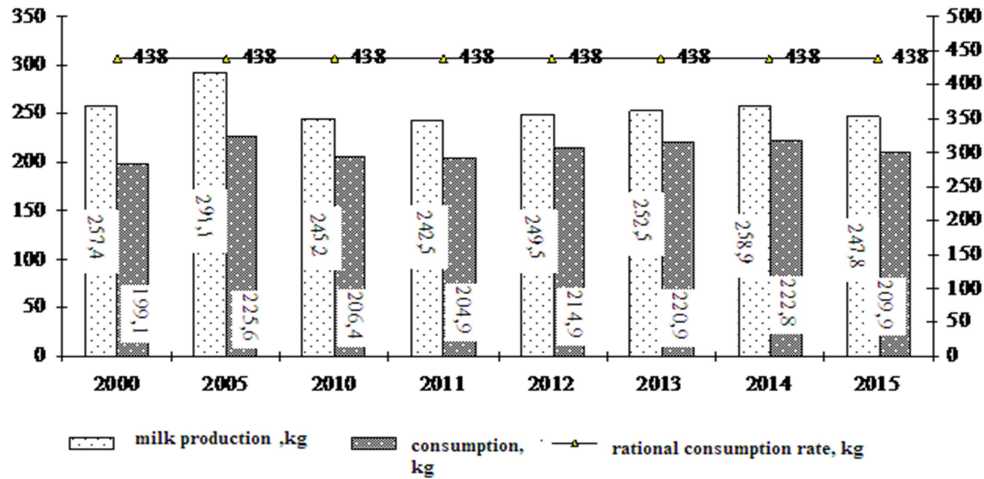


Fig. 1. Dynamics of production and consumption of milk per one person

Source: compiled and calculated according to the data of the State Statistics Service of Ukraine

The result of the strategic management of dairy cattle in the long-term, may be: production of affordable and safe ecological products of dairy cattle; conservation of natural resources based on resource-saving technologies; in the social sphere - improvement of the quality of life of the rural population, development of the social infrastructure of the village.

As noted above, the main producers of milk are agricultural enterprises and households, and, therefore, each of them must develop strategic priorities for their long-term development. So, taking into account the requirements of the WTO in the long run, the main commodity producer should become enterprises of the corporate sector of the agrarian economy.

Based on the use of economic and mathematical methods, we have calculated the prospects for the development of dairy farming in agricultural enterprises (Table

1). It is possible to predict that in the strategic perspective there will be a further reduction in the number of loss-making farms in the corporate sector of the agrarian economy, since milk production can not be damaged. continue for a long time. In this regard, in unstable agricultural enterprises, where milk production has been unprofitable for more than 7 years, there will be a reduction in the number of cows, mainly due to the sale of cattle to slaughter.

According to the calculations of the forecast, there will be a slight increase in the number of cows in stable milk producing agricultural enterprises. In this case, the productivity of farm animals will increase in all types of agricultural enterprises, which is evidence of the orientation of agricultural producers for intensive production.

Table 1  
ACTUAL AND PROSPECTIVE INDICATORS OF DAIRY CATTLE BREEDING OF THE MAIN TYPES OF AGRICULTURAL ENTERPRISES

	Stable (profitable)			Not stable (unprofitable)			Mixed			Total		
	The Number of cows, heads	Milk Production, ts	Hope from 1 cow, kg	The number of cows, heads	Milk production, ts	Hope from 1 cow, kg	The number of cows, heads	Milk production, ts	Hope from 1 cow, kg	The number of cows, heads	Milk production, ts	Hope from 1 cow, kg
Actual	141,9	546	3847	18,4	43	2325	422,6	1263	2990	582,9	1852	3177
	140,7	562	3996	13,7	36	2641	392,5	1253	3193	547,0	1852	3385
	139,9	628	4492	12,5	35	2778	359,3	1338	3723	511,7	2001	3910
	141,6	658	4652	11,3	29	2548	347,0	1330	3832	499,8	2017	4035
	150,2	713	4748	10,1	25	2522	335,9	1319	3926	496,1	2057	4146
	145,7	780	5351	8,3	28	3358	343,4	1492	4346	497,4	2300	4624
	150,0	826	5507	8,7	28	3223	329,2	1525	4633	487,9	2380	4877
	144,7	892	6165	7,9	28	3508	353,3	1663	4709	505,8	2583	5107
	143,3	897	6256	6,7	23	3414	329,0	1652	5023	479,0	2572	5370
Forecast	146,7	886	6040	7,1	24	3384	323,4	1584	4897	477,2	2494	5226
	147,	907	6174	6,8	23	3442	320,1	1604	5010	473,8	2534	5349
	147,2	927	6299	6,5	23	3496	317,1	1622	5115	470,8	2572	5463
	147,4	946	6416	6,3	22	3546	314,4	1639	5214	468,1	2608	5570
	147,7	964	6526	6,1	22	3593	311,8	1655	5308	465,6	2641	5672
	147,9	980	6630	5,9	22	3637	309,5	1670	5396	463,3	2672	5767
	148,0	996	6729	5,8	21	3679	307,4	1684	5480	461,2	2702	5859
	148,2	1011	6824	5,6	21	3719	305,4	1698	5560	459,2	2730	5946
	148,4	1026	6914	5,5	21	3757	303,5	1711	5637	457,3	2757	6029
148,5	1040	7000	5,4	20	3793	301,7	1723	5710	455,6	2783	6108	
2	103,6	115,9	111,9	80,2	89,1	111,1	91,7	104,3	113,7	95,1	108,2	113,8

