

The Efficiency of Livestock in Agricultural Enterprises

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Abstract: Article contains analysis of institutional changes (made in the course of transition to market economy) in agriculture, economic evaluation of existing forms of economic management both in big and middle/small agriculture enterprises. The most typical regions of Kazakhstan -Kostanai and Almaty regions - were chosen. System approach is presented which is based on analysis of current state and future development of mixed economy in agriculture. In this regard effectiveness of existing infrastructure of agriculture enterprises in terms of economic management forms is calculated, problem areas are defined and the ways to reach sustainable growth of livestock, stable increase in production of meat and milk are described. The main probable factors which lead to increase in effectiveness of production - the sizes of enterprises, specialization of production and improvement of legislative acts - are investigated.

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1. Introduction

Studies of economy of agriculture units, including agriculture enterprises and peasant farms are important because they enable to increase effectiveness of this industry, demonstrate dynamics of changes in present and in future. See Table 1. In agrarian sector of Republic of Kazakhstan we observe positive dynamics of growth of active enterprises, producing agricultural goods.

Table 1 Dynamics of agriculture units in Kazakhstan in 2008-2011

	2008	2011	2008 in % to 2001
Total number of agricultural units	201 890	197 033	97,6
Among them, proportion of active ones:	174 608	176 822	101,3
including			
Agricultural enterprises	5 282	6 493	122,9
Peasant farms	169 326	170 329	100,6

By now institutional changes in agrarian sector of Republic of Kazakhstan have resulted in mixed economy: this is a system of agriculture enterprises, peasant and household farms (economies) [1]. Agriculture enterprises consist of entities of different forms of ownership: producers' cooperatives, LLPs (limited liability partnership), joint-stock companies, consumers' cooperatives etc. They differ in the extent of independence in making decisions connected with production, use and distribution of products.

Modern statistics is not open – that is why activity and current state of different forms of economic management in agriculture of Kazakhstan cannot be evaluated. Therefore the influence of institutional changes on effectiveness of production has not been studied - and this issue was overlooked. But climate and nature conditions of Kazakhstan and development of agriculture here have their particularities – and specific research of this issue must be done. To reach this aim a specific research of Kostanai and Almaty regions was done because these territories are the most typical for northern and southern parts of Kazakhstan. Developed cattle-breeding can be observed in these regions. Proportions of cattle and poultry are as follows: for bovine cattle - 21,1%; for sheep - 19,1%; for pigs - 30,4%, horses - 20,2% and poultry - 42,6%.

Current state of livestock here shows that institutional changes have not led to formation of system of agriculture enterprises and farms. Main part of total number of livestock and poultry is concentrated in household economies, and agriculture enterprises which engage technical and technological innovations are of minor proportion for long time (Table 2).

The most “acute” problem is the size of agricultural enterprises. The most competitive advantage must be with big enterprises which are able to use innovations of modern science. But the main part of agricultural “landscape” is formed by small and middle-sized farms. Specific “weight” of meat produced in big farms is only 11%. On the

contrary, practice in the USA demonstrates that main producers are big enterprises, which are the most technologically developed; they use the supply and sales chains. For example, more than 85% of beef, pork and chicken in the USA are produced at big enterprises with staff of more than 400 employees [2].

Table 2 Distribution of total number of cattle and poultry among the categories (types) of farms in Kostanai region in 2011.

	All categories of farms	Including		
		Agricultural enterprises	Peasant farms	Household farms
Bovine cattle	100	23	7	70
Pigs	100	3,5	2,7	93,8
Sheep and she-goats	100	1,7	11,9	86,4
Horses	100	11,4	12,5	76,1
Poultry	100	44,7	0,1	55,2

My investigation has proved that there is no connection between end results and the size of farms in regard to production of meat and milk (Table 3). In conditions of Kazakhstan increase in efficiency must be achieved not only by use of market tools, but with advantage of highly-productive livestock as well. Pedigree livestock must play the main part in forming of competitive industry. Low live weight of cattle is observed which is connected with insufficient weight of pedigree livestock. In regard to bovine cattle it amounted to 7,6% in 2011.

Table 3 Effectiveness of beef and milk production in terms of size of agriculture farms (enterprises) of Kostanai region for 2011.

