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CONDITION AND PERSPECTIVES FOR DEVELOPMENT OF RUSSIAN AGRICULTURE

Abstract

Agriculture in Russia is in the process of restructuring and overcoming the production and economic crisis. Measures undertaken in order to make agricultural development more dynamic are only partially successful. The level of agricultural production is still lower than in 1990-1991. Particularly strong difficulties can be observed in attempts to accelerate development of animal production. In conditions of rapid increase of people's income, increase in production achieved in last few years did not bring the reduction of dynamics of increasing food imports nor did it improve the country's food self-sufficiency. As a result Russia becomes a bigger and bigger importer of agricultural and food products, especially of animal origin.

Analyses indicate that even full implementation of tasks written down in the programme for the development of agriculture for 2008-2012 and satisfying assumptions concerning the improvement of country's food security, would not lead to Russia's food self-sufficiency even in 2020. At the same time Russia, due to low level of development of animal-origin food production, is a large and growing exporter of cereal, oil plants and oil. Russia's entering into WTO and the financial crisis can hamper development trends in Russian agriculture. Simultaneously, however, these factors can also limit dynamics of the national demand for food. Such conditions may cause further increase of export of vegetable products.

In recent years, a significant growth of the demand for agricultural products has been observed. It is a result of the following factors: fast increase of the number of people in the world, significant growth of food consumption in fast developing countries (mainly in China and India) and considerable increase of

some agricultural products' use for non-food purposes, especially for biofuel[1]. Along with limited possibilities of increasing agricultural production[2], this situation leads to decrease of food reserves in the world[3] and, as a consequence, to a large increase of prices of agri-food products[4].

In this context, interest in agriculture in countries of large potential for the increase of agricultural production is growing. The agriculture in Russia has such potential. Russia covers 7.9% of agricultural land of the world and may be able to increase this share. However, the level of agricultural production is low[5], which makes Russia an enormous importer of agri-food products, particularly of animal origin. Thus, a question arises if Russia can transform itself from being a major importer to an important exporter of agri-food products in the near future?

The answer to the above question requires examination of recent agricultural development in Russia, its current situation and the State policy concerning that development.

Circumstances and problems of hitherto development of agriculture in Russia

Analysing the development of agriculture in Russia it can be noticed that in the course of the last century, the global agricultural production in Russia increased insignificantly, namely only by slightly more than one third. It was caused by frequent periods of large crises in development of agriculture, marked by such events as: the First World War, revolution and civil war, collectivisation of agriculture, industrialisation of the State – to a large degree at the expense of rural areas and agriculture, the Second World War, reconstruction of the State after damages caused by the wars and further industrialisation – once again at the cost of rural areas and agriculture. Even in the mid-1960s, global agricultural produc-

[1] In the 2004/2005-2007/2008 financial years, world use of cereals for production of ethanol increased from 43.0 to 94.9 million tons, including in the USA from 34.1 to 76.8 million tons and in 27 EU States – from 1.1 to 2.9 million tons. In the middle of 2008 it was assumed that in the 2008/2009 financial year, this use would increase to 123.8 million tons [11].

[2] Factors reducing the possibility of accelerating the increase of agricultural production are: fast growth of prices of energy sources, and as a result, the prices of fertilisers, decreasing agricultural area (including especially agricultural land) calculated per inhabitant, decrease of the area sown to crops (including cereals) and also climate warming which causes more and more negative phenomena in "warm" climate zones which are presently characterised by intensive agriculture.

[3] It is estimated that food supplies in the world decreased to the level sufficient to meet the consumption needs for 2 months, while the supply of cereals in 2007 dropped to the level of 11 million tons and had been the lowest in 26 years [11, 25].

[4] In 2007, world prices of food products as compared with 2006 increased by about 40% [10, 25].

[5] While the share in the world population is 2.1%, the share of the world cereal production is 4.3% and in the meat production – only 2%. In 2007, calculating per inhabitant, 565 kg of cereals, 39.3 kg of meat expressed in post-slaughter weight were produced in Russia, while in the USA they were respectively 1,354 kg and 136.6 kg and in Canada – 1,484 kg and 134.3 kg. Author's own calculations based on: The Statistical Yearbook 2008. CSO, Warsaw 2008.

tion in Russia was lower than in 1900 and only then a relatively stable growth of production could be observed[6]. However, this growth slowed down at the beginning of the 1990s due to the start of the "decollectivisation" process and move toward market-oriented agricultural production. Marginalisation of agriculture has been observed in the Russian development and can be confirmed by the fact that at the same time, the industrial production increased 20 times [11].

In the process of political and economic transformations in Russia, both rural areas and agriculture found themselves in a very difficult situation. In the period of impetuous forming of market relations, almost complete withdrawal from State interventions clearly confirmed the weakness of agriculture against the remaining branches of national economy as well as of rural areas towards urban ones. This already difficult situation of agriculture and the whole food economy was even worsened by a broad opening of the Russian market to foreign agri-food products, mainly from the countries where agriculture and export of agri-food products are largely subsidised[7]. In the situation of a negative reaction to hitherto total "nationalisation" of agriculture and to the central planned economy including agricultural production, procurement and agricultural products processing as well as distribution of agri-food products, the existing structures of agriculture and its surroundings almost completely collapsed. Structural transformation in agriculture and its surroundings, especially restructuring of sovkhozes and kolkhozes and passing the land to those, who work on it (through the system of shares), were performed without clear specification of the future model of agricultural system and institutional system of agricultural surroundings.

As a result, a number of phenomena with a very negative impact on development of agriculture and the whole food economy occurred:

- very large opening of "the price scissors". Dynamics of agricultural products' prices in 1990-2005 was more than four times lower than of industrial products: only in 1992 the disparity of the price growth was twofold (agricultural prices increased 8.6 times while industrial prices – 16.2 times);
- rapid drop of profitability of agricultural production, especially livestock production;
- significant decrease of the labour remuneration in agriculture – in 1992-2005 the average remuneration in agriculture decreased from 66% to 43% of the country's average and became the lowest remuneration in all the branches of the national economy;

[6] In the analysed period – from the mid-1960s, several facts confirming the possibilities of development of Russian agriculture should be noticed. In 1978, the maximum level of cereal production – 136 million tons, in 1987 the cattle stocks reached 60.5 million, in 1989-1990 10.9 million tons of meat and 55.9 million tons of milk were produced on average annually, and in 1990 a record high level of cereal yields was achieved – 19 dt/ha [11].