Source: calculated by the author.

We agree that in developing the strategy, account must be taken of the type of stability of agricultural enterprises producing dairy products, as well as the state of the resource potential and the impact of the external environment on the efficiency of the business entity [13].

Against the above parameters of development of agricultural enterprises from production Milk we are justified by the strategic approaches for each type of sustainability of farms of the corporate sector of the agrarian economy (Table 2).

*Table 2  
STRATEGIES FOR THE FUTURE DEVELOPMENT OF DAIRY CATTLE BREEDING IN AGRICULTURAL ENTERPRISES, DEPENDING ON THE TYPE OF ECONOMIC SUSTAINABILITY*

Type of stability	Strategy	Options for implementing	The implementation process
Steady (profitable)	Concentration	Expansion of sales markets	Growth of production at a high level of efficiency
	Integration	Vertical	Integration "forward" (with processing enterprises)
			Integration "back" (with suppliers of materials and technical resources)
Horizontal	Association with competitors		
Mixed-resistant	Integration	Vertical	Integration "forward" (with processing enterprises)
			Integration "back" (with suppliers of materials and technical resources)
		Horizontal	"Association with competitors"
	Diversification	Connected	Extension of the range through the organic production of goods technologically related to existing production (development of environmental products, etc.)
		Unbound	Extension of assortment by introducing goods technologically unrelated to existing production (development of excursion areas, farms of "fresh milk", etc.)
Unstable (not profitable)	Abbreviation	Liquidation	Stopping milk production, selling business assets
		Abbreviation	Reducing stock of dairy herds

*Source: developed by the author.*

According to the results of the developed forecast of dairy cattle breeding in agricultural enterprises, it can be concluded that sustainable agricultural enterprises will further strengthen their position in the milk market in terms of its deficit. Most of them have modernized and refitted the technological process to the requirements of European legislation on the quality and safety of food and animal care, which will ensure the availability of products to the European market. These are mainly highly concentrated agricultural enterprises.

We believe that in future, for these business entities, in addition to the strategy of concentration, there will be an

integration strategy that involves the formation of vertically-integrated structures that bring together milk producers and processors, as well as increase the assets by absorbing other agricultural enterprises.

An alternative to the development of agricultural enterprises of unstable groups is the integration with organizations of a stable group in order to combine productive resources and increase the efficiency of milk production. Consequently, for selected agricultural enterprises by type of sustainability, it is expedient to use qualitatively different types of development strategies aimed at

improving economic activity that will contribute to increased sustainability.

Thus, UkrlandFarming and Kernel companies are an example of activity that ensures the consolidation of dairy assets through the purchase of other highly concentrated producers. However, most of the big companies - industry leaders, provided an increase in their own production capacities, and also purchased new agricultural enterprises. At the same time, most companies have focused on optimizing productive resources [14].

Thus, the HarvEast holding structure is currently actively working on the reorganization of production, raising the genetic status of livestock, optimizing rations, as well as improving the feed base and indicators in the reproduction. Positive results of this approach have already been noted in the short term. According to the press release of the company as of mid-February 2014, the agroholding managed to increase the productivity of cows by 10% compared to 2013. It should be noted that the strategic direction of the company's development is the achievement of specialized large-scale milk production with its further realization on dairies that are not part of the holding's structure. Thus, in 2014, one of the main purchasers of milk was Lactalis-Ukraine, the total volume of deliveries was 5.1 tons (14 tons per day), however, due to the high quality of dairy raw materials, in 2015 This contract was revised in the direction of increasing shipments - up to 12.8 thousand tons per year (35 tons per day).

