

ESTIMATE OF RUSSIA'S POTENTIAL FOR INCREASING GRAIN EXPORTS BY MEANS OF RECLAIMING ABANDONED LANDS

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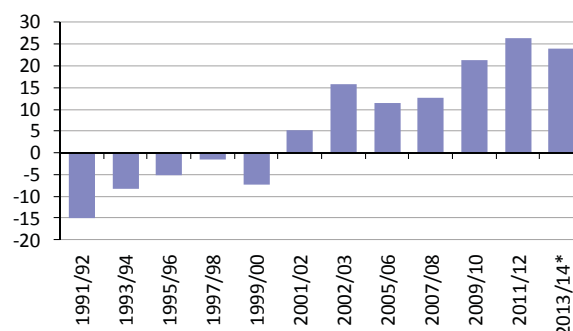
From the largest importer of grain that the country used to be in the Soviet times, Russia has evolved into its net exporter. The potential for increasing grain exports by means of reclaiming abandoned lands is being examined. There are as well opportunities for boosting grain production by means of improving yields and applying modern technologies on already cultivated lands.

Being endowed with the largest area of fertile land in the world (according to the World Bank's estimate – 55% of the world's total, of them 25% – arable land) Russia can become one of the key actors in ensuring the global food security. Within 25 years that passed after the break-up of the Soviet Union the country has evolved from an importer to one of the biggest exporters of grain (Fig.1). Speaking at the economic forum in Davos, the Russian Prime Minister D.A. Medvedev gave his estimate of the potential increase of national food exports – he declared that “Russia will feed the world”¹. The Minister of Agriculture asserts that in the nearest 10–15 years the country intends to raise the output of grain up to 120–125 million tons per year ensuring stable export supplies to the amount of 30–40 million tons. According to estimates of the leading US agricultural economists² Russia's exports of wheat will surpass those from the United States as early as in 2019.

Does Russia really have a potential for increasing grain exports and if so, by what means can it be materialized? First of all, the country's capability to boost production of food products bases upon the availability

1 <http://vz.ru/news/2013/1/24/617280.html>

2 Liefert W., Liefert O., Vocke G., Allen E. Former Soviet Union Region to Play Larger Role in Meeting World Wheat Needs. ERS-USDA, Amber Waves, Volume 8, Issue 2, 2010.



Source: Rosstat, 1991–2012, *2013/14 – forecast.

Fig. 1. Balance of Russia's trade in grain, million tons

of extensive areas of non-used farmlands. Is it possible to bring the vast areas of land abandoned in the transition period back to production? Within this period that lasted for more than 20 years the area of arable land in Russia shrank by 16.3 million hectares or by 12.4% as compared with 1990 (Table 1). The total sown area decreased by 41.3 million hectares, the area sown to grains – by almost 20 million hectares. However, while the share of sown area in the total area of arable land fell from 89.2% to 66.1%, that of area sown to grains in the total sown area grew from 53.6% to 58.2%.

Table 1

AREA OF ARABLE AND SOWN LAND IN RUSSIA

	1990	1995	2000	2005	2010	2012	2012 as compared with 1990	
							million ha	%
Area of arable land, million hectares	131.8	127.6	119.7	116.1	115.3	115.5	-16.3	87.6
Area of sown land, million hectares	117.6	102.5	85.4	77.5	75.2	76.3	-41.3	64.8
Share of sown land area in the arable land area, %	89.2	80.3	71.3	66.8	65.2	66.1		
Area of land sown to grains, million hectares	63.0	54.7	45.6	43.4	43.2	44.4	-19.8	68.6
Share of area sown to grains in the total sown area, %	53.6	53.4	53.4	56.0	57.4	58.2		

Source: Russian Statistical Yearbook. Official edition: 2006–2013, authors' own calculations.