[7] Average import duties in Russia are 13% i.e. 1.6 times lower than in the European Union, 2.7 times lower than in Brazil and 9 times lower than in India, while subsidising agriculture in Russia is low (relation of aggregated support for agricultural producers to the value of the agricultural production is 4 times lower than the average in the EU and twice as low as in Poland) [5, 11, 25].

– rapid drop of investment outlays in agriculture and rural areas. In 2005, i.e. after undertaking governmental actions against the crisis in agriculture, the investment outlays in agriculture constituted 4% of total investment outlays in the national economy, i.e. by 4.5% less than in 1991. As a result, the level of consumption of fixed capital in agriculture reached 80% [7, 11, 16, 23].

Restructuring of kolkhozes and sovkhozes, accelerated by the pressure from local government, in the situation of economic breakdown of the country and rapid worsening of agricultural production profitability, led to a large drop of agricultural production and, as a consequence, to a sharp drop of employment [22]. Enterprises undergoing organisational restructuring cut their abundant workforce – the remainder of the times of the centrally-planned economy. In 1990-2006, the employment in agricultural enterprises run by the Ministry of Agriculture of the Russian Federation decreased from 9.531 to 2.323 million people, i.e. by more than 7.2 million, including in the agricultural production from 7.939 to 2.059 million (by nearly 5.9 million people) and in non-agricultural production from 1.592 million to 264 thousand (by more than 1.3 million people) – Table 1. Particularly large drop in employment was recorded in the livestock production. A significant part of people who were made redundant started to work on plots of land belonging to their households and some – to work on individual farms (farm plots). Most people who lost their jobs became unemployed. In 2006, the unemployment rate in rural areas amounted to 11%, without taking into account the people employed in commercial family plots.

The presented economic and structural changes in agriculture influenced the use of the agricultural land resources in Russia. The overall area of agricultural land[8] in 1990-2006 decreased slightly from 213.8 million to 212.1 million ha, i.e. only by 1.7 million ha, whereas its area in the use of agricultural producers dropped from 213.8 to 166.0 million ha, i.e. by 47.8 million ha (by 22.3%) and the acreage of agricultural land was reduced to 102 million ha. It should be added that 40.4 million ha of agricultural land which was utilised by agricultural producers was not used for agricultural production (set aside and fallow land). As a result, the area sown decreased from 117.7 million ha in 1990 to 74.8 million ha in 2006 [13, 20, 28, 29].

The decrease in the area of agricultural land and in the area of crops in conditions of the transfer from the centrally planned economy to market economy is rational to some extent. In the market economy, agricultural producers cease production on the land, where for example due to the poor soil quality, climatic conditions or infrastructural deficiencies, the production is not profitable. However, this large reduction in the area sown in 1990-2006 from more than 118 million ha to slightly less than 75 million ha, i.e. by more than 36%, can be hardly explained only by the above factors. What is more, agricultural land is cultivated in a predatory way. Due to the radical decrease of the level of mineral and

[8] The term agricultural area and the acronym AL are used in the text interchangeably.

organic fertilisation, the soil quality drops noticeably[9]. Russia, being one of the biggest producers of mineral fertilisers in the world[10], has used up in the recent years about 1.3-1.6 million tons of NPK (about 10% of production) i.e. about 8-9 kg of NPK per ha of agricultural land actually cultivated[11]. Absence of preservation and modernisation accelerates the growth rate of the area of agricultural land which requires reclamation[12]. The area of agricultural land at risk of wind and water erosion (it is estimated to have already reached 130 million ha) and the area of the salinised soils (about 40 million ha) etc. are growing fast [18, 24]. It was, and still is, to a large extent the effect of structural disorganisation of agriculture and a very low level of state support for this sector.

Table 1

Changes of the number and structure of employment in agricultural enterprises under the Ministry of Agriculture of the Russian Federation in 1990-2006

Specification	1990		2006		2006/1990
	thousand	%	thousand	%	
Total employment	9,530.9	100	2,323.5	100	24.4
In agricultural production:	7,939.1	83.3	2,059.0	88.6	25.9
permanent workers	6,483.4	68.0	1,557.6	67.0	24.0
seasonal workers	490.2	5.1	123.5	5.3	25.2
office workers	965.4	10.1	377.9	16.3	39.1
Non-agricultural production	1,591.8	16.7	264.5	11.3	16.6

Source: Author's own elaboration based on [22].

Also significant transformations in the structure of agricultural land concerning land users occurred [5, 6, 28]. Until the start of the agricultural reform, almost all agricultural land was used by kolkhozes and sovkhozes. However, they did not cover the whole AL (98.1% in 1990) since a small part of the AL was used as family agricultural holdings (1.4%) and just plots of land for growing vegetables or flowers (0.5%). The basic trend of changes in agricultural area structure after the beginning of the agricultural reform was the decrease in the number of agricultural enterprises, particularly the restructured kolkhozes and the increase of share of farm plots and family agricultural holdings as well as newly established private enterprises.

[9] According to various estimates, the level of mineral and organic fertilising as compared with the 1980s decreased by 5 to 8 times.

[10] The largest producers of NPK in 2006: China – 32 million tons, USA – 18.1 million tons and Russia – 16.6 million tons.

[11] In Russia, mineral fertilising is applied only in some cultivations. According to the agricultural census of 2006, mineral fertilising in agricultural enterprises covered only 18.3 million ha (22.3% of agricultural land) and organic fertilising – 2.8 million ha (2.9% of agricultural land) and in individual farms – 89 thousand ha (16.6%) and 5.6 thousand ha (2.3%) respectively. Soil liming in enterprises covered only slightly less than 278 thousand ha (0.3% of agricultural land) [28].

[12] In 1991-2006, the area of reclaimed land decreased from 11.3 to 9.4 million ha (including 6.2 million of the irrigated land) [24].

The changes presented above, although generally appropriate from a wider perspective, brought about many negative effects to the development of rural areas in the conditions of socio-economic crisis. First of all, decollectivisation of agriculture (privatisation of kolkhozes and sovkhozes connected with the agricultural reform) changed radically the institutional structure of the Russian rural areas [17]. Before the transformations, this structure was characterised by a strong vertical centralisation and an entire predominance of the production structure (kolkhozes and sovkhozes) which completely determined the structure of local authorities and households. The whole agricultural land (including also family holdings) belonged to kolkhozes and sovkhozes. A kolkhoz or a sovkhoz, usually the only employer in a particular village, provided full employment, managed spatial planning, rural construction (including construction of dwelling places) as well as technical and social infrastructure. Through kolkhozes or sovkhozes, people were provided, usually free of charge, with water, electricity, municipal services, etc. After the agricultural reform, when a complex legal and organisational structure of agricultural enterprises and holdings was established, the situation changed radically. Local authorities were forced to take full responsibility for social and economic development of rural areas, having initially neither material foundations nor proper financial resources. In these circumstances, agricultural enterprises were largely dependent on both local authorities and households – the shareholders and the source of labour force.