The strategy of long-term development of mixed-stable farms, which are mainly independent milk producers, is their orientation towards mutually beneficial economic relations with processing enterprises and with other producers of

milk in order to ensure profitable production of milk. At the horizontal level, the integration between the enterprises of the corporate sector will be observed in the field of fodder production, the purchase of incoming long-term biological assets and incoming material resources. In addition, some will focus on recycling on their own mini-factories to increase the efficiency of dairy cattle breeding.

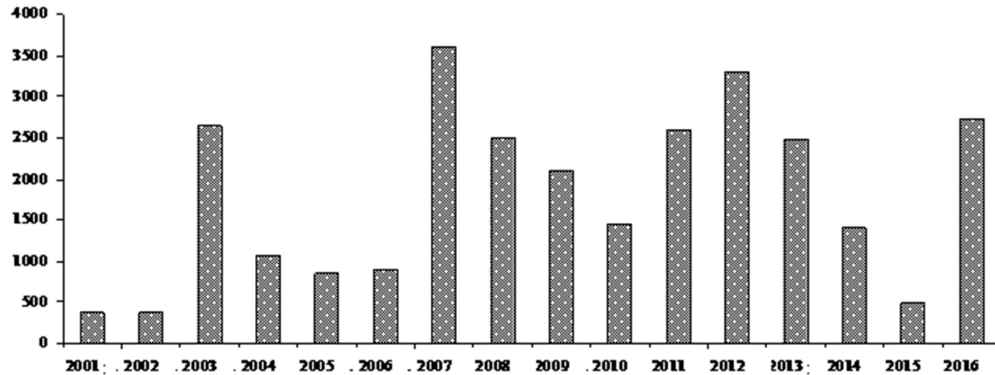
Obviously, unstable business entities with a loss-making nature for over 7 years will be guided by the end of the development of dairy cattle breeding. Proof of this may be the fact that taking into account the prohibition on the sale of second-grade milk, they will be forced to liquidate assets in dairy cattle and reorientate their activities to produce other types of agricultural products.

The projected calculations suggest that in the future, this group of farms will have a reduction in cows' numbers at farms with a simultaneous increase in the productivity of farm animals, which will positively affect the gross milk production in agricultural enterprises.

An important role in providing sustainable development of dairy cattle breeding in agricultural enterprises is given to a scientifically substantiated system of reproduction of a dairy herd. We believe that the main reason that led to a breach of the reproduction process of the herd is the limited availability of own resources to agricultural producers, as well as the lack of public financing, which makes it impossible to purchase cattle from abroad. [15]

We have found that during 2001-2016 there is a variegated import of pedigree animals, which is a reflection of the lack of investment attractiveness of dairy cattle (Figure 3).





*Fig. 3. Dynamics of import of purebred animals to primary education (units)*

Source: compiled and calculated according to the Ministry of Agrarian Policy.

Thus, in 2014-2015, there was a significant decrease in imports of purebred animals to primary health, due to the deterioration of the investment climate in the agricultural sector of Ukraine. At the same time, the unprofitableness of milk production due to low purchasing prices was also a deterrent to the decrease of imports of farm animals in 2001-2002, 2004-2006 and 2010.

The main importers were high-quality agricultural enterprises. We believe that such a tool of state support as compensation for up to 50% of the value of the imported heifer has been positively influenced by the processes of activation of imports of pedigree cattle. At the same time, a stable source of supplies of breeding livestock to agricultural enterprises is the acquisition of high-yielding animals in breeding farms [16]. It should be noted that there are two mutually opposite periods: increase in sales of breeding farms (2003-2008) and decrease - from 2009 on current time So, since 2008 there has been a gradual destruction of the system of breeding dairy cattle breeding in Ukraine. Currently there is no supervisory authority for certification of breeding farms, and the Department of Animal Husbandry of the Ministry of Agrarian Policy and Food performs only the role of a statistical body. In our opinion, now there is a need for the formation of a special body under the

profile ministry on a voluntary basis, which must carry out the process of certification of the activities of agricultural enterprises producing breeding dairy products representatives of profile associations of milk producers, the Department of Animal Husbandry of the Ministry of Agrarian Policy and Food, the Institute of Animal Husbandry NAAS of Ukraine.

