

Current condition and trends in development of agricultural production in Kostanay region

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Abstract. The investigated region is characterized by a diversity of landscapes: from forest-steppe to semi-desert. Lands of various areas, farms, fields and even sites vary in their properties and suitability for agricultural use. The lands have different effects not only on crop yields, but also on production costs, labor productivity and amount of gross and net income per unit of crops. These differences condition specialization of enterprises and cropping areas of the region, combination of crop and livestock sectors significantly.

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Introduction

Most of the problems which arise in the process of reforming the agricultural sector occur due to the violation of worker's economic interests, various economic and financial enterprises and this fact should be taken into account when solving the problems of agriculture [1].

The world practice shows that the main indicators of state regulation in the development of rural countries areas are: GDP per capita, average per capita income; unemployment rate [2-9].

These indicators are both directly and indirectly related to the economy of rural areas. According to the World Bank classification, Kazakhstan is referred to the group of countries with low GDP production in the context of per capita income. GP level of agriculture per one rural resident in the country is 1.8 times lower than in Russia, 1.3 times lower than in Ukraine, 3 times lower than in Turkey, 7.5 times lower than in South Korea and Germany, 8.8 times lower than in France, 43 times lower than in Belgium.

Main part. Level of population income both at the place of residence and throughout regions is significantly differentiated. In 2009 rural population with incomes below the subsistence minimum was 32.6%; this is much higher in comparison with urban population. This index is lower than average republican one: in Akmola (25.3%), Kostanay (27.4%), Northern Kazakhstan (26.6%), Southern Kazakhstan (23%) regions, but it is higher in Mangistau (83.6%) and Kyzylorda (52.1%) regions.

Monitoring of the current state of agriculture in Kazakhstan shows that the situation in the sector is stabilizing and tending to grow at different level of the regions participation in forming the gross product from agriculture [10-13].

The greatest portion therein is of Kostanay (14.2%), Almaty (13.6%), Southern Kazakhstan (12.3%), Northern Kazakhstan (12.1%), Akmola (11.7%) and Eastern Kazakhstan (9.9%) regions. The lowest portion is in Mangistau (0.2%), Atyrau (1%), Kyzylorda (1.9%) regions.

The soil under grain in the northern regions of the country such as Akmola (38), Kostanay (32), Northern Kazakhstan (34) and Eastern Kazakhstan (31) regions have high quality of locality. Arable land in these regions is best provided, based on the calculation per a person.

Three northern regions (Akmola, Kostanay and Northern Kazakhstan) have about 38% in the structure of agricultural production and three southern regions (Almaty, Zhambyl and Southern Kazakhstan) have over 30%. Material and technical base of agriculture have been strengthening in the country. In 2005, in comparison with the previous year, the number of grain storage facilities increased up to 148 units and amounted to 4601 units with the total value of 2,548,3 million tenge, the number of vegetable storage facilities increased by 6 up to 656 units at a value of 383.9 million tenge. The number of poultry farms increased as well - by 11 up to 410 units (1,954.1 million tenge), garages for automobiles and tractors - by 47 up to 1105 (1,600,6 million tenge) and by 16 up to 733 (684.3 million tenge), respectively, maintenance stations - by 35 up to 1456 units (1,776,1 million tenge), stationary points of service - by 11 up to 214 units (89.5 million tenge). However, there has been a decline in the number of root vegetable storage facilities by 2.9% up to 34 and fruit storage facilities - by 12.1% up to 29, rooms for cattle and sheep - by 0.5% up to 3716 and by 6.2% - up to 2120 [10].

Now we shall consider the process of market mechanism formation at the example of Kostanay region agricultural production.

Kostanay is an essential part of the Northern area in term of agricultural production. It is located in the extreme north-west of Kazakhstan between the Ural Mountains to the west and the Kazakh hills to the east, in the basin of Tobol and Ubagan Rivers.

