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**THE SIBERIAN FOOD SUPPLIES:
THE SOURCE OF ORGANIC FOOD EXPORTS TO SOUTH AND EAST ASIA MAKERS**

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Abstract

The article examines global food market problems with the focus on fighting hunger and meeting the growing demand for organic food products (OFP). The authors address the current situation, and study the prospects of resource development and the potential for organic food production in ecologically clean regions of Siberia and Krasnoyarsk Krai. New opportunities are presented for the development of OFP production in these regions in conditions of availability of land, water and forest areas. Special attention is devoted to wild plants as a valuable source of organic food. The growing markets of South and East Asia are seen as the most promising OFP export destinations.

Keywords

Food resources — Middle class — Organic food product markets — Wild plants of Siberia

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Introduction

The analysis of the current state and prospects of food provision to the world population and to certain regions and countries are important issues of the United Nations (UN) agendas in the third millennium. The objectives are the reduction of hunger and malnutrition, as well as the provision of high-quality food. Thus, in the Millennium Declaration in 2000, eight Millennium Development Goals (MDG) were defined, and in the first place was the reduction of hunger and food development (MDG-1).

The report “The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress”, prepared by Food and Agriculture Organization (FAO), World Food Programme (WFP) and International Fund for Agricultural Development (IFAD), shows that the world on the whole and many separate countries have taken significant steps toward food security and fighting hunger in the 15 years of the Millennium Development Goals. Most countries concerned with this problem have made decisions and taken actions in close cooperation with international organizations that improved food situation in their countries¹.

In 72 countries MDG-1 hunger target is achieved, in 9 countries this problem is almost solved, in 29 countries the number of chronically undernourished people is reduced by half. Overall, more than 216 million people have been rescued from starvation. But the problem remains. In the end of 2015, about 795 million people were systematically malnourished; one in every nine people on the planet lacked the food necessary for an active and healthy life². At the same time, more than 1 billion people ate organic food (Figure 1).



Figure 1
Progress towards MDG-1 targets

¹ FAO, IFAD and WFP. The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress (Rome: FAO, 2015)

² FAO, IFAD and WFP. The State of Food Insecurity in the World...

Building on the Millennium Development Goals, in September 2015, 193 UN member countries at the anniversary UN session adopted a new agenda for sustainable development for the period up to 2030 – “The 2030 Agenda for Sustainable Development”. Among the new 17 goals of the agenda, 7 goals are associated with food and include new directions, such as “end hunger, achieve food security and improved nutrition and promote sustainable agriculture” (goal 2), “ensure healthy lives and promote well-being for all at all ages” (goal 3), “ensure sustainable consumption and production patterns” (goal 12). These goals focus not only on fighting hunger, but also on providing high-quality healthy nutrition³.

Materials and Methods

Modern opportunities in food production provide the potential for the new stage of “improved nutrition” and “healthy lives”. FAO estimates of the world food market development prospects in the coming years are quite optimistic; the market is expected to be relatively balanced, with continuing growth of demand. This conclusion of FAO is supported by a number of characteristics (Table 1).

Type of food	World production in 2015	Production in 2015 as related to 2014
Production: Crops, including wheat	2.53 billion tons 735 m tons	- 1 % + 1.5 %
World trade volume: total meat including poultry	30.5 m tons 12.6 m tons	- 0.6 % - 1 %
Dairy food production	801 m tons	+1.5 %
Fish production	168.6 m tons. including aquaculture 78 m tons fishing 90.6 m tons	+ 2.6 % including aquaculture + 5 % + 0.7 %
Total food import	1.09 trillion dollars	- 19 %

Table 1
World Production of the Main Types of Food

In January 2016, food price index was 150.4 points (16% less than a year ago), which is the lowest since 2009.

All this confirms that the new food security and nutrition improvement problems can be solved. The front line of development is, as defined in Sustainable Development Goals (SDG), nutrition quality and organic food products, which are becoming increasingly popular in the countries with high quality of life among the groups belonging to the “higher” and “middle class”.