In substantiating the prospects for the development of dairy farming of agricultural enterprises in order to ensure the sustainability of the industry, it is advisable to propose measures to increase the level of production culture, which includes several important components. First of all, a strong feed base and balanced feeding, since the proportion of feed in the cost of milk production reaches 60% or more. Consequently, from their quality and feed prices, the final economic result of dairy cattle breeding in agricultural enterprises is formed [17]. Despite the positive trend of a reduction in feed costs for production of 1 ts, which is observed at the present moment, this figure is inferior to the corresponding value of the Belarusian republic. One of the factors this situation is an imperfection in the technology of keeping and feeding cows in agricultural enterprises. We believe that comparing the level of feed costs per unit of products in dairy farming with the leading commodity producers

using the comparative indicator - the feed unit is inappropriate. For this purpose, it is expedient to use the so-called "energy" unit, which characterizes the amount of energy in kJ, which is necessary for production of 1 ts. milk or protein unit, which reflects the amount of digestible protein consumed per unit of product.

Using the pan-European method for determining the level of feed conversion, a comparative analysis of Ukrainian and Austrian milk producers was carried out. Thus, a detailed analysis of the component component of ration feeding cows shows that domestic agricultural enterprises have a significantly higher content of concentrated feed compared to Austrian. It should be noted that in some Ukrainian agricultural enterprises this indicator ranges from 0.68 to 0.86.

According to the study, commodity producers from the leading countries of the world, using high-quality roughage, can produce almost 60% of their gross milk supply. However, with a decrease in the quality of forage, production may be reduced to 25% or more [18]. At the same time, the economic effect is significant. Increasing productivity at the expense of roughage by 5% allows you to save 1 kg of concentrates per cow per day.

In our opinion, an increase in the proportion of crude feed in the structure of the diet, in particular, the use of the system of grazing cows, especially in small and medium-sized agricultural enterprises, is an essential reserve for reducing the cost of milk and improving competitiveness.

It is obvious that the quality of feed directly affects the quality of milk, which is reflected in the size of the purchase price. At the same time, the intensification of agricultural production, the widespread use of mineral fertilizers, growth regulators and chemical means of protecting plants from pests, diseases and weeds lead to the fact that toxic substances can accumulate in fodder plants and switch

to livestock products (in particular, milk) on the food chain "soil-plant-feed-animal-milk-man".

Today, according to detailed nutrition standards, ration balancing for cows is carried out on the 24-32-m indicators. It is established that the quantity of products by 55% depends on the content of energy in the diet, 30% - on protein and on 15% - on mineral substances. Taking into account the significant influence of the feed base on the development of dairy cattle breeding, it is proposed in the Technical Regulation "Production of raw milk and quality and safety management" to introduce the following requirements for feeding cows. In particular, feed used for feeding cows should ensure the need for animals to maintain and productive exchange of energy in nutrients and biologically active substances. Rations for lactating animals should be balanced, taking into account live weight, lactation stage and planned performance, in order to ensure nutrition, physical and technological properties and safety of raw milk.

An important part of the milk production culture is the introduction of innovative technologies. The stability of dairy farming in agricultural enterprises is achieved provided that milk producers meet the industry leaders in terms of resource intensity, productivity, quality and safety of products, and environmental safety of production. As is well-known, the main factor in ensuring the competitiveness of milk production in the leading countries of the world is an innovative component of milk technologies developed by producers of milk at all stages of the production and economic process: feed production, feeding, milking, drinking, maintaining the microclimate and organizing the rest of animals, collecting, storing and delivering milk. to processing enterprises. The development of innovative technologies becomes an objective requirement to

ensure the stability of agricultural enterprises - milk producers, which increases the capital intensity of milk production.

The financial and economic crisis is pushing for the search for the least costly solutions, which is not always rational from the point of view of economic efficiency, which increases the urgency of optimizing the choice of criteria for "short-term profit" (capital cost savings) and "long-term results" (saving on current costs, improving health animals and productive longevity of cows, equipment reliability, stability of production quality, etc.).

A characteristic feature of modern approaches to milk production technologies is their assessment of the technology's effectiveness: the gross volume and quality of milk received from cows on the farm, as well as per cow, the cost and labor costs per 1 ts of milk, the return on investment [19]. The defining and nodal elements of technology on a particular farm are accepted options for keeping cows.

Considering productivity, as a criterion for technology selection, should take into account the aggregate productivity of all livestock workers, and not only the direct productivity of operators in the milking process of cows, comparing the ratio of capital expenditure and wages. [20]. The presentation on the technology market of high-performance milking equipment intended for the organization of partially automated milking, when part of the operations (routine) executes the robot, but part remains behind the operator, increases the relevance of calculations of this ratio when making investment decisions. The similar technology has the advantage that the operator remains a rather complicated operation for dressing milking cups, which significantly extends the ability of milking cows regardless of the shape of their udder and the location of the nipples, that is, increases the proportion of cows in the

herd, suitable for partly robotic milking, reducing the cessation. Simultaneously, the use of automation in the execution of a number of important routines, which require scrupulous and steady performance of technological operations in a certain way and in a certain sequence, minimizes the impact of the human factor.