	On the average	including		
		big	Middle-sized	small
Average weight of 1 year of alive bovine cattle, kg	352,3	284,0	391,0	381,9
Average quantity of milk per 1 cow, kg	4089,8	4096,7	4087,1	4085,7
Costs of production of 1 kg of meat, tenge				
- of bovine cattle	326,5	362,4	227,9	389,1
- milk	59,4	71,7	37,1	42,5
Sales price for 1 kg of meat, tenge				
- of bovine cattle	373,8	414,5	251,1	455,9
- milk	68,0	79,4	51,8	72,8
Profitability level, %				
- of bovine cattle	14,5	14,4	10,2	17,1
- milk	34,9	25,2	39,4	71,3

The issues of rise of effectiveness of production of meat and milk must be discussed in terms of production specialization. For example, in the USA the combination of plant-growing and livestock-breeding has remained only in Middle West and in the north-eastern part of the country. In general a tendency to division of these industries is observed [3]. In contrast, In Kostanai region present-day agriculture is integrity of plant-growing and livestock breeding – it was so before the market reforms, and after them nothing changed. And the

size of a farm depends on the degree of development of cereals and other plant-growing branches. Livestock-breeding is an additional industry and total amount of cattle do not always depend on the size of a farm.

Transition to market is accompanied with development of multiplicity of forms of economic management. In Kostanai region the following structure of farms based on the forms of ownership is observed: LLPs - 95%, cooperatives - 2,7%, joint-stock companies - 1,5%; state enterprises - 0,8%. LLPs are well-spread in the north of Kazakhstan. LLP is a partnership established by one or several persons, stock capital of which is divided into amounts in accordance with the proportions approved by establishment documents; the participators of LLP bear no responsibility in regard to its liabilities and bear risks of losses connected with activity of LLP in the amount of the shares contributed into common capital [4].

Development of entrepreneurship in agrarian sector in the form of LLP is judged by quite different opinions. It is not possible to call every participant of production an entrepreneur - it is incorrect and not logical because the real entrepreneurs are only directors, or at least a group of people mostly from the senior management. All others are hired employees. As a result of it the structure of labor potential has no single aim because every group is in its own "niche" of production. The interests of every group are different which results in failure to use potential opportunities for cooperation, for obtaining benefits by all participators of production process. It leads to low labor productivity and effectiveness of production.

In spite of distinct advantage of producers' cooperatives based on voluntary share participation in union of independent producers for common production of agricultural goods, its processing and sales, as well as for other kinds of joint activities in order to satisfy economic and social needs of their farms they are not leaders on agriculture production. For example, RK Law "About producers' cooperative" says: producers' cooperative is a voluntary union of citizens on the base of membership for joint entrepreneurial activity, in accordance with their personal labor participation and amounts of shared property [5]. In other words the production system itself is based on collective ownership and all participants are both employees and entrepreneurs. Cooperatives are considered to be the best form of an enterprise where individual interests do not dominate over collective ones [6]. According to UN definition the cooperative system is a form of social and economic organization of production, based on principles like voluntariness and

openness of association, of democratic control and participation of members, autonomy and independence, education, ability and information, cooperation and commitment to the community [7]. Agriculture cooperative services are dominating forms in the world [8]. In big production units 99% of total number of bovine cattle, in middle ones - 97% and in small farms – 100% - is concentrated in LLPs (Table 4).

Table 4. Total number of bovine cattle in agriculture enterprises (farms) of all economic management forms of Kostanai region – data for 2011.

	Total	LLPs	Producers' cooperatives	JSCs	Consumers' cooperatives
<i>Big farms</i>					
Bovine cattle	8070	7998	62	x	10
	100	99,1	0,8	x	0,1
<i>Middle-sized farms</i>					
Bovine cattle	34369	33432	x	937	x
	100	97,3	x	2,7	x
<i>Small farms</i>					
Bovine cattle	44144	44144	x	x	x
	100	100	x	x	x

As it was proved by previous studies high profitability in production of milk was achieved at middle-sized and small farms. And among them high efficiency was shown by small farms organized in the form of LLP. They were made in the framework of innovative projects, financed by National fund of RK. In Kastanai region they are: LLP Sadchikovskoye – a member of LLP companies group Ivolga holding - which includes dairy goods farm for 400 cattle beasts, the number of employees is 50 people, LLP Saryagash with dairy products farm for 1250 cattle beasts, the number of employees is 30 people. etc.