Among the many definitions of belonging to middle class, we adhere to the International Futures prediction model, which is based on household expenses of 10-15 dollars per day per capita by purchasing power parity (PPP). Goldman Sachs Bank uses the same gross domestic product (GDP) per capita at the level of 6000-30000 dollars a year. There are other estimates of the middle class size in the world, as well as for separate countries (see Table 2).

³ Transforming our world: the 2030 Agenda for Sustainable Development (UN General Assembly, 2015) from <https://sustainabledevelopment.un.org/post2015/transformingourworld>

Estimate source	Terms of attributing to middle class	Number of inhabitants attributed to middle class
International Futures	Household expenses 1-15 \$ per day per capita	1.0-1.2 billion
Goldman Sachs	GDP 6000-30000\$ per year per capita	1.2 billion
Kharas, OECD research		1.85 billion
Ravallion, World Bank		2.64 billion
Middle class estimate in China (PRC) by 2030		75% of country population

Table 2
Middle Class Estimates⁴

In almost all developing countries, the middle class tends to grow significantly. There is an increase in both absolute number and percentage of population that can in the next 15-20 years claim middle class status.

All forecasts that we studied suggest the most rapid growth of the middle class in Asia, while India will be slightly ahead of China for a long period. According to the Asian Development Bank, if China “achieves the new plan target of increasing household expenditures at least as rapidly as GDP, the size of its middle class will explode”. With “75 percent of China’s population enjoying middle-class standards”, the number will reach approximately 1 billion people⁵.

Goldman Sachs in their study of middle class in the world emphasized that even without China and India “new [middle class] entrants would still be larger than the world has seen for many decades”⁶.

These data show that in the coming years the number of people belonging to the middle class will increase at least twice; the demand for organic food products will grow accordingly. At the same time, in traditional markets this growth will be 0.6% per year, so, according to the Asian Development Bank estimate, the expenses of the Asian middle class consumers may rise by up to 9% a year by 2030⁷. China and India are becoming the new rapidly growing OFP markets. According to the estimates of Russian Academy of Sciences’ Institute of Sociology, the middle class in Russia includes 28-30 m people, or about 20-25% of Russians. Taking into account the higher layer, in Russia about 35 m people are interested in consuming organic food products and can afford them⁸. For further research let us clarify the definition of organic food products (OFP). Today there are three international standard systems: European Union (EU) Regulation 2092/91 (EU 834/2007), Codex Alimentarius Guidelines for Organically produced food 1999/2001 and IFOAM Basic Standards (IBS). On their basis governments create rules and regulations for organic food production⁹.

⁴ Global Trends 2030, Alternative Worlds (National Intelligence Council, 2012) from <http://eurasian-defence.ru/sites/default/files/DS/Documents/global-trends-2030-rus.pdf>

⁵ Global Trends 2030, Alternative Worlds...

⁶ Global Trends 2030, Alternative Worlds...

⁷ L. M. Handazhapova and N. B. Lubsanova, “On the development of organic agriculture in Russia”, Scientific Journal. Series “economics and Environmental Management num 1(8) (2011): 32. From <http://economics.ihbt.ifmo.ru/file/article/635.pdf>

⁸ S. V. Nazarenko, Sociology. Educational book (Moscow: Piter, 2009)

⁹ L. M. Handazhapova and N. B. Lubsanova, “On the development of organic...”

We share two similar but slightly different approaches to this definition, established in the United States of America (USA) and EU.

The most widespread concept of organic food products (OFP) is adopted in US standards, which classify OFPs into the following categories.

1. Natural Products (NP) are the products that fully, or at least mostly, consist of natural ingredients with a minimum of chemicals, artificial fillers etc. OFP natural products are the foods grown on specially cleaned ground, without the use of chemicals, using only natural fertilizers such as manure, compost and others.
2. Functional Foods (FF) are the products with artificial addition of nutrients that increase protective body functions (e.g., orange juice with added echinacea).
3. Nutraceuticals are special food supplements that increase its nutritional value, e.g. vitamins. They must be natural. Most of them are extracts from various plants.

