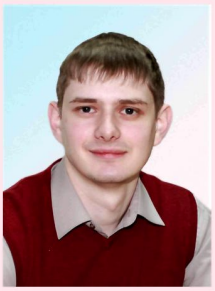
UDC 338.439.02 (470)
LBC 65.32

Development of Russia's agriculture as a factor promoting the solution of the world food problem

The article reviews the current state and causes of the global food problem. It characterizes the measures of governmental support to the development of agriculture in Russia in 2008 – 2011. It also states the possibilities of increasing agricultural production output by using the potential of the country's Northern regions provided that technical and technological modernization will be carried out. The article identifies the main priorities of Russia's agricultural policy and related activities that will enhance exports of food on the world markets.

Food problem, state support of agriculture, opportunities for agricultural production increase; priorities of Russia's agricultural policy.



Aleksandr N.
CHEKAVINSKIY
ISEDT RAS Junior Scientific Associate
chan@bk.ru

The food problem reached beyond national borders in the 21st century. It is of a global nature due to its humanistic importance and close relationship with the task of overcoming the socio-economic backwardness of some states on the one hand, and because of the formation of the world food market on the other hand.

It should be noted that over the last 10 years this issue was not settled, despite the increasing attention on the part of international organizations and governments of the countries to the food problem. And although the average per capita world production of basic foodstuffs has increased, the number of people suffering from hunger has not reduced. According to the estimates of the Food and Agriculture Organization of the United Nations (FAO) it was 836 million people in 2000, and 868 million people in 2012 *(tab. 1)*. In the countries of North Africa and West Asia, the number of undernourished people increased by 28%, in Eastern Asia and Saharan Africa – by 18%. Beginning from 1990, this indicator in some developing regions showed a downward trend, however, the process has stalled since 2000.

Table 1. The number of people suffering from hunger in the world, mln.

Groups of countries	1990-1992	1995-1997	2000-2002	2006-2008	2010-2012	2012 in % to	
						1990	2000
World, total	**848.4**	**791.5**	**836.2**	**850.0**	**868.0**	**102.3**	**103.8**
Including South Asia	267.5	269	307.9	330.1	304	113.6	98.7
Saharan Africa	165.9	188.2	197.7	217.5	234	141.0	**118.4**
East Asia	215.6	149.5	141.8	139.4	167	77.5	**117.8**
South-East Asia	105.8	86	89.6	77.4	65	61.4	72.5
Latin America and Caribbean island countries	54.4	53.4	50.8	47.0	49	90.1	96.5
North Africa and West Asia	12.4	17.9	19.5	20.3	25	201.6	**128.2**
Developed countries	15.3	17.5	15.4	10.6	16	104.6	**103.9**
Caucasus and Central Asia	10.9	9.2	12.4	6.7	6	55.0	48.4
Oceania	0.7	0.8	1.0	1.0	1	142.9	100
The share of starving people in the total world population, %	**15.8**	**13.7**	**13.5**	**12.8**	**12.5**	**-3.2 n.n.**	**-1.0 n.n.**

Food security indicators. http://www.fao.org/economic/ess/ess-fs/fs-data/ess-fadata/en/,
The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition / Rome, Food and Agriculture Organization of the United Nations, 2012. – 65 p.

This state of affairs is caused by the well-known factors. They include a manifold increase in food prices on the world markets[1], the growth of the Earth's population[2], the use of agricultural raw materials as biofuel[3], unemployment and the reduction of people's incomes due to the global financial and economic crisis.

Only uniting the efforts of the entire world community will help to solve these problems. As for Russia, it may play quite a significant role in this process. It possesses a considerable agricultural potential: 9% of the world's arable land, 20% of fresh water supplies are located on its territory, and its share in the production of mineral fertilizers exceeds 8%. Russia is the largest exporter of grain. Over 18 million tons of grain was exported in 2011, which amounted to almost 1/5 of its production volumes *(figure)*. At present, the country has the opportunities for enhancing these indicators.