GROUPING OF SUBJECTS OF THE RUSSIAN FEDERATION BY THE DEGREE OF REDUCTION OF AREAS SOWN TO GRAINS AS COMPARED WITH 1990

Groups by % of grain acreage change	Number of RF subjects	Grain acreage change in 2010 as compared with 1990		Average grain yields in 2008–2010	Corporate farms	
		1,000 ha	%		Unit cost per 1 ton of grain	Average sales margin in 2008–2010
Above 0	3	550	14.0	40.0	3 429	32.0
-20 – 0	14	-1 361	-8.9	19.3	3 440	17.0
-40 – (-20)	16	-7 941	-30.6	15.3	3 639	11.5
-60 – (-40)	12	-4 295	-47.7	18.2	3 729	14.3
-80 – (-60)	15	-3 658	-70.9	15.4	4 544	10.0
-80 and below	11	-3 110	-86.5	13.2	4 909	1.5
Total	71	-19 815	-31.5	19.5	3 566	17.6

Source: authors' own calculations using data of the Russian Statistical Yearbook.

Areas sown to grains reduced in almost all subjects of the Russian Federation but the rate of this reduction was the highest in regions with hard natural and economic conditions, poor bioclimatic potential, high level of costs per ton of produce and low yields (Table 2¹).

Only in three subjects of the Southern Federal District (Krasnodar Territory, Stavropol Territory and the Kabardino-Balkarian Republic) the area under grains has grown as compared with 1990. In all other regions grain acreage has shrunk, the decrease ranging from several percent to the complete elimination of grain growing (the latter was more common for regions of the North-Western Federal District). Areas under grains are narrowing in the regions where yields are below 20 centners per hectare and the unit costs per 1 ton of grain are above Rb 3,429. The higher unit costs and lower sales margin, the more noticeable was the reduction of areas sown to grains.

So, grain acreage has been primarily shrinking in regions where production of grains has always been and still remains economically unsound. But as the world grain prices grow, the situation can change (at the moment the export price for grain amounts to \$ 286 per ton)². The authors have made an attempt to estimate the potential for increasing exports of grain taking into account not only the available areas but also costs of production in subjects of the Russian Federation, costs of delivery to export terminals and the world prices.

The following algorithm was applied:

The potential for expanding areas under grains was calculated as a difference between their values in 1990 and 2010 separately for each subject of the Russian Federation.

On the basis of data of corporate farms' annual reports the regression relationship between the increase of grain acreage and the actual average profitability of marketing grains in the three preceding years was established.

When calculating potential profitability for farms located in a particular subject of the Russian Federation, the difference between prices for grain at the port of shipment and in the region was supposed to equal the price of transportation by railway.

The output of grain was calculated on the basis of average annual yields in 2008–2010, the volumes of export – on the basis of share of commodity grain crops in the total sown area and the supposition that all the surplus output would go exclusively to export.

Costs of reclaiming additional areas remained fixed, i.e. the same as under the existing production scale.

Assessments were made for 11 variants of export grain prices at the port of shipment ranging from \$200 to \$400 per ton. The potential for increase of grain acreage was estimated for each value of export price and for each subject of the Russian Federation in case grain production profitability therein exceeded 40% taking into account transportation costs. If the profitability in a region was below 40%, the increase was supposed to be zero. The estimated increase of areas served the basis for calculating potential increase of grain exports.

Let's give a regional example. In Belgorod oblast crop acreage in 2010 was smaller than in 1990 by 338 thousand hectares. If we suppose that all of them will be reclaimed, the sown area will grow up to 1,586 thousand hectares. At the moment grains account for 49.2% of the total crop area, so the area sown to them can increase by 166 thousand hectares at the most (338 thousand hectares * 0.492). The expansion of grain acreage will depend on prices for grain and many other factors but it cannot exceed the assessed maximum.

1 In the framework of the international project "Prospects of the farming sector and rural development in European countries in view of food security: The case of the Russian Federation" <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=7144>

2 <http://www.gazeta.ru/business/2014/03/17/5953601.shtml>

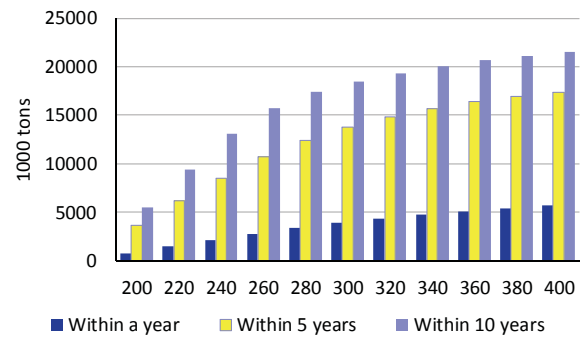
In Leningrad oblast crop area dropped from 437 thousand hectares to 251 thousand hectares, i.e. by 186 thousand hectares. If all of them will be reclaimed, the area under grains can expand by only 23 thousand hectares as in this region the maximum share of grains in the total sown area is only 12.6% (186 thousand hectares \times 0.126 = 23 thousand hectares).