The shift from central planning to market economy and collapse of the existing system of financing rural areas, disorganisation of the hitherto institutional rural structures, as well as the weakness of self-governments – all these circumstances together brought the development of infrastructure in the country to a halt[13].

This situation, together with a large drop in employment and wages along with the increase in unemployment led to a rapid worsening of living conditions in rural areas. As a result, the natural population increase in rural areas decreased radically. Even before the system changes it was small, although positive (107.5 thousand in 1980, 88 thousand in 1990). However, after 1990 it decreased fast and became negative in 1995, when it was at the level of minus 212 thousand and in 2000 – less than minus 274 thousand. After a short slowdown of the permanent high migration from villages to towns[14] at the beginning of 1990s even a positive balance of migration between the villages and towns was recorded resulting from inflow of people losing their jobs in towns (in 1990 – minus 73 thousand and in 1995 – plus 96 thousand), and then the increase of migration to towns was observed and the negative balance of migration was noted again. As a result, in 2006 the number of rural population was only slightly smaller than in 1990, how-

[13] Particularly big collapse occurred in constructing network of roads with hard surface (while in 1992, 26.1 thousand km were constructed, in 1995 it was 8.8 thousand km and in 2000 only 5.9 thousand km), water supply networks (2.9 thousand km in 1992 and 1,6 thousand km in 1995 and 0.6 thousand km in 2000) and energy networks (27.1 thousand km in 1992, 1.7 thousand km in 1995 and 5.7 thousand km in 2000).

[14] In 1959-1990 the number of people living in rural areas decreased by about 19 million.

ever since 1995 it has decreased by more than 1.5 million and this process in recent years has been more and more intense (Table 2). The number of rural population is decreasing in 84% of the Russian regions and the processes of depopulation of rural areas can be observed in 53% of the regions [6, 14, 15, 17].

Table 2

Changes in the number of rural people in Russia in 1980-2006 (thousand people)

Years	Number of rural people - end of a year	Annual change			
		total	natural population increase	migration	other
1980	41,280.0	-421.2	107.5	-485.3	-43.2
1990	38,868.7	-58.0	88.0	-72.6	-73.4
1995	39,981.0	-113.7	-211.7	96.2	1.8
2000	39,231.9	-238.7	-274.2	-2.6	38.1
2006	38,442.5	-206.2	-230.4	-28.1	52.3

Source: [22].

A strong diversification of rural development takes place. A noticeable movement of rural inhabitants from rural heartland to urban-adjacent rural areas and from regions with difficult agricultural conditions to regions advantageous for agricultural production may be observed. As a result, the diversification of rural areas in terms of the population density increases. This ratio ranges from almost 30 persons per square kilometre in urban-adjacent rural areas to 5 persons in remote rural heartland[15]. Rural areas near big towns and in the south of the state, particularly in the chernozem belt develop relatively well. However, the areas situated in the northern and central part of the State, in the belt of podzol soils, including those distant from larger towns, become socio-demographic desert or semidesert. The range of these processes may be confirmed by the fact that in 1990-2006 from 155 thousand villages, about 13 thousand ceased to exist. Polarisation of rural areas is growing. The number of villages with 10 inhabitants increases (their number in 2006 reached about 37 thousand) and at the same time the number of large villages of more than 3,000 inhabitants grows [15, 22].

Shaping of the new legal and organisational structure of agricultural holdings in the Russian agriculture

In the analysed period, the Russian agriculture also underwent significant changes in the structure of agricultural holdings and their share in land and labour resources. The following legal acts contributed to these changes: Act on the agricultural reform, establishing passing the land to those who work on it (including employees of the social services), Regulation of the Government on reorganisa-

[15] In Russia, there are 168 towns of more than 100 thousand people and the average distance between them is 323 km and the radius of the first influence circle of the town (urban-adjacent areas) is 35 km.

tion of kolkhozes and sovkhozes and the Act on trade in agricultural land. These legal acts specified division of the agricultural land between workers through so-called shares. Later, these shares would be separated taking the form of individual agricultural parcels. Owners of these shares could use them to organise private holdings, including family and farm plots, include them as contributions of agricultural cooperatives, commercial law partnerships and other legal and organisational forms of agricultural production. They could as well put them on trade in the market through sale, lease or manage them by way of other commercial transactions. The assigned shares were obtained by about 12 million people. However, the result of the implementation of reform assumptions can hardly be seen as positive. Most of all, considerable difficulties were encountered in the actual division of agricultural parcels, which would have been the basis of creating agricultural holdings by the persons who were assigned those plots. This situation in the circumstances of strong financial difficulties caused that:

– a significant part of shareholders (estimated as about one third) was forced to sell them, usually at a very low price. This created the foundation for the process of establishing agroholdings which quite often covered many thousands hectares of land;
– a significant part of shareholders, in order to maintain their jobs, contributed their shares to restructured former kolkhozes and sovkhozes on the basis of various agreements;
– only a small part of shares was used to create family farms and to establish or to extend family plots [16].

The process of shaping the new organisational and legal structure of agricultural producers was therefore to a significant extent an spontaneous process. The basic trends in the process are as follows:

• establishing, mainly on the basis of former kolkhozes and sovkhozes, a new organisational and legal structure of private farm enterprises;
• establishing a new sector in agriculture: family farms and individual entrepreneurs' holdings.

The latest data on the structure of agricultural holdings can be obtained from the agricultural census of 2006. According to this data, the agriculture in Russia in 2006 covered 344.3 thousand commercial enterprises (agricultural holdings)[16], out of which only 188.1 thousand ran agricultural activity. Such a big share of enterprises and agricultural holdings which ceased or suspended the agricultural activity is alarming and confirms a very unstable organisational structure of Russian agriculture. Also there were 22.8 million private agricultural holdings[17] (17.4 million family plots and 5.4 million individual agricultural parcels used as orchards, gardens, etc.), including 20.2 million active ones (Table 3).

[16] The following entities were included: agricultural enterprises, auxiliary holdings of non-agricultural units, market-oriented family farms and individual entrepreneurs' holdings (owned by natural persons with registered business activity under the "Agriculture" sector).