Indeed, Russian agriculture has not yet been able to make up for all the losses it suffered under the collapse of the USSR and the formation of a market economy. At that, the state authorities admitted the fallacy of simultaneous destruction of the old system, delays in the solution of such agro-industrial problems as the undeveloped market infrastructure, lack of conditions for introduction of modern equipment and technologies, disorder of land relations. And it should be pointed out that in recent years a considerable amount of work has been carried out in the country and its regions aimed at curbing the fatal destruction of agricultural production. In order to extend the access of agricultural producers to credit resources, the authorized capital of Russian Agricultural Bank was increased by 120.3 billion rubles in 2008 – 2011[4]. The authorized capital of OJSC Rosagroleasing was also increased in order to provide additional

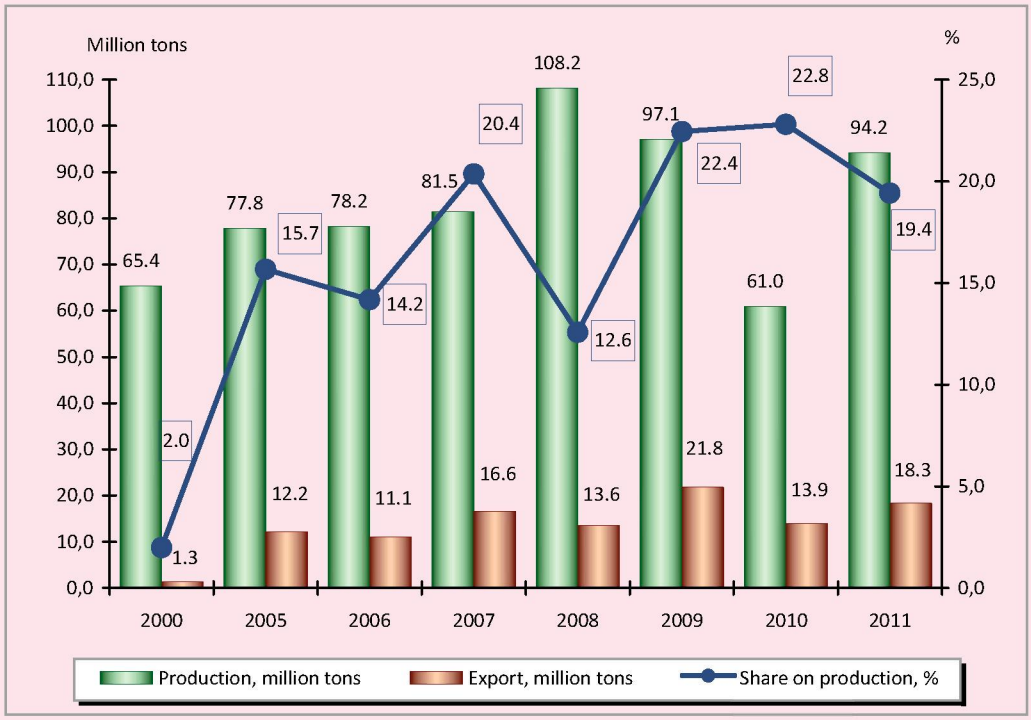
[1] According to FAO, food prices have increased almost 8-fold as compared to the year 2000 (in comparable terms): the prices for milk – 12.7-fold, for sugar – 11-fold, for grain - 10.5-fold. The peak of price hikes falls on the period after 2008 (source: http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/).

[2] According to the World Bank data, the world population increased from 6.1 to 7.0 billion in 2000 – 2011, or by 14%. (source: http://data.worldbank.org/indicator/SP.POP.TOTL).

[3] According to the Earth Policy Institute, the global production of bioethanol for 2000 – 2011 has increased from 4.5 to 22.7 billion gallons or 5-fold; and the production of biodiesel – from 0.2 to 5.6 billion gallons or 26-fold (source: http://www.earth-policy.org/).

[4] Source: Russian Agricultural Bank annual reports. Available at: http://www.rshb.ru/about/invest/reports/rsbu/

Production and export of grain in Russia



Source: calculated by the data of the Federal State Statistics Service. Available at: http://www.gks.ru/wps/wcm/connect/rosstat/rosstatsite/main/enterprise/economy/#

opportunities for technical modernization of production. In 2011 the decision was made to supply agricultural machinery to domestic producers with a 50% discount. In addition, the state started to compensate for the costs of legalizing the peasants' ownership of land plots.