The transition to milking cows in milk pipelines is an essential reserve for reducing the labor complexity of products, facilitating milking, simplifying and accelerating the milking process, and improving the quality of milk. It should be noted that the use of the newest technologies of milk production ensures an increase in the efficiency of the use of labor resources. Thus, in the transition to unconstrained maintenance of wide use, milking of cows in milking halls, which implies a corresponding division of labor processes. In this case, the doyard carries out only the milking operation of the cows, and the rest of the labor operations is performed by the livestock serving the flock [21].

The most labor-intensive work on farms is the milking of cows, distribution of feeds, cleaning of premises. Studies have shown that the milking process of cows takes 25-38% of the operational time, distribution of feeds - 18-25% of the operating time; cleaning works are carried out manually and occupy 25-36% of the operational time. Operation "milking cows" depends on the following factors: animal productivity, method of milking, type of milking (in a bucket, milk pipeline, milking room), multiplicity of milking, type of apparatus, number of devices with which the milkman works, manner of keeping animals, way of distributing concentrated feed.

Each of these factors has a certain effect on the composition of the operation and its duration. It should be noted that in Ukraine the predominantly three times milking of cows is used. On large farms and complexes of cows milking 2 or 2.3 times

a day on milking grounds. With a multiplicity of milking 2.3 times the number of cows milking in the morning and evening, and at lunch time milking only 30% of cows - with the greatest milk yields. The benefits of two-time milking in terms of saving labor costs are confirmed by the data of photo-chronometric observations, the materials of which are established, that double milking in comparison with three times provides

reduction of labor costs on milking of cows on 17,2 - 27,1% depending on productivity of cows.

The efficiency of cattle breeding depends to a large extent on the rational utilization of live and unregulated labor, therefore the normalization of labor and material resources plays an important role in addressing the pressing problems of animal husbandry (Table 3).

*Table 3*

*GROUP OF AGRICULTURAL ENTERPRISES AT THE LEVEL OF LABOR COSTS PER 1 TS OF MILK, 2016*

Groups for Expenses for payment work on 1 milk milk UAH	Number farms in the group	Fraction Groups at Realization, %	Livestock on economy, ha	Hope from 1 roars, kg	Cost 1 ts realized products, UAH	Price realization UAH for 1 ts	Profitability, %
to 25	207	17,5	365	6037	377,19	456,91	21,1
25,1-50	430	31,1	347	5433	365,76	444,74	21,6
50,1-75	481	35,0	336	5653	409,82	444,37	8,4
75,1-100	279	12,5	259	4584	424,21	435,74	2,7
100,1-125	119	2,5	154	3680	471,02	431,69	-8,4
125,1-150	57	1,1	145	3520	467,42	399,63	-14,5
150,1-175	24	0,2	87	2142	536,80	394,20	-26,6
175,1-200	11	0,1	75	2015	586,96	386,83	-34,1
200,1 and more	21	0,1	47	1656	663,49	392,37	-40,9
<b>Total</b>	<b>1629</b>	<b>100,0</b>	<b>300</b>	<b>5348</b>	<b>394,76</b>	<b>444,67</b>	<b>12,6</b>

*Source:* author's calculations.

The data presented in Table 3 shows that in the farms with a high level of expenditure per 1 ts of milk (200 UAH or more), labor costs are unprofitable and characterized by low productivity of cows, which indicates the lack of motivation of workers in improving labor productivity. Thus, the level of loss-making was 40.9% and the productivity of cows was only 1656 kg.

At the same time, the highest level of profitability of milk production was obtained by a group of enterprises, where the cost of labor costs by 1 ts is 25.1-50 UAH, and hopes for cow 5433 kg. Consequently, in highly intensive farms of the first and second groups, there is a low

amount of labor costs, high milk production efficiency indicators are provided. Consequently, the organization of labor for the implementation of technological operations in the production of milk requires its scientific justification and the use of an effective system of employee motivation to comply with existing requirements.

Taking into account the fact that employees are involved in the production of milk - a foodstuff, it is necessary to separate the requirements for employees into a separate paragraph of the proposed technical regulation "Production of raw milk and quality and safety management". In particular, it is suggested that the

personnel who perform the processing operations of raw milk should have the appropriate qualifications and adhere to the rules of labor protection in livestock breeding.