[17] Producing for their own needs.

Table 3

Number of agricultural enterprises and holdings in Russia in 2006 (thousand)*

Specification	Total	Conducting agricultural activity
Agricultural enterprises	48.2	32.4
- large and medium	27.8	19.6
- small	20.4	12.8
Auxiliary holdings of non-agricultural enterprises and institutions	11.0	8.2
Family farms	253.1	126.2
Individual entrepreneurs' holdings	32.0	21.3
Family plots and individual agricultural parcels	22,799.4	20,219.2
- of which family plots	17,462.6	15,004.2

* Grouping agricultural enterprises on the basis of the number of people employed is as follows: small – up to 60 employees, medium and average – more than 60 employees.

Source: [28].

All agricultural holdings (including agricultural parcels) covered the area of 450.6 million ha of land, including 166.0 million ha of agricultural area (125.5 million ha of this area were used for agricultural production). Agricultural enterprises have the highest share in the structure of agricultural land – 78.5% (large and medium enterprises 64.1%, small enterprises – 14.3%). Large and medium enterprises have on average slightly more than 3.8 thousand ha of agricultural land, whereas small enterprises – less than 1.2 thousand ha. Family farms (including holdings of agricultural entrepreneurs) cover 14.5% of the total area of AL, and 84.7 ha per agricultural holding on average. The most numerous group of private agricultural holdings (family plots and agricultural parcels) cover 5.9% of agricultural land and slightly less than 0.4 ha of AL per holding (parcel).

The current level of employment in Russian agriculture and its structure is difficult to determine due to absence of data regarding the number of people employed in private holdings and auxiliary holdings of various types of non-agricultural enterprises and institutions. According to the data of the general agricultural census of 2006:

– 2,381.5 thousand people worked in large and medium agricultural enterprises (2.8 persons/100 ha of AL)[18];
– 232.4 thousand people worked in small enterprises (1.7 persons/100 ha of AL);
– 377.0 thousand people worked in family farms (2.6 persons/100 ha of AL);
– 53.3 thousand people worked in individual entrepreneurs' holdings (3.8 persons/100 ha of AL).

Therefore, the level of employment in Russian commercial agricultural holdings is relatively low. It is an effect of mainly the low intensity of agricultural production, including particularly the small share of livestock production.

[18] The level of employment was calculated per agricultural area actually used for agricultural production.

Changes in the level and structure of agricultural production in 1990-2007

The circumstances presented above had to, and actually did result in a violent collapse of the agricultural production. However, in the initial, the most difficult period of the system transformation in Russia, the drop of agricultural production was even lower than in case of the industrial production (Figure 1). It was mainly a result of extending the agricultural production in private agricultural holdings (in family plots and parcels). In 1998, i.e. the time of the deepest economic breakdown in Russia, agricultural production as compared to the level of 1990 reached slightly more than 55%, and the industrial production, slightly less than 50%.

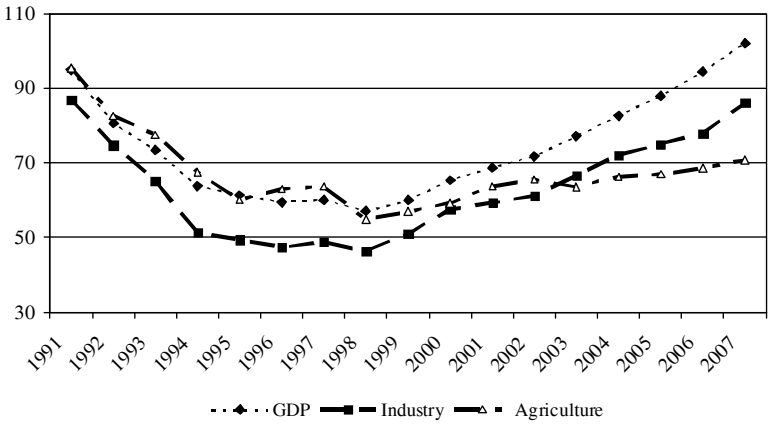

Fig. 1. Dynamics of GDP, industrial and agricultural production in Russia in 1990-2007 (1990=100)*

* According to the methodology and sources of the FAO.

Source: Author's own calculation and compilation on the basis of the subsequent Statistical Yearbooks of the CSO.

The crisis in development of the agricultural production reached its peak at the end of the 1990s. It was particularly observed in agricultural enterprises (mainly in kolkhozes and sovkhozes undergoing restructuring). In 1990-1998, the value of global agricultural production in constant prices decreased in the whole agriculture (taking the level of 1990 as 100%) to the level of 56%, of which in agricultural enterprises to 35% (Figure 2). This data indicate clearly that the development of production in family plots with already established position (also before 1990) and newly created sector of family farms counteracted an even more violent breakdown of agricultural production. The share of agricultural enterprises in the domestic agricultural production in 1990-2000 was characterised by a continuous downward trend and decreased from 73.7% to 43.4, while the share of private agricultural holdings and family farms showed an upward trend – from 26.3% to 53.6% and from almost 0 to 3.0% respectively [6].

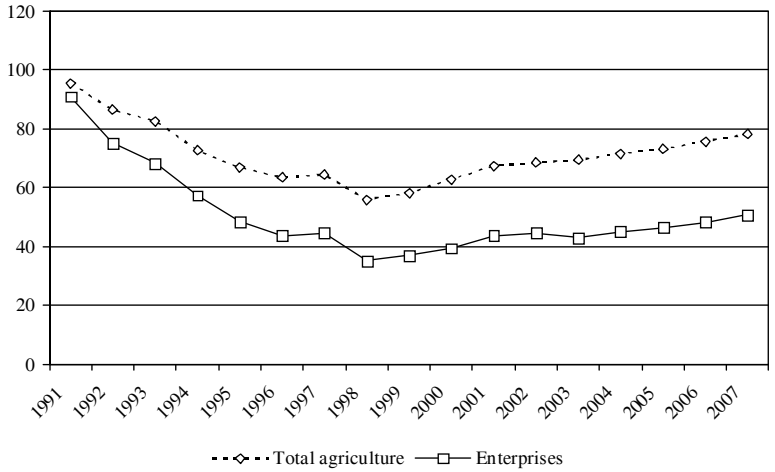

Fig. 2. Dynamics of global agricultural production in 1990-2007 (1990=100)
Source: Author's own elaboration based on [6, 11, 27].