The authorities have started to handle the problems of social development of the village more efficiently. 5.7 million square meters of housing was constructed in rural areas in 2008 – 2011, which improved the living conditions of 80 thousand families. Over 20 thousand km of gas distribution networks were laid, the construction of medical and obstetrical stations, schools and other social infrastructure objects is going on[5].

[5] On the course and results of implementing in 2011 of the State programme on the development of agriculture and regulation of markets of agricultural products, raw materials and food for 2008 – 2012: national report. Moscow: Ministry of Agriculture of the Russian Federation, 2012.

At the regional level the decisions were made on the provision of specialized financial support to young professionals, who came to work in rural areas.

Of course, the implemented measures of state support to the domestic agro-industrial complex could not, for objective reasons, solve all the problems. But these measures helped maintain its financial stability, create a certain margin of safety. Therefore, some positive results have been achieved, such as the enhancement of production of the main types of agricultural products. For instance, the bulk yield of sugar beet and sunflower seeds in all types of farms in Russia has increased 3.3-fold and 2.5-fold, respectively, in comparison with the 2000 level *(tab. 2)*. The production of cattle and poultry for slaughter increased by 56%, grain production – by 36%, egg production – by 20%.

The progress in the agricultural sector enhanced the level of the country's self-sufficiency concerning the main types of food and the achievement of the values of the indicators set by the Food Security Doctrine *(tab. 3)*. For example, in 2011 our country satisfied its needs for grain by more than 130%, for sugar – by 127%, milk – by 80%.

Some enterprises purchased new high-performance and resource-saving machinery and equipment, which resulted in costs reduction, improving the product quality and enhancing labour productivity. According to N.V. Fedorov, the Minister of Agriculture of Russia, for the last five years more than 700 facilities for pig-breeding, about 400 – for poultry production and 200 – for the production of cattle meat have been constructed and upgraded [1].

The state programme for agricultural development for the period up to 2020 was approved in July of the current year. It is aimed at the comprehensive development of all the branches of the agroindustrial complex with the view of Russia's accession to the World Trade Organization. In order to adjust the agricultural sector to the new conditions of economic environment, Russian Government envisages a gradual transition from the provision of direct subsidies to agricultural producers to the promotion of their profitability. Starting from 2013, for example, it is intended to provide a subsidy for 1 litre of milk that conforms to the established standards of quality. In addition, there will be an increase in the volume of funds allocated for the activities comprising the so-called "green basket", i.e. information and advisory services, crop

Table 2. Production of basic kinds of agricultural products in the Russian Federation in 1990 – 2011, million tons

Product	1990	2000	2007	2008	2009	2010	2011	2011 as compared to 2000, %
Sugar beet	32.3	14.1	28.8	29.0	24.9	22.2	46.3	3.3-fold
Sunflower seeds	3.4	3.9	5.7	7.3	6.4	5.3	9.6	2.5-fold
Cattle and poultry for slaughter (in live weight)	15.6	7.0	8.7	9.3	9.9	10.5	10.9	155.7
Grain	116.7	65.4	81.5	108.2	97.1	60.9	94.2	144.0
Vegetables (grown in the open)	10.3	10.8	11.5	13.0	13.4	12.1	14.7	136.1
Eggs, billion pieces	47.5	34.1	38.2	38.1	39.4	40.6	41.0	120.2
Potato	30.8	29.5	27.2	28.8	31.1	21.1	32.6	110.5
Milk	55.7	32.3	32.0	32.4	32.6	31.9	31.7	98.1
Source: Federal State Statistic Service. Available at: http://www.gks.ru								

Table 3. Level of self-sufficiency of Russia by the main types of foodstuffs and agricultural products required for their production, %

Product	2009	2010	2011	2011 as compared to 2009, p.p.
Grain	134.8	93.3	**131.6**	-3.2
Sugar	95.6	85.3	**127.1**	**31.5**
Milk and milk products	82.9	80.5	80.2	-2.7
Meat and meat products	70.6	72.2	72.8	**2.2**
Including: beef	69.6	69.6	69.8	0.2
pork	76.4	77.7	76.6	0.2
poultry	74.1	81.3	88.1	**14.0**
mutton	94.3	95.4	94.0	-0.3
Altukhov A.I. Actual problems of food supply security in Russia. Economics of agricultural and processing enterprises. 2012. No. 7. P. 11 – 16.				

insurance, R&D, development of infrastructure in rural territories, personnel training and improvement of their professional skills, etc.