Personnel engaged in the processes of production, operation of equipment, storage, transportation, sale and utilization of milk are obliged: to undergo a preliminary medical examination (survey) during recruitment and periodic medical examinations once a year; have professional training, in accordance with qualification requirements, approved in accordance with the procedure established by the Cabinet of Ministers of Ukraine; to comply with the requirements of job descriptions, technological cards, sanitary and veterinary rules and norms that establish requirements for the production of safe and quality raw milk; to observe the rules of operation of equipment; pass

primary and periodic safety instructions; to systematically raise qualifications, to comply with the measures stipulated by the legislation of Ukraine, to prevent the damage to the lives of citizens and animals, property, environment.

Employees are obliged to use personal protective equipment when working with animals, aggressive chemicals - detergents and disinfectants, medicines, maternity overalls in accordance with current legislation

Since the lion's share of milk in Ukraine is produced by households, in this study it is advisable to consider the specificity of milk production by this group of producers. Using economic and mathematical methods, we estimate the number of cows in the main types of rural households that produce milk and their share in the overall structure (Table 4).

*Table 4*

*PROJECTED CALCULATIONS OF THE INDICATORS OF POPULATION AND SHARE OF RURAL HOUSEHOLDS, DEPENDING ON THEIR TYPE*

View	Year								
	2017	2018	2019	2020	2021	2022	2023	2024	2025
Livestock									
Consumer	749	700	654	611	571	534	499	467	436
Consumer goods	418	395	372	351	331	312	294	278	262
Commodity and consumer	168	176	186	198	211	226	243	261	281
Commodity	334	352	369	386	402	418	433	448	462
Total	1669	1623	1582	1546	1516	1491	1470	1453	1441
Fraction									
Consumer	58,2	56,8	55,4	54,0	52,6	51,2	49,8	48,4	
Consumer goods	30,0	29,5	29,0	28,5	28,0	27,6	27,1	26,6	
Commodity and consumer	6,6	6,9	7,2	7,5	7,8	8,1	8,4	8,7	
Commodity	5,3	6,9	8,4	10,0	11,6	13,1	14,7	16,3	
Total	100	100	100	100	100	100	100	100	

*Source: author's calculations.*

The calculations are presented in Table. 4 indicate that in the long term there will be a decrease in the number of cows due to

the complex socio-demographic processes in the countryside. It should be expected increase in the number of cows in

consumer goods and commodity personal peasant farms, but it does not compensate for a significant reduction in the number of consumers in consumer and consumer goods PF.

During the investigated period, there is an increase in the share of commodity-consumer and commodity personal peasant farms producing milk. However, consumer households will occupy the largest proportion, which is evidence of the latter's orientation towards self-sufficiency of the rural population.

According to calculations it can be concluded that in general there will be a further decrease in the number of cows in private farms until 2025. However, during the forecast period, they will remain the main commodity producers of milk in Ukraine.

Due to the deepening of the integration of the national economy into the global economy, new challenges arise for this type of milk producers. In particular, one of the WTO requirements is to streamline the trade in meat and dairy products on the domestic market of Ukraine in accordance with international quality standards.

In 2005, in order to harmonize national legislation with WTO requirements and to establish control over the safety of sold domestic meat and dairy products, the Law "On Safety and Quality of Food Products" (No. 771 dated 23.12.1997), which provided prohibition of the implementation of domestic milk, cheese and meat of animals slaughtered in the yard.

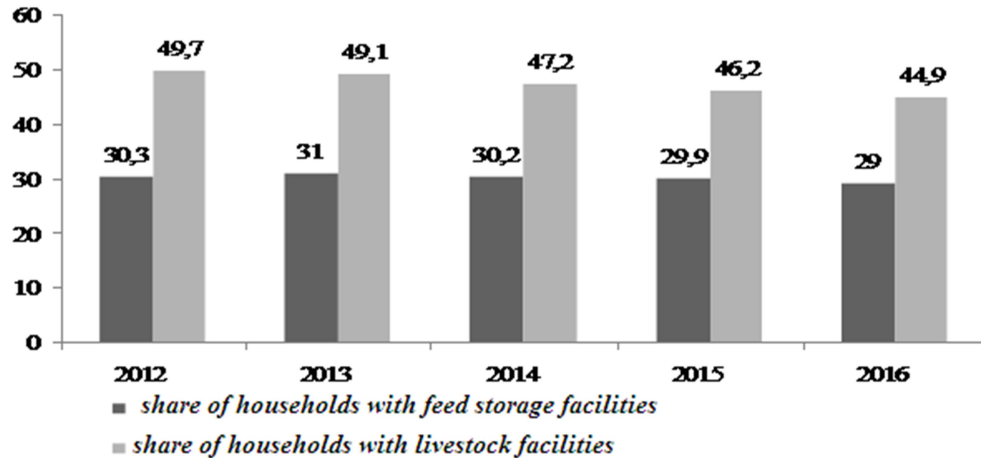
In particular, Art. 35.1 the sale of unprocessed milk and home-made cheese was prohibited.