The results of expert estimates for the country at large are presented in Fig. 2. They demonstrate that if, for instance, the price amounts to \$380, the expansion of cultivated areas can provide for an increase of grain exports by 5.7 million tons within a year, by 17.5 million tons annually within 5 years and by 21.5 million tons annually within 10 years – i.e. by the volumes comparable with the total grain exports in recent years. Accordingly, by 2025 grain exports can reach over 40 million tons.

However, this way of increasing grain production and exports is rather high-cost (abandoned lands are less fertile than those used) and if the world grain prices remain at the current level, the role of Russia on the global market will hardly change much. It can be widely applied only in case of a notable growth of world prices for grain.

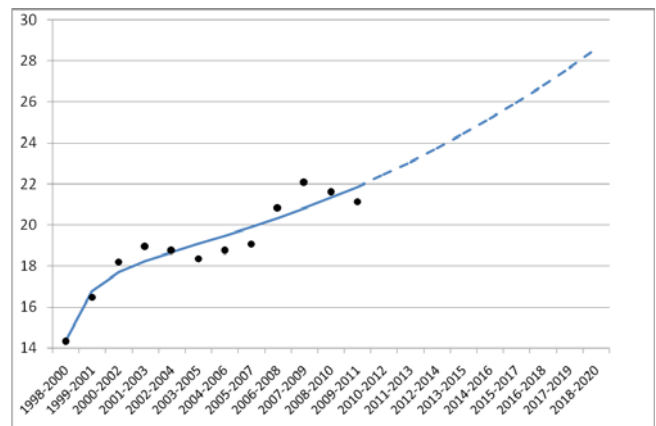
Besides, one will have to solve the problem of relatively low loading capacity of Russian port elevators that now totals 28 million tons¹ (Novorossiysk – 13 million tons annually; Tuapse and Taman’ – 2.5 million tons each; Azovsk, Yeysk, Taganrog, Rostov-on-Don – altogether 6 million tons; Saint-Petersburg and Kaliningrad – 1 million tons each; Vladivostok, Nakhodka and other Far East ports – 2 million tons)².

So, Russia has a potential for increasing grain exports by means of reclaiming earlier abandoned lands. However, we find that the country has good opportunities for boosting production of grains by raising of their yields and application of modern technologies on lands that are already used for growing grain crops (the actual and projected dynamics of grain yields is



Source: authors' own calculations.

Fig. 2. Increase of grain exports under different scenarios of export prices / time periods, 1,000 tons



Source: authors' own calculations².

Fig. 3. Yields of grains and legumes, centners per hectare

shown in Fig. 3). The estimate of potential increase bases upon supposition that the sown areas and livestock inventories remain at the level achieved in the reference period. Certainly, the growth of production is possible only in case there is demand for additional produce both on the domestic and the world market and Russian producers prove to be competitive. ●

¹ Not including ports in Crimea.

² Sobolev O.S. Analiz sel'skokhozyaystvennykh tsen v pervom polugodii 2013 goda. [Analysis of agricultural prices in the first half of 2013]. // *Ekonomika sel'skokhozyaystvennykh i pererabatyvayushchikh predpriyatij* [Economics of agricultural and processing enterprises]. No. 9, 2013. – P. 51.

³ The forecast of grain yields was derived by approximating the data on moving average yields with the help of software package Statistics – 9. For more details about the methods of analysis see: V. Uzun, V. Saraykin, E. Gataulina, N. Shagayda, R. Yanbykh “Prospects of the farming sector and rural development in European countries in view of food security: The case of the Russian Federation” (being prepared for publishing, English version available at <http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=7144>).