Collapse of the agricultural production was certainly more serious in case of livestock production, than crop production (Figure 3). In comparison with 1990, crop production in 1998 decreased by more than one third, while the livestock production – by more than a half. It was an effect of rapid drop of both the livestock production (by more than two thirds) and the crop production (by almost two thirds) in agricultural enterprises. A large decrease of livestock production in the whole agriculture was also a result of the fact that newly established family farms were oriented basically at the development of crop production. The increase in livestock production in this period, although slight, was observed only in family plots.

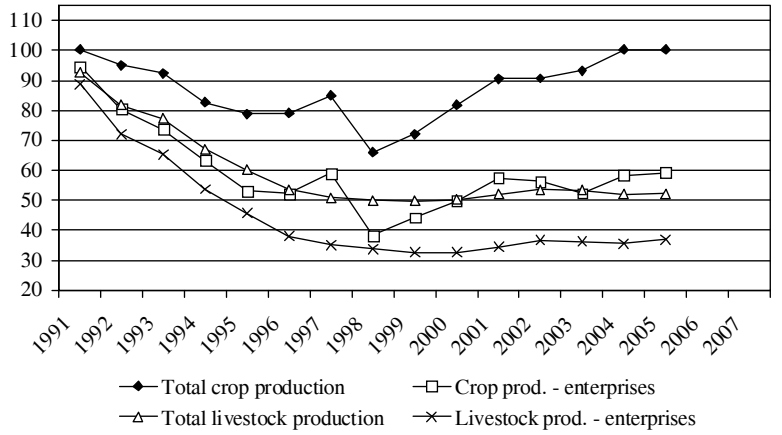

Fig. 3. Dynamics of global crop production and livestock production in the whole agriculture and agricultural enterprises in 1990-2007 (1990=100)
Source: Author's own elaboration based on [14].

Mainly a dynamic growth of crop production influenced the increase of agricultural production after 1998. The livestock production since 1997, with small annual fluctuations, has been maintained in enterprises at the level by two thirds lower and in the whole agriculture at the level by a half lower than in 1990.

The seriousness of the agricultural production crisis of the 1990s can also be illustrated by the data on the scale of decrease of basic crops in the Russian agriculture and the number of the basic species of livestock as well as the livestock production. The data presented in Table 4 shows that the collapse did not occur only in production of potatoes, whose main producers (about 95%) were and still are the family plots. They produce only for their own consumption (no possibility of purchasing goods and abundant workforce) and they do not comply with market rules (most of all – the labour costs are not calculated). However, in the case of the remaining products and livestock stocks even in 2000, the level of 1990 was not achieved. It should be added that in the production of basic plant products as soon as at the end of the 1990s, some signs of overcoming the crisis could be observed; increase of this production in family farms largely contributed to this situation. But no improvement was observed in the number of livestock or the animal production.

Positive trends in development of agriculture in Russia, which were visible after 1998 proved to be weak and started to decline after several years. When in 1999--2001 the average annual agricultural production growth rate in the whole agriculture reached the level of 6.4%, including in agricultural enterprises – 7.7%, as soon as in 2002-2003 this rate slowed down to 1.4% and minus 1.8% respectively. Also the growth rate of production in private agricultural holdings was slower (2001 – 3% and 2002 – 0.1%).

The hitherto high dynamics of agricultural production growth in family farms started to decrease [27].

The above phenomena were mainly the effect of a distinct drop of agricultural production profitability, both for animals and plants (Figure 4). The lowest level of profitability of plant production was observed in 2002, and of the livestock production in 2003. However, it should be noticed that the plant production, on average, was profitable in the whole period of 2000-2006, in spite of the fact that it was significantly fluctuating, whereas the livestock production as a whole has been profitable only since 2005. Still the beef production is unprofitable.

Such a low profitability of agricultural production had a particularly severe impact on the situation of agricultural enterprises, especially former kolkhozes and sovkhozes, which were the most loaded with various costs (also financial ones) of the period of transformation of the agricultural system and for many reasons they could not flexibly adjust to conditions of the agricultural market. As a result, more and more agricultural enterprises lost their possibilities of further development, continuously incurring losses in economic activity. In 2002, enterprises with losses constituted 55.6% and in 2003 – 50.2% of the whole enterprises submitting financial statements. The situation of enterprises of agricultural products processing was even more difficult [16, 26, 27].

Table 4

Crops of plants, number of livestock and livestock production in 1991-2007

Specification	1991	1995	2000	2005	2006	2007
Cereal harvests	89.1	63.4	65.5	78.2	78.6	81.8
- wheat	38.9	30.1	34.5	47.7	45.0	49.4
- rye	10.6	4.1	5.4	3.6	3.0	3.9
Potato harvests	34.3	39.9	34.0	37.3	38.6	36.8
Sugar beet harvests	24.3	19.1	14.1	21.4	30.9	29.0
Cattle population	54.7	39.7	27.3	21.5	21.5	21.5
- including cows	20.5	17.4	12.7	9.5	9.4	9.3
Pig population	35.4	22.6	15.7	13.5	15.9	16.6
Sheep and goat population	55.3	28.0	14.8	18.2	20.0	20.5
Poultry population	652.0	423.0	339.0	352.0	367.0	382.0
Meat*	9.4	5.8	4.4	4.9	5.2	5.6
Milk	51.9	39.2	32.3	31.2	31.4	32.2
Eggs	46.9	33.8	34.1	36.9	37.9	37.8

Notice: Plant harvests and livestock production – million tons, population – million heads, eggs – million units.

* Post-slaughter weight of meat.

Source: Author's own elaboration based on [26, 27, 29].

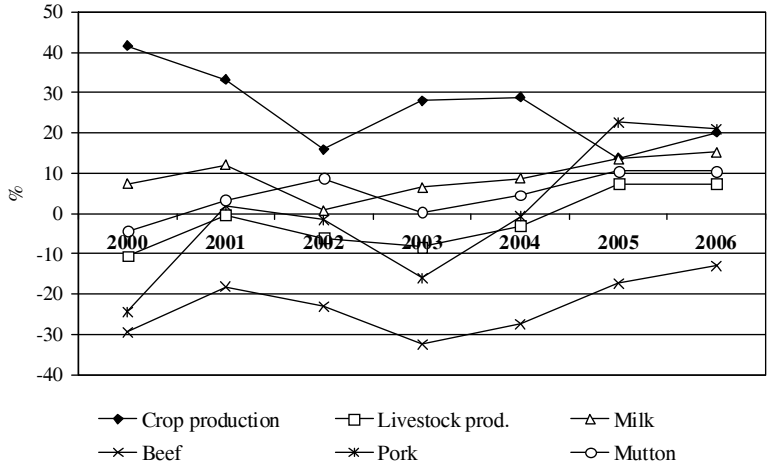

Fig. 4. Profitability of agricultural production in 2000-2006

Source: Author's own elaboration based on [12].