Kostanay city is the administrative center of the region. It was founded in 1879 and is located at Tobol River. There are 16 rural areas, 13 urban-type communities, 750 villages and 5 towns: Kostanay, Rudny, Lisakovsk, Dzhetysay and Arkalyk. The population of Kostanay region at the beginning of 2009 is 889,368 (454,225 are villagers).

The region has a vast area of 114 thousands sq.km. Favorable economic and geographical position of the territory, availability of all modes of transport (except water) provides development of economic cooperation with the Southern and Middle Urals, Western Siberia, Central and Western Kazakhstan. In the north-west and north, the region borders on Orenburg and Kurgan regions of the Russian Federation, on the east - on Northern Kazakhstan and Akmola regions, in the south and west - on Karaganda and Aktobe regions. The region includes 16 administrative areas; part of the territory is subject to major cities: Kostanay, Rudny, Arkalyk, Dzhetysay, and Lisakovsk [10].

Table 1. Summary of Kostanay region areas

Names of Kostanay region areas	Total area	Population	Agricultural lands, total in thousands of hectares:		
	thousands of sq.km	individuals	TOTAL	arable land	forest resources lands
Altynsarin	5.40	15,300	447.40	232.90	7.30
Amangeldy	22.60	17,100	2,154.60	148.90	-
Auliyekol	11.10	47,900	980.20	336.50	8.80
Denisov	6.80	22,000	621.50	362.80	-
Dzhangeldy	37.60	16,200	3,498.50	27.80	-
Dzhetysay	7.30	51,100	705.60	313.80	-
Kamysty	12.10	15,800	1,135.20	414.60	0.20
Karabalyk	6.90	35,200	601.40	330.00	53.90
Karasu	12.80	29,600	1,226.20	855.00	-
Kostanay	7.50	70,100	661.50	355.60	10.70
Mendykara	6.60	31,800	588.10	331.60	17.50
Naurzum	15.20	13,200	1,441.60	205.20	41.50
Sarykol	6.10	24,700	563.30	301.10	9.70
Taran	7.60	28,000	690.40	329.30	0.10
Uzunkol	7.20	25,600	615.10	335.20	16.70
Fedorov	7.20	28,400	656.30	416.10	12.70

Note: made by the author according to the Kostanay regional statistical office

A characteristic feature of the region is a pronounced continental climate: hot and dry summers followed by cold and snowy winter. Average annual air temperature range is 75°C, in some years it reaches 88°C. In winter temperature often drops to 35-40°C below zero, the absolute minimum is 50-53°C below zero. The absolute maximum temperature is 41-43°C above zero.

A period with an average daily temperature above 0°C lasts for 195-201 days - from April 7-12 to

October 19-28. The frost-free period ranges from 108 to 130 days. The average annual temperature is 0.3-2.3°C, in some year increases up to 4.5-5°C or decreases up to 0-1.2°C. The growing season increases from north to south amounting to 166-174 days.

The annual rainfall decreases appreciably from north to south from 349 to 251 mm. A characteristic feature of the continental climate is a significant predominance of warm season precipitation (May-October), when 60-80% of the annual norm falls. In the warm period precipitation is distributed irregularly. In spring and early summer there is little precipitation. In addition, high wind speeds (average 5-6 m per sec) cause the rapid insiccation of the soil. Most parts of the region territory have the maximum precipitation in the second half of summer, usually in July. Fair weather prevails in summer. The duration of sunshine in relation to the possible variant is 60-75%. The average number of cloudy days in warm period does not exceed 5-8 ones per month. The duration of a day in summer is 16-17 hours

There is little snow in winter. It lasts about 5 months with strong, usually south-western winds and snowstorms. The average wind speed during winter months is 4.5-5.5 m per sec. Snow cover is formed from November 9 to 26 and is consistent for 132-157 days. But the snow is not deep (up to 22 cm), and therefore the soil gets frozen in winter up to 2 m deep.

Water resources of the region territory are characterized by numerous small depressions which are filled with melt water. Some of them are salted or dries up and turns into a pasture.