In the summer of 2014, the Law "On Amending Certain Legislative Acts of Ukraine on Food Products", which enters into force on September 20, 2015,

provides for a gradual transition with a view to bringing Ukrainian food legislation closer to the European one, in particular, with regard to the sale of home-made products. to the new rules. Thus, starting from September 20, 2020, products of animal and plant origin of domestic production can be sold on agro-food markets, provided they confirm their suitability as a result of research by an accredited laboratory.

According to scientists, rapid milk research in laboratories in markets can not identify some microbiological indicators, which sometimes require a long time. The problem is not only in the points of collection, but in conditions where peasants milk cows. Currently, the minimum European requirements for the quality of milk - 400 thousand somatic cells and not more than 100 thousand bacterial. [22]. The milk obtained by hand milking will never have such indicators, since the conditions for keeping the animals should be almost sterile, using special milking machines with the function of instant cooling and preventing direct contact with air. The set of such equipment is very expensive, which makes it not available for use by this group of commodity producers.

In addition, there are European standards for animal retention. Thus, animal storage facilities do not conform to European norms; this is perceived as a violation of and abusive animal rights. It should be noted that during 2012-2016, one third of rural households had premises for storing feeds and in less than half - for livestock and poultry (fig. 4). It should be noted that there is a negative tendency in providing rural households with premises for storage of feed and for keeping livestock and poultry. Thus, during the period under study, the share of households in which existing storage facilities decreased by 1.3 cents. etc., in which there is room for the storage of animals and poultry - at 4.8.



*Fig. 4. Security of households production premises, %*

*Source: compiled and calculated according to the data of the Ministry of Agrarian Policy of Ukraine*

The main reason for the insufficient level of availability of production facilities is the lack of financial resources for the PF for the construction of new and existing ones. This root cause also hinders the development of the PF product orientation. So, only half of rural households have premises for keeping livestock and poultry irrespective of the area of land use.

Reconstruction of commercial premises, which will ensure the expansion of the area of the latter to date is economically unprofitable due to a violation of the parity of prices for industrial and agricultural products. Due to the lack of facilities for keeping young animals of bovine animals in most owners it is in temporary premises, which is possible only in the spring-summer period of the year. The maintenance of farm animals in temporary structures, especially in the autumn-winter period, is economically inappropriate due to the low payback of feed.

In our opinion, in order to minimize the risks of imposing such prohibitions, it is necessary to create the necessary number of milk delivery points at which milk product of appropriate quality would be formed, which, in turn, would allow for higher purchasing prices for milk from households.

At the same time, the state system for the reception of milk from the population has not been created. Moreover, the procurement system that currently exists requires significant changes and investments. According to the results of the survey of procurement points it is established that 2262 units are located in separate premises. or 33.1% of these structures surveyed in Ukraine; 13.3% of the embedded premises or 906 surveyed purchasing points were placed; containers contain 20.2% or 1,379 points.

According to the survey data, on average, 5845 points (85.6%) do not have centralized water supply. The points provided by water wells are 1,460 units or 21.4%, and from other means of water supply - 4385 units. or 64.2%. Other means of water supply are mainly wells with installed electropumps, which pump water to certain capacities. Hot water supply is absent at 3,995 points, which is 58.5%, as well as no electricity supply in 21.5% of surveyed points (1,468 units).

According to the results of the examination of milk receiving points there is no laboratory equipment for measuring: temperature - 41,8% of points; acidity - 49,4% of the points; fat content - 32.5% of the points; protein - 51.6%. In addition,

14.1% of all surveyed items do not have dairy equipment, 75.8% - weight, 17.2% - milky. Due to the presence of refrigeration equipment: in in general, in Ukraine, it does not have 43.8% of the surveyed points.

Taking into account the peculiarities of milk production by various types of households, we have substantiated the strategies for ensuring sustainable development in the future (Table 5).