Russia possesses considerable reserves for the enhancement of agricultural production due to a more complete, efficient usage of agricultural potential in the southern as well as northern regions. The experience of the Vologda Oblast indicates that even under these harsh natural and climatic conditions (location beyond the 60th parallel, low temperatures, short summers) the production of milk, meat and eggs can be profitable if the farmers master new equipment, machinery and technology. It is worth mentioning, that so far the technical and technological modernization of production is being carried out in some of the region's enterprises.

According to the experience of the Breeding Collective Farm Named after the 50th Anniversary of the USSR (Gryazovetsky District), the loose cow housing method with milking in modern milking parlours allow for a 2.6-fold reduction of labour expenditures for the production of 1 quintal of milk, a 10% reduction of its production cost, and a 18% increase in profitability *(tab. 4)*. The use of robotic milking machines gives even more impressive results: labour productivity increases 4-fold.

The leading farms of the oblast are implementing such technologies as minimum tillage, grain rolling, and procurement of fodder in polythene bags. Agricultural enterprises purchase state-of-the-art machines and equipment, which, along with high-precision operating, allow for reducing the unit costs, labor intensity and works execution period. It is proved by the experience of the Integrated Agricultural Production Centre Collective Farm Peredovoy located in the Vologodsky District. The use of the "Rapid" complex, which simultaneously breaks the ground, adds fertilizers and sows grain, resulted in reducing the number of technological operations in the field from five to three, and also in reducing fuel consumption per 1 ha by 18% and labour costs by 27% *(tab. 5)*.

The considerable volume of reconstruction and modernization works was carried out on the oblast's poultry farms as well. As a result, the production of eggs increased by 18% in 2008 – 2011 (from 510.6 to 601.5 million pieces). In order to create technologically adjoint production clusters, the region's Government together with the management company Dominion developed and launched the project "Development of the Vologda Oblast linen complex through inter-sectoral and inter-territorial integration", the main task of which is the profound modernization and technical re-equipment of all the enterprises of the production chain.

Thus, in the recent years, the agroindustrial complex has achieved some positive results. However, the macroeconomic situation remains difficult, which has a negative impact on the investment climate in the agro-industrial complex, the balance of exports and imports of agricultural products.

Table 4. Economic indicators of cow milking technologies at the Collective Farm Named after the 50th Anniversary of the USSR (Gryazovetsky District) in 2010

Indicator	In total	Including by technologies		
		Tethered housing	Loose housing	
			With milking in the milking parlour	With robotic milking
Labor costs for the production of one quintal of milk, p./ h.	1.23	1.83	0.70	0.45
Cost of milk production, rub. / kg	9.65	10.10	9.03	9.53
Profitability of milk production, %	56.0	49.0	67.0	59.0
Source: Collective Farm's own data				

Table 5. Labor and fuel costs for different grain seeding technologies at the Integrated Agricultural Production Centre Collective Farm Peredovoy (Vologodsky District)

Processing steps, machinery	Technology			
	Traditional		Using "Rapid" complex	
	Fuel per 1 ha, kg	Labour costs, p. / day	Fuel per 1 ha, kg	Labour costs, p. / day
1.Under-winter ploughing Tractor John Deere, plough "Lemken"	18.0	0.085	18.0	0.085
2.First cultivation				
Tractor T-150, cultivator KBM-7,2	7.3	0.05		
Tractor T-150, cultivator KBM-14,0	-	-	3.5	0.026
3.Fertilizing			8.05	0.07
Tractor MTZ with the disperser "Amazone"	0.46	0.013		
4. Second cultivation				
Tractor T-150, cultivator KBM-7,2	7.3	0.05		
5. Sowing				
seeding-machine "Amazone"	3.0	0.05		
Complex "Rapid"	-	-		
Total:	**36.06**	**0.248**	**29.55**	**0.181**

Besides, it hampers the transition of Russian agriculture to the path of sustainable development. In this connection the country's authorities, the subjects of agribusiness have much work to do for minimizing the emerging risks and enhancing participation in solving the global food problem.