Hydrographic shape of the territory has contributed to the development of river network on the elevated areas and formation of significant number (more than 5 thousand) of inland lakes on dominant parts of the plain landscape. The largest rivers of the territory are Tobol, Ayat, Uy, Toguzak and Ubagan. The largest lakes - Tengiz, Aksuat, Slivnoye - cannot meet water requirements of agriculture and industry in the region, as they do not have sufficient water resource and their spring water is consumed by evaporation [11].

The main waterway of the region - Tobol River - is almost completely regulated by six artificial reservoirs, which are used for urban water supply and irrigation of suburban households' lands.

Underground water that is pumped with widely used dug wells is not enough, especially in southern parts of the region. In the places where there is no good quality underground water, the rivers are used for water supply and ponds are made by dams on the rivers. In recent years 5 group pipelines -

Ishim, Zatonolsk, Presnovsk Urkashsk and Smirnovsk - have been commissioned

The total area of agricultural land is 18,128 thousand hectares, including arable land - 5,601 thousand hectares. The regional agricultural enterprises in the total land use structure of Kazakhstan occupy 6.6% of agricultural land, 19.3% of arable land, 21.3% of sown areas, 3.5% of pastures and hayfields, with 9.9% of cattle, 20.7% of pigs and 19.1% of sheep. They produce 15.9% of meat, 14.8% of milk and 18.5% of wool. Annual harvested high-quality grain is 22-25% of the republican volume. The total population of the region is 1.138 million. The rural population is about 50%. Agriculture products constitute a significant part (17.3%) in the volume of regional gross product. In terms of agricultural production specialization the region belongs to the zone of developed wheat-grain production that is significantly influenced with sharply continental climate conditions.

Table 2. Distribution of sown areas in the context of agricultural crops thousands of hectares

Sown areas	years						Deviation 2009 in % to	
	2000	2005	2006	2007	2008	2009	2000	2008
Total sown area	3298.7	3615.6	3832.4	4070.6	4474.5	4731.2	143.4	105.7
Grain crops	2822.5	3053.7	3396.2	3613.7	3957.8	4159.9	147.4	105.1
Oil-bearing crops	15.8	11.8	9.1	34.4	56.6	75.5	477.9	133.4
Potatoes	11	9.9	9.7	9.9	9.3	9.3	84.5	100
Vegetables	2.9	2.6	2.6	2.6	2.2	2.4	82.7	109.1
Melons	0.7	0.4	0.4	0.5	0.5	0.6	85.7	120
Forage	445.8	537.2	414.2	409.7	448	438.6	98.4	97.9

Note: made by the author according to the Kostanay regional agricultural administration

Analysis of the sown area composition in the context of crops shows that the major part of the arable land is used for grain crops. Considering all other crops it can be said that there has been a significant reduction in sown areas, except for oil-bearing crops, due to the lack of seeds, fuel and lubricants, bankruptcy of a number of enterprises, as well as withdrawal of low productivity land from usage.

In some foreign countries, proportion of forage crops is very high. For example, in 2005 it was as follows: in Hungary - 53.2%, in the UK - 77.5%, in Germany - 52.3%, in Denmark - 87.3%, in U.S.A. - 57.7%, in France - 65.4%.

Kostanay region has 548.4 thousand of cattle, including 275.1 thousand of cows, 316.8 thousand of sheep and goats, 296.9 thousand of pig, 80.7 thousand of horses, 211 camels, - 3.9 million of poultry [12].

By the same period of the last year a growth in the number of all types of farm livestock had achieved the following results: by 11.4 thousand of

cattle (+ 2.1), including 14.7 thousand of cows (+ 5.6%), by 9.0 thousand of sheep and goats (+ 2.9%), by 8.6 thousand of pigs (+ 3.1%), by 2.8 thousand of horses (+ 3.6%), by 244.1 thousand of poultry (+ 6.2%)

On January 1, 2009 the structure of sown areas of the region is as follows:

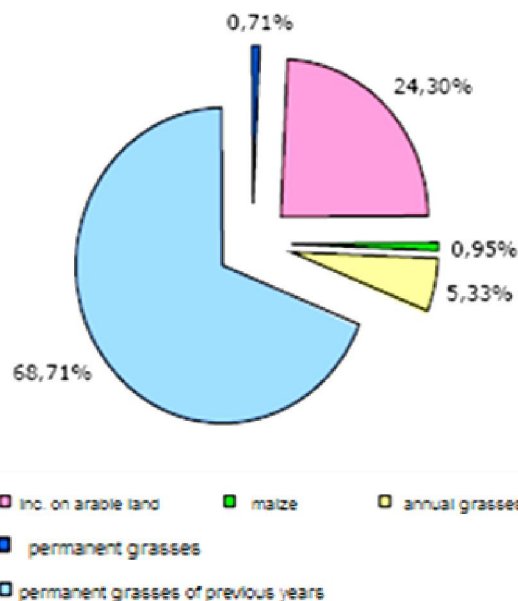


Figure. 1 Structure of sown areas of Kostanay region

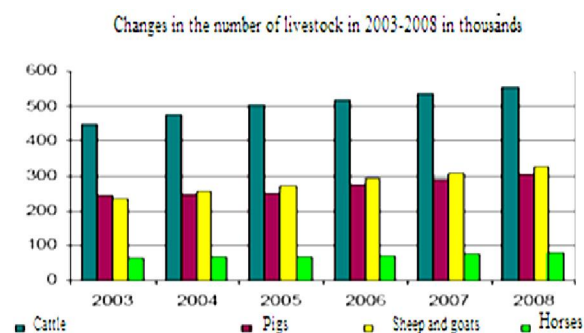


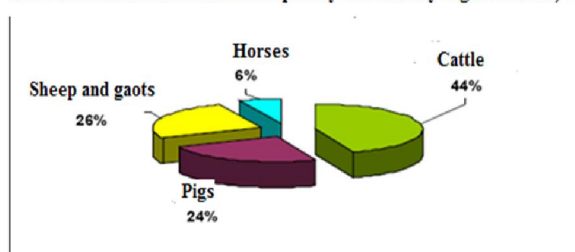
Figure 2. Changes in the number of livestock in 2003-2008 in thousands

The chart shows that the number of livestock and poultry in Kostanay region for the period of 2003-2008 showed stable positive dynamics.

In 2008 compared to 2003, the number of cattle increased by 24%, the number of pigs - by 23%, the number of sheep and goats - by 48%, the number of horses - by 25%.

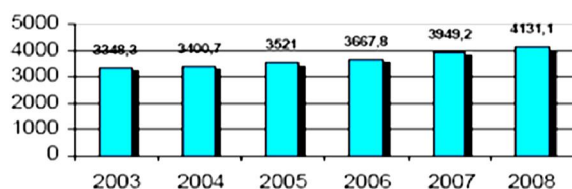
The following chart shows share distribution by types of livestock in Kostanay region as of 2008.

Share distribution of livestock and poultry in Kostanay region in 2008, %

**Figure 3. Share distribution of livestock and poultry in Kostanay region in 2008, %**

The chart shows that the largest shares in the structure of livestock of Kostanay region is of the cattle - 44%, sheep and goats - 26%, pigs - 24%, horse - 6%. The following chart shows the dynamics of the poultry number in Kostanay region:

Changes in the number of poultry in 2003-2008 in thousands

**Figure 4. Changes in the number of poultry in 2003-2008 in thousands**

The chart shows that for the period of 2003-2008 the dynamics in the number of poultry was stable and positive. In 2008 compared to 2003 the number of poultry in Kostanay region increased by 23%.

The goods produced by enterprises of all property types from the beginning of the year: 239.9 thousand tons of meat in live weight, 634.8 thousand tons of milk, 438.6 million of eggs. Production of meat increased by 5.0 thousand tones (+ 2.2%), milk - by 16.6 million tones (+ 2.7%), eggs - by 25,228.9 thousand (+ 6.6%) [12].