The US Federal Law of 2002 specifies four sub-kinds of organic food products:

- 100% organic are the products manufactured in a completely “organic way”, i.e. in a natural way with the use of environmentally friendly ingredients.
- certified organic. 95% of the final product ingredients are produced in an “organic way”.
- made with organic products contain at least 70% of organic ingredients.
- with organic components. The products contain less than 70% organic ingredients¹⁰.

The second center of OFP institutional definitions is the European Union, where the concept of organic production was introduced in the EU Regulation No 2092/91 of 24 June 1991 on organic production of agricultural products, and then on 1 June 2009 a new Council Regulation No 834/2007 was implemented. It defines the standards of organic agriculture, standards of organic livestock production, labeling of organic agricultural products. The right to use the “EU organic” logo for labeling is given only to products containing at least 95% of organic ingredients¹¹.

Discussoin and Results

In Russia the domestic OFP market is actively developing. The sociological survey of the *CVS Consulting* agency has shown that 85% of Russians are willing to buy organic products even if they are 10% more expensive than the usual ones. Half of the respondents would agree with a 20% price rise. And even if the cost of organic food products was 30% higher, 28% of consumers would prefer them. According to statistics, the number of Russians who can afford to consume OFP regularly is about 35 m people¹².

Thus, there are significant groups of people in Russia seeking to use organic food products, which already encourages farmers to produce them actively. Still there is another important reason for OFP development in Russia. The global OFP market is developing rapidly, but according to certain assessments, the production of organic food products is still

¹⁰ D. V. Gorshkov, “Organic products market: International experience and Russian prospects”, *Marketing in Russia and Abroad* num 6 (2004) from <http://dis.ru/library/524/25213/>

¹¹ D. Tsvetkova, “European market of organic food products”, *Provision Promotion Prod&Prod* num 12 (2010) from <http://article.unipack.ru/32720/>

¹² E. Krylatykh “Organic products market in progress”, (2015) from <http://www.kom-dir.ru/article/313-rynok-ekologicheski-chistyh-produktov>

in its infancy. So Russia is going to enter a market which is not established and protected, but which is growing rapidly and requiring new suppliers. According to the US Department of Agriculture, the share of organic products in this country does not exceed 3% of total agricultural products. In Europe this number is about 1 to 7%. Despite the fact that the new technologies of organic production are being actively developed, especially in the US and Europe, there is a rapid growth in demand for these products in the East – in China, Singapore, Malaysia. In India this market has doubled over the past two years¹³.

All this means that organic product markets are virtually limitless, organic foods can be supplied to the developed markets of the USA and Europe, as well as to the new markets of China, India and Russia. Thus, active OFP development in Russia and Siberia may be in demand both in Russia and other world markets.

In Russia, organic agriculture is growing rapidly. The prestige of organic farming has always been maintained here, and high world prices of mineral fertilizers, chemical pest and weed control substances accelerated the choice of OFP. In Russia the legislation and public opinions are forming regarding the OFP market development. Since 2004 the National bio-certification agency “Eco-control” has been operating in the area of organic agriculture and nature usage; since 2013 the National Union for Support and Development of Organic Agriculture has been working, which is also known as the Union of Organic Agriculture (UOA). A working group of the Russian Federation (RF) Ministry of Agriculture has developed and on 17 July 2013 proposed the draft Federal Law “On the production of environmentally friendly (organic) agricultural products and the amendments to the legislative acts of the Russian Federation”, which is currently under discussion¹⁴. According to the studies and forecasts of the Union of Organic Agriculture, after the adoption of the National Standard for Organic Products, more than 5000 producers of organic agricultural products will be registered through a voluntary certification system in just 3 years. Their multiplying effect will ensure the growth of Russia’s GDP and increase the tax base by more than 100 billion rubles.

The authors of the letter to the Federation Council claim that by creating the conditions for organic agriculture development, Russia can become a world leader in production of organic agricultural products by 2020, with turnover in this sphere over 300-400 billion rubles on the domestic market and export volume of more than 300 billion, thus occupying 10-15% of the world market and creating 75-100 thousand workplaces with a high level of income in rural areas¹⁵.