In our opinion, the enhancement of agricultural producers' profitability up to the level that allows an expanded reproduction should become the top priority of the state policy in the agrarian sphere. According to the estimates, the profitability of production on the average for the sector should be enhanced to 20 – 25%. Meanwhile, even with all the kinds of state support, this indicator in Russia doesn't exceed 10% [3]. In this connection, in our opinion, support measures should be further developed, which will allow the optimal balance to be achieved between the prices for agricultural products, and resources used for their production. Only in this case, agricultural producers will be able to overcome the continuing technical and technological backwardness of agriculture of Russia as compared to the economically developed countries.

Another condition of dynamic development of Russia's agroindustrial complex is the implementation of measures to regulate the sales of domestic agricultural products. Unfortunately, many farmers and farm enterprises in Russia (especially small businesses) have no access to the market due to the imperfection of its infrastructure, increasing monopolization of trade networks and weak development of cooperation. And some private traders-speculators in the absence of competition set ridiculously low prices for agricultural products, which makes their production unprofitable and brings frustration to agricultural workers. The solution of this problem, in our opinion, requires the authorities' adoption of measures aimed at supporting the establishment and development of cooperatives.

As Ivano Barberini, President of the International Cooperative Alliance noted, only highly efficient cooperative structures will be able to enter a fairly narrow door of the global world market, they are the best enterprises with the provision of social guarantees. The justice of his words is also proved by the experience of American farmers, which shows that if the country were deprived of supply-

sale cooperative societies, its agriculture would collapse in half a year. Thus, Russia has the short-term perspective of carrying out a considerable amount of activities on the development of cooperative movement.

The growth of agricultural production and the competitiveness of the industry cannot be achieved only by introducing new equipment and technologies and establishing inter-sectoral exchange parity in the agro-industrial complex. This requires, among other things, the qualified personnel, meeting the requirements of innovation development. Present-day Russia experiences a discrepancy between the knowledge and skills provided by agricultural education institutions, and the needs of the agroindustrial complex innovation development[6]. In this regard, we believe that the urgency of the personnel issues in agriculture could be reduced (naturally, with the support on the part of the RF Ministry of Agriculture) by increasing the number of students at agricultural education institutions, the number of managers and specialists of the sector, trained abroad and in the leading agricultural enterprises of the country.

In order to prevent the outflow of professionals from the agricultural sector we need to take decisive actions for the development of social, engineering, transport, household infrastructure of the village; we should also consider the issue of providing additional financial support to the workers of the sector.

In our opinion, the major efforts of the authorities should be directed to the solution of all these problems after defining appropriate measures and adequate funding. Only in this case it would be possible to ensure the country's food security and increase the volumes of food export.

References

1. Agro-industrial complex requires more attention: materials of the discussion of the draft State programme "Development of agriculture and regulation of markets of agricultural products, raw materials and food for 2013 – 2020". Economics of agriculture of Russia. 2012. No. 8. P. 7 – 13.
2. Altukhov A.I. Actual problems of food supply security in Russia. Economics of agricultural and processing enterprises. 2012. No. 7. P. 11 – 16.
3. On the course and results of implementing in 2011 of the State programme on the development of agriculture and regulation of markets of agricultural products, raw materials and food for 2008 – 2012: national report. Moscow: Ministry of Agriculture of the Russian Federation, 2012.
4. Ostretsov V.N. The effectiveness of livestock farming mechanization. Economic and social changes: facts, trends, forecast. 2012. No. 2 (20). P. 101 – 104.
5. Chekavinskiy A.N. Ways of accelerating the production of agricultural products in the Vologda Oblast. Theoretical and applied problems of the agro-industrial complex. 2012. No. 2. P. 53 – 60.
6. Shelepa A.S. Russian Federation opportunities to participate in addressing global issues of food security. Spatial economics. 2012. No. 2. P. 152 – 157.
7. The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition / Rome, Food and Agriculture Organization of the United Nations, 2012.

[6] For example, according to the Oblast Department of Agriculture, Food Stocks and Trade, in the beginning of 2012, only 54 % of household managers had a higher education, and 13% of them did not even have a specialized education. From 3793 leading specialists 2395 persons (63 %) didn't have a higher education (source: Anishchenko N.I., Ivanova M.N., Bilkov V.A. Agriculture of the Vologda Oblast on the eve of Russia's accession to the World Trade Organisation. Economic and social changes: facts, trends, forecast. 2012. No. 3 (21). P. 107 – 116).