*Table 5*

*CHARACTERISTICS OF STRATEGIES FOR THE SUSTAINABLE DEVELOPMENT OF PRIVATE PEASANT FARMS*

Kind households	Strategy	Typical set	The implementation process
consumer	Insulation	strategy options	Milk production to meet your own needs. Performance indicators are not decisive.
Consumer goods	Concentration	Focus on self-sufficiency	Target exclusively on the domestic rural market in terms of reducing cows' livestock and increasing demand for milk and dairy products in rural settlements
	Diversification	Connected	Implementation of partial milk processing and their further realization.
		Unbound	Production and further sale of non-dairy cattle-breeding stock.
Commodity and consumer	Concentration	Market development	The focus is on the sale of milk and dairy products not only on the domestic agricultural market but also on the city markets.
	Integration	Vertical	Formation of stable partnership relations with processing enterprises and trade and intermediary structures.
		Horizontal	Voluntary association of households for the purpose of joint cattle grazing and sale of milk and dairy products in the urban food markets.
Commodity	Concentration	Market development	Domination both in the domestic market and its further monopolization. Recycling enterprises are mainly oriented towards this category due to high quality and significant volumes of products
	Integration	Vertical	Formation of partnership relations with processing enterprises
		Horizontal	Formation of cooperative associations for the purpose of production and sale of milk and dairy products.

*Source: developed by the author.*

Consequently, the strategic prospects for the development of consumer personal peasant farms depend primarily on the level of incomes of rural households and cities with which they are in family relationships, as well as on the socio-demographic situation in rural areas. Taking into account the further negative tendency of socio-economic development of inhabitants of rural settlements, most rural households will be oriented solely on their own support to members of city households with whom they are in family ties. In addition, the low level of technical support for milk production in this group

of households will not contribute to the growth of milk production.

It is substantiated that consumer and commodity households will be guided mainly to meet demand in the domestic market in the context of reducing the number of cows in rural households that hold 1 cow. A small proportion of milk is sold by processing enterprises through a network of procurement points, and in the form of processed dairy products on the retail food markets of Ukrainian cities.



Commodity, consumer and commodity households in the future should become the basis for the development of small business entities in the field of agribusiness through voluntary association in cooperatives and the further concentration of productive resources in this category of agricultural producers. An analysis based on a questionnaire survey of the age structure of private farms that sells milk and dairy products on the urban food markets shows that these are rural unemployed, mainly women aged 25-45. So, in most farms of the Gussyatinsky region, Ternopil region, where there are 5-6 cows, these women are engaged in the sale of milk and dairy products in the cities of Ternopil and Kyiv. The organization of this channel for the implementation of milk products has already been developed. Firstly, there is a clear division of functions between each participant of this cooperative, built on the basis of the family. One person is engaged in the sale of dairy products in the food markets of Kiev and permanently resides in this place. Two to three persons organize transportation depending on the volume of expected demand, both by rail and by own transport, with intervals 2-3 times a week. For dairy products, which are sold in Kyiv from other regions of Ukraine, there are corresponding documents of the veterinary services of the regions certifying its quality, and it passes appropriate sanitary control directly on the place of implementation. According to the participants of this cooperative, net income is much higher than in the sale of dairy products in the city of Ternopil [23].

Assessing the prospects for dairy cattle breeding in Ukraine, it should be noted that the strategic direction of its development is to increase production volumes while improving quality. Among the agricultural enterprises is the growth of the number of high-tech farms of the corporate sector of the agrarian economy, households of the population - cooperation. Due to the integration of the

economy of the population, they would receive significant advantages in different directions of maintenance of production activity, inaccessible or limited in individual employment, for example: it would be better organized and carried out veterinary supervision; more possibilities to ensure reproduction of the herd; the quality of milk would be improved by the use of milking machines, mini-coolers and other aggregates; would facilitate the organization of the optimal forage base, would improve the relationship between the producer and buyer of dairy raw materials, and more. But unfortunately, at that moment, this direction of development did not find support either at the level of state policy, or at the level of the immediate consumer - milk processing enterprises. The possible self-organization of households in such associations, with rare exceptions, was also not expected to reach significant proportions.

## **6. CONCLUSION**

According to our forecasts, the further distinctive feature of the development of the sector will be the establishment of milk production, initiated by large processors, and investment in the development of large-scale production, despite such a deterrent factor as the need to attract significant financial resources with long payback periods.

Consequently, strategic programs for the development of dairy farming in both agricultural enterprises and PF are aimed at increasing the efficiency of its production, increasing the competitiveness of milk and dairy products. At the same time, the importance of maintaining inter-sectoral proportionality - the forage stock of livestock, the amount of raw materials for processing and processing capacities, volumes of production and capacities for its storage - is increasing. There is an opportunity for commodity producers to ensure the sustainable development of dairy cattle, which will direct investment in the development of milk production and

transfer it to an innovative basis; the main actors will be agricultural enterprises and private peasant farms, the latter should be partially oriented towards consumer cooperation and support through specialized training centers.

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