The conditions presented above influenced the significant changes in the structure of agricultural production according to the organizational types of farming. Most of all, a fast decrease of the share of agricultural enterprises and a simultaneous fast growth of share of family plots was noticeable. In 1990-2000, the share of enterprises in the Russian agricultural production decreased

from 73.7% to 43.4%, and the share of family plots increased from 26.3% to 53.6%. This tendency started to decline when the first signs of the recovery of the agriculture from the deep crisis appeared in 1999. However, within the whole period a quite dynamic growth of the share of farm plots in the total agricultural production (from zero in 1990 to 7% in 2007) was observed.

A large drop of agricultural production led also to decrease of production in the agri-food industry. In 1990-2000, it was even slightly higher than in agriculture (taking the level of 1990 as 100, in 2000: agriculture – about 63%, agri-food industry – 50%). What is more, the large decrease of production in agricultural enterprises was of crucial importance. Increase of production in private agricultural holdings did not have any significant impact on the situation in processing enterprises, since they produce mainly to cover their own needs. However, since 2000, the dynamics of production in the agri-food industry has been higher than in agriculture, which was influenced to a significant degree by the growth of production in enterprises and import of agricultural raw materials.

Table 5

Structure of agricultural production according to organizational types of farming

Types of farming	Years						
	1990	1995	2000	2004	2005	2006	2007
Agricultural enterprises	73.7	50.2	43.4	42.6	41.2	41.2	43.4
Family farms	-	1.9	3.0	5.9	5.6	6.5	7.0
Family plots	26.3	47.9	53.6	51.5	53.2	52.3	49.6

Source: [6, 29].

Problems of food self-sufficiency and food security in Russia

The slowdown of the decrease of agricultural production, which has appeared since 1996, in conditions of large economic difficulties and low income of the state population, caused that at the end of the 1990s the import of agri-food products in Russia was reduced noticeably: in 1997-2000 from USD 13.3 billion to USD 8.5 billion. However, the acceleration of the pace of economic growth and improvement of economic situation of people (mainly in towns), thus the increase of the demand for food, in the situation of the slow pace of development of the agricultural production and food production (Figure 5) led to the growth of import of agri-food products.

The high positive balance of Russian foreign turnover, relatively low world prices and low duty on food products were conducive to the growth of imports. In 2000-2007, the import of agri-food products to Russia increased from USD 8.5 billion to USD 27.5 billion (Figure 6) and it is estimated to have reached more than USD 36 billion in 2008. Therefore, the food economy definitely grows more slowly than the demand for agri-food products.

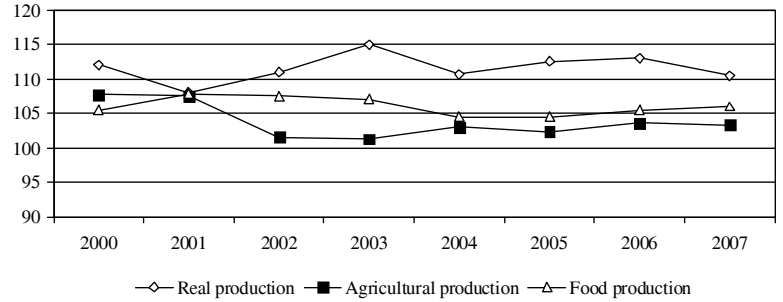

Fig. 5. Comparison of dynamics of growth of people's incomes with the dynamics of growth of agricultural and food production (the previous year=100)
Source: [11].

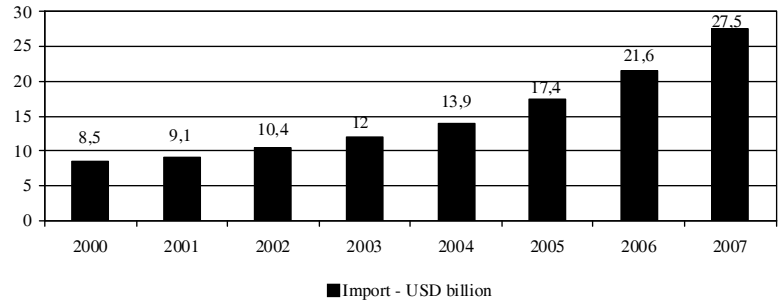

Fig. 6. Value of import of agri-food products to Russia in 2000-2007 (USD billion)
Source: Author's own elaboration based on [13, 22].

Large import of agri-food products is accompanied by the relatively low average level of consumption of animal products, particularly meat. Consumption of meat, milk, fruit and vegetables is significantly lower than the level regarded in Russia as rational. On the other hand, consumption of bread, cereal products and potatoes is higher than the recommended level (Table 6).

The situation caused that the Russian authorities approved the conception that the acceleration of the rural and agricultural development is not possible without the state support. As a result, the central government took a number of actions to create the conditions for effective development of all forms of activity in agriculture, including the recovery of agricultural enterprises and development of rural areas. Some of these actions were: establishing the Russian Agricultural Bank in 2000, launching in 2002 the Act on financial recovery of agricultural enterprises, introduction in 2002 the intervention on the cereal market, subsidies to interest on credits for agriculture, and also introduction of the programme "The Social Development of Rural Areas until 2010" etc. However, these actions

were partial, poorly financed and badly coordinated by the central authorities and they did not bring also in 2003-2005 satisfactory results. In spite of increase of agricultural production at the level of 2.2% on average annually, the import of agri-food products still was increasing dynamically.

Table 6

Level of consumption of basic food products per inhabitant in Russia and Poland in 2006 in relation to the norm recommended for Russia

Specification	Unit	Russia			Poland
		recommendation	in fact	% of recommendation	
Meat and meat products	kg	81	58	71.6	74.3
Milk and dairy products*	kg	392	239	61.0	176
Eggs	item	298	256	85.9	214
Sugar	kg	41	39	95.1	35.2
Vegetable oil	kg	13.6	12.6	92.6	11.9
Potatoes	kg	120	132	110.0	121
Vegetables	kg	145	106	73.1	109
Fruit	kg	76	51	67.1	54.4
Cereal products	kg	107	121	113.1	117

* In Poland cows' milk in litres with processed milk, without butter produced from milk, which consumption is 3.4 kg.