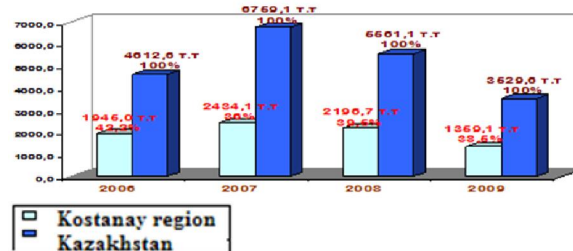
Table 3. Production of livestock sector in 2007-2009

Types of products	2007	2008	2009	Deviation 2009 in % to	
				2007	2008
Live weight meat in thousand tons	230.2	235.4	239.9	104.2	104.2
Milk in thousand tons	607.7	626.1	634.8	104.4	101.4
Eggs, million of pieces	382.4	408.5	438.6	114.7	107.4
Wool, in tons	774	597	481	62	81

Note: made by the author according to the Kostanay regional statistical office.

The main livestock and poultry is concentrated in households (81.9% of cattle, including 88.6% of cows, 92.7% of sheep and goats, 85.3% of horses, 94.6% of pigs, and 66.2% of poultry). 130 agricultural enterprises and farms are also involved in livestock holding. 105 enterprises have medium and large-scale production.

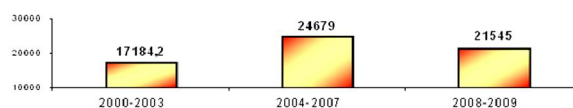
Export of grain in 2006-2009

**Figure 5. Export of grain in 2006-2009**

The main part in the total export of grain was in 2007, both in Kostanay region and Kazakhstan as a whole. This was due to good weather and harvest.

In 2009 the regional agricultural gross output was 91,882.4 million tenge, including crop production of 47,788.6 million tenge and livestock of 44093.8 million tenge. The average annual volume of gross agricultural output in comparable prices in 2008-2009 was 25.4% higher than the average annual level of 2000-2003 and 12.7% less than the average annual level of 2004-2007 (Fig. 6).

Average annual gross agricultural output (prices of the year 2000), million tenge

**Figure 6. Average annual gross agricultural output**

Change in the structure of agricultural producers: in 2000 agricultural enterprises had 63.8% of gross output, in 2009 - 34.9%. It should be noted that the major volume of production in 2009, in contrast to the level of 2000, fell on small-scale production: farms produced 17.6% of agricultural products, households - 47.5% [13].

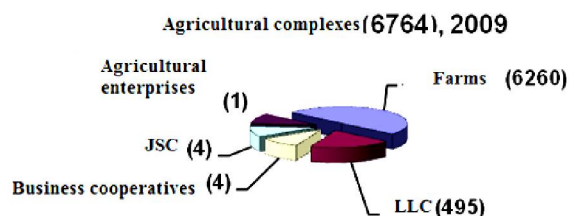


Figure 7. Agricultural enterprises of Kostanay region

Regional agricultural gross output in Kostanay is 91,882.4 million tenge, including crop production of 47,788.6 million tenge and livestock of 44,093.8 million tenge. The gross output of agricultural enterprises in total gross output of agricultural products is 52.5% where 94.0% is gross crop production, 7.6% is livestock.

Compared with 2008, there has been growth in gross output of agricultural enterprises: by 4.1% in crop production; by 18.7% in livestock. In 2009, 69 large enterprises, with areas of over 10 thousand hectares, produced gross output of crop of over 41% of the total volume. In 2010, 81 large enterprises are forecast to produce gross output of more than 43% of the total crop production volume. The share of agricultural enterprises (including farms) gross output compared with 2005 increased in 2009 by 38.1%, including 39.7% increase in crop production and 37.6% increase in livestock sector.

In gross agricultural output leguminous plants have more than 43%, meat - 27.7%, milk - 12.4%, potato - 3.6%, vegetables - 1.2%, eggs - 2.2%.

Households produce more than 95.4% of meat, 93% of milk and 54.5% of eggs. In general, in 2009 households produced gross output amounting to 43,665.0 million tenge or 47.5% of the total volume.