Small farms are effective because of low labor and unit costs and high selling price. As for productivity of cows it is almost the same with all types of farms - a little more than 4000 liters for a cow. So we can observe that cows do not influence productivity of some definite type of a farm. In general in this sphere there is no advantages for big enterprises in comparison with middle-sized and small farms. Producers' cooperatives which produce meat are organized only in big farms where the costs are much lower (only 9%) than in small farms. (Table 5).

In Almaty region the situation is the same as in Kostanai - most of livestock is concentrated in household farms and peasants farms. That is why specific proportion of agricultural enterprises evaluated in terms of total number of cattle and poultry is very low and is equal to, in %: bovine livestock - 4,1%; pigs - 29%; sheep and she-goats - 5,2%; horses - 5,4%; poultry - 74,3%. This

mentioned quantity of cattle and poultry brought in 2011 26,9% and 3,9% of all meat and milk.

Table 5 Level of profitability in production of meat and milk in agricultural enterprises of different economic management forms in Kostanai region in 2011

	On the average	LLPs	Producers' cooperatives	JSCs	State enterprises
<i>Big farms</i>					
Beef	14,4	22,1	9	x	x
Milk	25,2	25,2	x	x	x
<i>Middle-sized farms</i>					
Beef	10,2	10,2	x	x	x
Milk	39,4	39,4	x	x	x
<i>Small farms</i>					
Beef	17,1	17,1	x	x	x
Milk	71,3	71,3	x	x	x

Between these zones there are no sound differences in concentration of livestock and poultry (Table 6). Again most number of bovine cattle (58,4%), sheep and she-goats (60,1%), pigs (94,8%) and poultry (94,1%) is concentrated at small and middle-sized farms. Only horses and camels (61,5% and 93,8% accordingly) are mainly raised at big enterprises.

In Almaty region (in contrast to Kostanai region). we observe the other structure of agricultural farms (Table 6). Big enterprises are combined LLPs, producers' cooperatives and JSCs, where dominating position is kept by JSCs in production of meat, in production of milk - by LLPs, among middle-sized farms LLPs prevail; small farms are usually LLPs and producers' cooperatives, JSCs and commandite partnerships; here the most part of meat goods is produced by JSCs, the most proportion of milk - by producer's cooperatives and JSCs.

Table 6. Meat and milk production on agricultural enterprises of different forms of ownership in Almaty region in 2011, metric centners.

	Total	LLPs	Producers' cooperatives	JSCs	Consumer s' cooperativ es	Commandi tes	State enterprises
<i>Big farms</i>							
meat (carcass weight)	229903,5	15832,3	85,2	213986	x	x	x
	100	6,9	x	93,1	x	x	x
milk	23732,9	22121,1	1367,8	207	x	x	37
	100	93,2	5,8	0,9	x	x	0,1
<i>Middle-sized farms</i>							
meat (carcass weight)	25921,1	25027,3	261,2	32,6	x	x	x
	100	98,9	1,0	0,1	x	x	x
milk	73762,3	68345,3	5417	x	x	x	x
	100	92,6	7,4	x	x	x	x
<i>Small farms</i>							
meat (carcass weight)	345423	60798,7	1956,4	282283,9	x	384	x
	100	17,6	0,6	81,7	x	0,1	x
milk	143347,9	11819	64939	54982,9	x	11607	x
	100	8,2	45,3	38,4	x	8,1	x

In the region competitive advantages are held (in milk production) - by middle-sized and small farms (Table 7). They have high productivity of cattle and low costs of production. Meat production is low-effective in all groups. The size of an enterprise (or a farm) does not influence production effectiveness so far.

Table 7 Effectiveness of livestock in terms of farm size in Almaty region in 2011.

	On the average	including		
		big	Middle-sized	small
Average weight of 1 item of alive bovine cattle, kg	323,0	334,4	352,6	294,0
Average quantity of milk per 1 cow, kg	3727,3	2935,1	3310,1	4936,8
Costs of production of 1 kg of meat, tenge				
- of bovine cattle	269,3	313,4	256,5	238,1
- milk	39,9	49,3	31,8	38,5
Profitability level, %				
- of bovine cattle	7,3	-0,8	6,1	18,8
- milk	42,3	32,9	68,2	33,8

In agricultural enterprises all organizational and legal forms of obtaining profit do not function in a stable way (Table 8). Producers' cooperatives incur losses in beef production at middle-sized and small farms but milk production on them is profitable. In regard to LLPs the following facts are observed: small farms incur losses in production of beef; middle-sized farms show high efficiency of milk production. That is why it is not possible to judge which economic management forms are of priority in agricultural in terms of financial and economic indicators. Existing structure of agricultural enterprises does not provide for steady growth in livestock, increase in production of meat and milk.