Source: Author's own elaboration based on: Statistical Yearbook of Agriculture and Rural Areas and [23].

This situation indicated clearly that the revival of the food economy after the crisis is possible only through undertaking broad, complex action aimed at:

- equalising economic conditions of activity in the agriculture in comparison with the remaining branches of national economy (necessity to increase the share of agriculture in budget expenditure, improvement in profitability of the agricultural production and relation of the average remuneration in agriculture to the national average);
- fast modernisation of obsolete, energy- and work consuming technical and technological base of agricultural production;
- creation of beneficial conditions for the commercial agricultural production in all forms of activity in agriculture;
- ensuring to proper proportions between the sphere of agricultural production, sphere of services for agriculture and sphere of storing and processing of agricultural products;
- improvement in living standards and working conditions in rural areas through development of technical, social and living infrastructure, increase of both the number of jobs and incomes from work.

The governmental programme "AIC Development"[19] approved at the end of 2005 was the basis of implementation of the strategy aimed at overcoming the

[19] AIC – the Agroindustrial Complex, in Polish terminology – Gospodarka Żywnościowa (Food Economy).

agricultural crisis and ensuring conditions for stable agricultural development. Objectives of this programme were to be implemented by increasing and concentrating the national support on solving the most severe problems of agricultural development. Acceleration of livestock production development was considered to be the most important direction. It results from the presented above, very difficult situation of the livestock production and a very low covering the demand for meat and meat products with the domestic production. Two other actions were planned to ensure proper conditions for agricultural development, especially the animal production: "Actions stimulating development of small-scale forms of agricultural activity in the AIC" and "Fulfilling the needs of rural areas concerning living places for young specialists". Initially, this programme covered the period of 2006-2007, but after its enlarging by some additional tasks and measures, its implementation was extended for 2008.

Implementation of the governmental programme "AIC Development" proved to be only partially successful. Basically, almost all tasks of the programme were performed:

- meat production increased by 13.2% (growth by 7% was planned) but the number of cattle as well as beef production slightly decreased;
- milk production increased by only 4%, while the assumption was by 4.5%;
- increase of production in family farms and family plots was by 15% (planned by 6%);
- more dwellings (by 3%) and dwelling surfaces (by 15%) were provided than it had been assumed.

It can also be stated that the following conditions of agricultural development improved: the profitability of agricultural production increased from 7% in 2005 to 15% in 2007 and a share of enterprises with losses decreased noticeably (from 41.2% in 2005 to 22.3% in 2007).

However, the basic objectives of the programme, i.e. improvement of food self-sufficiency and food security of the State were not achieved. In spite of acceleration of the increase of the agricultural production, including also livestock production, import of agri-food products was still dynamically growing (in 2005-2008 the value of import calculated in USD increased more than twice) and the level of food self-sufficiency did not improve. Despite relatively low level of consumption of the basic food products of animal origin as well as vegetables and fruits, the share of import in the total consumption of particular food products amounted to: meat and meat products – 40%, milk and dairy products – about 20%, sugar – 42%, vegetables – 16%, fruits – 60% [23, 25].

In the situation presented above, the national programme entitled "Development of agriculture and regulation of the markets of agricultural production, raw materials and food in 2008-2012" was developed and approved in the middle of 2007 [5, 7, 11, 22, 23]. This programme aims at creation of conditions for stable development of agriculture and the whole food economy. The legal basis of this programme is the Act on Agricultural Development which was passed in the autumn of 2006, laying down five-year programmes of AIC

development as the basic instrument of launching of the state agricultural policy. Three main objectives were defined in this programme:

- ensuring conditions for stable development of rural areas, reduction of unemployment and improvement of living standards in rural areas;
- increase of competitiveness of the Russian agricultural production on the basis of financial stability of agriculture and its modernisation, and accelerated development of the priority branches of production as well;
- preservation and reproduction of resources of land and nature used in agriculture.

In order to ensure achievement of the abovementioned objectives, the programme includes a number of specific indicators of development of agriculture and rural areas (table 7). It is assumed that in 2008-2012, USD 22.5 billion will be allocated from the central budget for implementation of the programme, USD 22.2 billion from the budgets of member states of the Russian Federation and about USD 20 billion from private investors (after converting the value of investments expressed in roubles into dollars according to the exchange rate of 2007). Particularly dynamic increase of outlays on implementation of the programme is planned for 2008-2010. In total, these outlays in 2012 should increase twice as compared with 2007. Especially big increase of outlays is planned for ensuring the stable development of rural areas (5 times) and improvement of soil fertility (about 3 times).

The implementation of the programme has just been started. The complete data of 2008, which is the first year of the programme, are not available. Preliminary data indicates that in 2008, the Russian agriculture achieved good results in the plant production. More than 112.5 million tons of cereals were harvested (by 30.6% more than in the previous year) as well as 6.8 million tons of sunflower (by 27% more) [28]. The forecasts for the coming years are optimistic. The area sown to cereals in the season 2008/2009 increased by 2.5 million ha (growth by 5% in comparison with 2007) i.e. about 4.3% of the total area under cereals in the EU and 30% of the area under cereals in Poland in 2007. In the marketing year of 2007-2008, cereal export was about 14 million tons. Russia strengthens its position as the third largest exporter of cereals, after the USA and Canada[20]. Programmes of development of particular kinds of production are in preparation e.g. concerning pigs, rape, flax production. It is forecasted that, as a result of their implementation, Russia will significantly increase export of rape after 2015, change itself from an importer into an important exporter of pork, as well as become a predominant producer of flax and the main exporter of products made from flax.

[20] However, it should be noticed that this high cereal export takes place in the situation of the low level of livestock production and very low production of nutritive fodder and with high import of products of animal origin in consequence. Estimates indicate that import of these products in cereal equivalent amounts to approximately 17 million tons of cereals [7].