The crop and livestock share in the structure of the gross production increases. In 2006 it was 38.7%, now it is 48% and has exceeded the level of 10.7% in 2006 (Figure 8).

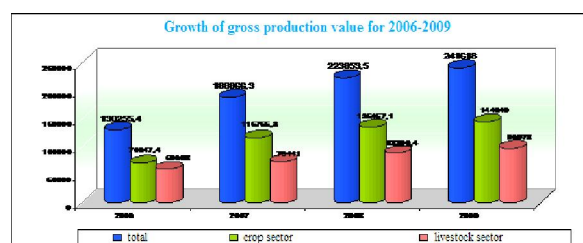


Figure 8. Growth of gross production value

Change in the structure of agricultural producers: in 2000 agricultural enterprises had 63.8% of gross output, in 2009 - 34.9%. It should be noted that the major volume of production in 2009, in contrast to the level of 2000, fell on small-scale production: farms produce 17.6% of agricultural products, households - 47.5% (fig. 9).



Figure 9. Structure of gross agricultural output by types of enterprises, %

If the main volume in crop production comes from the farms (32.7%) and agricultural enterprises (61.3%), in livestock it does come from households (92.5%) [13].

Economic conditions and types of production organization affect the final result which is profitability. The number of profitable enterprises from 2000 reached 337 in 2009, the number of loss-makers declined from 261 in 2000, to 27 in 2009. The results of the agricultural enterprises activities have changed dramatically: in 2000 the aggregate losses amounted to 7,787 million tenge, in 2009 income amounted to 8,232.4 million tenge, or 59.3% of all profits earned in agriculture. In 2000, the agriculture of the region was losing money, but in recent years of the period analyzed the level of profitability achieved positive value: 50.5%. in 2009. In crop production it was within 12.7-50%, in livestock it remains unstable. (Figure 10)

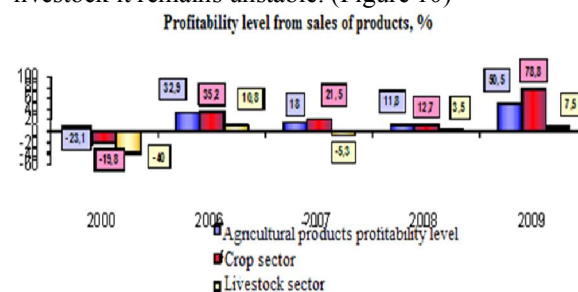


Figure 10. Profitability level from sales of products

In general, the countryside provides the population's need for basic food products at the level of national norms, except for the production of vegetable oil and vegetables, which are provided at the level of 5 and 56%.

Each year the regional administration invests the development of agriculture. In 2009 compared with 2003, the budget was increased by 41607.7 million tenge.

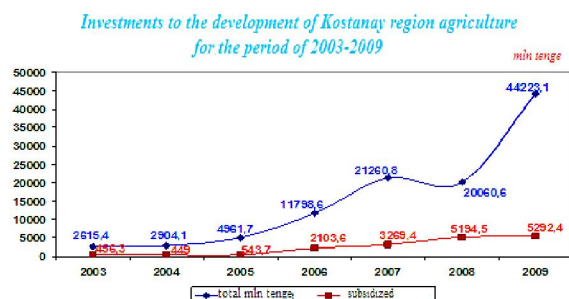


Figure 11. Investments to the development of Kostanay region agriculture

Conclusions.

Successful establishment of the market mechanism in agricultural production of the country requires above all a comprehensive and coherent scientific strategy and economic agricultural policy for the near and distant future. For this purpose a phased formation of this mechanism by concentration of government policy should be implemented at the following strategic areas: economy stabilization, structural reconstruction of the sector and social protection of the population [13].

To do this, a variety of ownership and management forms, economic methods of state regulation with the use of indicative planning, pricing, financial and credit as well as tax mechanisms should be involved. These and other aspects for increase of the efficiency of agricultural production in relation to the conditions of the market transition period and regional natural and economic features of the Republic have a great economic importance.

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