Table 8 - Profitability of beef and milk production in agricultural enterprises of different economic management forms in Almaty region in 2011

	Average	LLPs	Producers' cooperatives	JSCs	State enterprises
<i>Beef, %:</i>					
- big farms	7,5	4	5,4	11,1	x
- middle-sized farms	7,1	21,3	-14,3	x	x
- small farms	-20,7	-33,4	-24,5	5	3,1
<i>Milk, %:</i>					
- big farms	15,0	20,3	3,9	x	20
- middle-sized farms	50,7	57,9	31,5	x	21,9
- small farms	36,7	1,1	64,9	x	60,3

The key is paying attention to specific particularities of agriculture determined in texts of legislative acts in reference to the entrepreneurship entities. Nowadays private entrepreneurship entities in accordance with law in force are divided into entities of small, middle-sized and big entrepreneurship judged, in general, by annual average number of employees and annual average value of asserts (Table 9) [9].

Table 9 - Conditions of functioning of private business entities in Kazakhstan

	Annual average number of employees	Annual average asserts value, thousand tenge
Small business	Not more than 50	Not more than 103,9 (1)
Middle-sized business	50 - 250	Not more than 562,6 (2)
Big business	Over 250	Over 562,6 (3)

Notes: - 1. not more than 60 MRP (1); not more than 325 MRP (2); over 325 MRP (3).
2. MRP=1731 tenge.

In different countries they set boundaries between small, middle-sized and big business in different ways. In Canada enterprises with total number of employees up to 500 is referred to middle-sized businesses, over 500 - to big companies, less than 100 - to small companies. Another criterion is gross income of a company. In EU: up to 250 employees - middle-sized business; less than 50 - small companies; less than 10 - micro business [10]. But total number of bovine cattle in some big companies have demonstrated its great diversity. For example, LLP Balatinskoye has total number of bovine cattle of 3076 animals, including 640 cows, LLP named after Karl Marx - 6558 and 1800 accordingly; LLP Sadchikovskoye - 777 and 346, LLP Zarechnoye - 811 and 188. And LLP Sheminovka (middle-sized business) has **2495** units of bovine cattle including 600 cows.

Generally speaking, issues of normative regulation have its own specific particularities in livestock industry. For example, in livestock the most significant thing is total number of cattle and poultry. Therefore main criterion to judge producers engaged in production of livestock goods and for division them into business entities must be total number of cattle and poultry, not the number of employees. It is proved by the fact that nowadays subsidies to livestock industry depend on total number of cattle [11]. The amount of subsidies is determined by the farm size which is judged by total number of cattle. This approach must be applied to all types of farms regardless of their size. But with current procedure of state support the subsidies are given only to big farms. But main producers, concentrated at small and middle-sized farms which produce 85% of milk and 75% of meat do not get subsidies at all. Therefore appropriate conditions for state support of small and middle-sized farms must be elaborated in legislature. For example in the USA they give subsidies for production of dairy goods, beef, pork and poultry [12]. In Germany small farmers get subsidies alongside with big ones. But small farmers get 8 000 Euros and amount to 80% of all farmers, and big farmers get 200 000, their proportion is 2% [13].

Observed absence of diversity in effectiveness of different forms of economic management is explained by the following reasons:

- their organizational and institutional particularities are not taken into consideration;
- equal rights “field” for small and middle-sized businesses is not developed because only policy of motivation of big enterprises has been applied;
- big farms could not form innovative strategy of implementation of new technologies and machinery because they contribute little into livestock production. For example in Kostanai and Almaty regions big enterprises contribute only 12 and 18% (accordingly) into meat production;
- all economic management forms have sales problems which do not provide for high sale price.

Therefore absence of systematic approach, ignoring of one or another factor do not provide for increase in production effectiveness of agricultural enterprises. Mixed economy could not create competitive environment for different forms of economic management because there is no complex interaction within whole mechanism of economic management.

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