Table 7

Selected indicators set in the national plan of agricultural development for 2008-2012

Specification	Years						2007/ 2012
	2007	2008	2009	2010	2011	2012	
Dynamics of agricultural production increase	103.3	103.8	103.9	104.1	104.1	104.1	121.7
- including: livestock production	104.8	104.8	105.1	105.1	105.1	105.1	127.7
plant production	102	102.9	102.8	103.1	103.1	103.1	115.9
Share of national production in balance of meat and meat products*	59	61.1	63.5	65.7	68.1	69.6	117.9
Share of national production in balance of milk and dairy products**	78.2	78.3	79.2	79.9	80.4	81.1	103.7
Dynamics of investment outlays in agriculture	119.4	115	110.6	110.2	108.5	107.1	162.9
Technical potential of in agricultural enterprises in HP/100 ha	127	134	145	152	161	168	131.4
Dynamics of labour efficiency in AIC	100	104.8	104.9	105.2	105.2	105.2	128.0
Dynamics of increase of incomes in family plots in rural areas***	100	126	126	116.3	107	106.2	209.8
Renovation ratio of the machinery park of:							
- tractors	3.5	5.2	6.6	8	9.2	10.3	294.2
- combine harvesters	5.5	7.4	8.6	10.4	11.5	13	236.3
- forage harvesters	7.6	11.8	12.8	12.4	12	11.6	152.6

* In meat equivalent; ** In milk equivalent; *** Calculated per capita in a household.

Source: [6, 7].

It should be emphasised that the preparation of the national programme of agricultural development and programmes of development for particular types of production took place in conditions of growing food crisis (increasing prices of agricultural products) and with absence of signs of financial crisis. However, as soon as in 2008, the slowdown of the increase of agri-food products prices was noted accompanied by some difficulties in the cereal export. In the situation when energy sources were fast becoming cheaper, the increasing demand for agricultural raw material used for biofuel production started to be questionable. Analyses show that biofuel production becomes unprofitable in the event when the crude oil costs less than USD 50 per barrel [7]. At the same time, decrease of energy prices has a very strong impact on the income of Russia from export of crude oil and gas, which may be reflected in the financial level of the agricultural development programme. Also the following factors may have a negative impact on implementation of tasks set in the programme: the growing inflation,

difficulties in the financial market, especially concerning credits and loans, and not only for investments, but also the working-production credits (for sowing, fertilising, feed purchasing etc.). However, it seems that the Russian government is determined to achieve the purposes of the agricultural development plan [5]. In order to neutralise the negative impact of factors originating in the growing crisis, more than USD 2 billion were additionally allocated from the central budget to support the implementation of the programme (of which 63% for increasing the initial capital of the Russian Agricultural Bank, 21% for compensating the increase of the use of feed in production of pigs and poultry, 16% for subsidising mineral fertilisation). Also a number of actions were undertaken aimed at dismantling of various types of barriers in development of the agricultural production, especially concerning ownership and trade in agricultural land, internal and foreign trade of agricultural products, imbalance in the dynamics of prices of agricultural products and means of agricultural production and services for agriculture as well as development of technical, social and living infrastructures in rural areas.

What is more, the end of liberalisation of energy carriers' market in Russia (including especially electricity and gas) and Russian accession to the WTO[21] can have a very large impact on implementation of the programme of agricultural development. They can weaken the competitiveness of Russian agriculture and slow down its development.

However, even full implementation of tasks included in the agricultural development programme for 2008-2012 will not lead to food self-sufficiency and food security in Russia. It is considered in Russia, that food security of the state can be ensured if the share of the national production in the market turnover is not less than: in case of cereal products and potatoes – 95%, sugar – 80%, vegetable oils – 80%, meat and meat products – 85%, milk and dairy products – 90%, fish and fish products – 80%. But the full implementation of the programme assumptions should lead to the situation, when the share of national production in the balance of meat and meat production is 69.6%, whereas milk and dairy products 81.1% (Table 7). Achieving the above levels of food security in Russia can be possible only after the acceleration of agricultural development, planned for 2013-2020. According to these assumptions, in 2020 the Russian agriculture should produce: 120-125 million tons of cereal, 36 million tons of sugar beet, 7.5 million tons of sunflower seed, 8.6 million tons of meat expressed in post-slaughter weight and 41 million tons of milk. It will allow to decrease the share of import in the balance of meat and meat products to 12%, of milk and dairy products to 12% and of sugar to 20%, and therefore come closer to indicators stemming from the doctrine of food security of Russia [24].

In spite of all the above difficulties with securing the food self-sufficiency, the Russian agriculture is and will continue to be a large exporter of cereal and

[21] According to some economists, Russian accession to the WTO will lead to decrease of: agricultural production by 3%, employment in agriculture by 3%, export of agri-food products by 6% and at the same time to increase of the import of agri-food products by 11%.

cereal products (mainly of groats and flour), oilseed and sunflower oil[22]. Particularly large increase of export may concern rape and rape oil. At the moment, the rape cultivation in the total area sown in Russia has a very small share (0.9%)[23] but it presents the highest dynamics of all agricultural crops. In 2002-2007 the area of rape cultivation increased from 145 to 659 thousand ha, i.e. more than 5.5 times. Almost the whole rape production is planned for export, because there is no tradition of consuming the rape oil in Russia. Even in a close future, Russia can become a leader in production of flax and flax products. In spite of the fact that the flax production in Russia, in comparison with 1990, decreased by a half, its share in the world flax production is still high and amounts to 18%. It is forecasted that by 2012 the production of flax fibre will have increased to 120 thousand tons, i.e. 2.3 times[24] [7].

*

To summarise, it should be stated that the agriculture in Russia is still in the course of restructuring process and remains in a deep production and economic crisis. The actions aiming at the revival of the agriculture are only partially successful. The level of agricultural production is still lower than in 1990-1991. In the case of livestock production, the crisis is especially strong. In the conditions of fast growth of peoples' incomes, the increase of agricultural production achieved in the last years did not lead to the decrease of food imports nor did it improve the food self-sufficiency of the country. As a result, Russia's imports of agri-food products, especially animal-food ones are on the increase. Analyses indicate that even full implementation of tasks included in the agricultural development programme for 2008-2012 will not lead to food self-sufficiency and food security of Russia even in 2020. Simultaneously, Russia is the large exporter of cereals, oil plants and oil and these exports will continue to grow. Russian accession to the WTO and the financial crisis can weaken the development trends in the Russian agriculture. Moreover, these factors can reduce the growth rate of the national demand for food. In this situation, further increase of plant products' export may occur. Russia has considerable potential for fast growth of the production of cereals and oil plants, mainly rape, not only by a significant extension of the area of cultivation, but also by the increase in yields.

[22] In 2006, Russia exported more than 11 million tons of cereal and almost 320 thousand tons of flour and groats and also 752 thousand tons of sunflower oil and 312 thousand tons of oil plant seed.

[23] To compare, in Poland in 2007, the area of rape cultivation was almost 800 thousand ha and its share in total sown area was 6.9%.

[24] In 2007, the world production of flax fibre was 228 thousand tons whereas the estimated demand – 400 thousand tons [7].

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