Russia and Siberia have a unique geographic location in the temperate climate zone, with vast areas of taiga and clean soil, unlimited supplies of clean water, and areas remote from industrial manufacture centers.

Relative proximity to the areas with the most rapid growth in demand for OFP – China and India – is particularly important.

¹³ D. Tsvetkova, “European market of organic food products”, Provision Promotion Prod&Prod num 12 2010 (2010) from <http://article.unipack.ru/32720/>

¹⁴ E. Krylatykh, “Organic products market in progress”, (2015) from <http://www.kom-dir.ru/article/313-rynok-ekologicheskii-chistykh-produktov>

¹⁵ A. Yagodnaya, Organic products will be under the control of the Ministry of Agriculture (2012) from <http://www.foodtest.ru/produkty-pod-kontrolem-minselkhoza.php>.

The world market of organic food products, according to the assessment of International Federation of Organic Agriculture Movements, has increased by more than five times in 2000-2013, from \$18 billion in 2000 up to about \$100 billion in 2014, thus it will increase at least up to 300 billion dollars¹⁶.

Taking into account the geographic proximity and transport availability, it is possible for Siberia and Pacific East of Russia to specialize in the production of organic foods and their supply to the markets of fast-growing Asian regions.

OFP production capabilities in Russia and Siberia are assessed as having high potential. Among the resources of active OFP production development in Russia and Siberia are the abandoned agricultural lands, which were in use until 1991, and then for various reasons were left fallow. Now they have naturally recovered, and can be used for OFP production. The territories of such land are huge. In Krasnoyarsk Krai only, there are more than 1200 thousand ha of such land, or 47% of the land area used in agriculture in 1991. In Russia about 45 m ha of formerly cultivated land have been fallow for more than 20 years, thus getting a full natural recovery¹⁷.

At the same time, the share of organic agriculture in Europe is about four per cent of all agricultural territories – only 7.39 m ha, including 3 m ha of arable land and 3.2 m ha of pasture.

In Krasnoyarsk region, 1.2 m ha can be used for OFP, which is more than in the whole Italy (1.15 m ha)¹⁸.

Wild plants can be used as OFP raw resources in Russia – berries, mushrooms, nuts, plants that are used as food and grow in natural conditions. The volumes of possible harvesting and processing are huge. Most of the wild plant species from Russia and Siberia are known to Western consumers, some of them are well-known in Japan (ferns) and China (nuts, berries).

In different periods, Siberian wild plant resources were actively supplied to world markets; most of them are well preserved and processed without loss of nutritional value.

Wild plant processing is organized most effectively in Tomsk Oblast, Irkutsk Oblast and Krasnoyarsk Krai; these regions have vast resources for the industry (see Tables 3 and 4).

Tomsk Oblast has significant resources and uses them actively; there are large annual wild plant harvests (see Table 4).

¹⁶ E. Krylatykh, Organic products market in progress. <http://www.kom-dir.ru/article/313-rynok-ekologicheskii-chistykh-produktov> (in Russian) 2015.

¹⁷ V. V. Kuimov and E. V. Shcherbenko, "Food market of Siberia: is it possible to export to the countries of the Asia-Pacific region?", Journal of Siberian Federal University. Humanities & Social Sciences num 8 (2015): 166-179.

¹⁸ V. V. Kuimov; Yu.Yu. Suslova and E. V. Shcherbenko, "Foodstuffs in Siberia and the world market: Production and export of ecologically clean products", Mediterranean Journal of Social Sciences num 6 (5, S4) (2015): 212-218.

Berry type	Average biological reserve, tons	Operational reserve, tons	Annual economic harvest, tons
Cowberry	269606	131910	13016
Blueberry	102047	45128	4475
Bilberry	191337	86105	8318
Other berries			
Total	571147	266438	26134

Table 3
Berry-Field Resource Potential in Irkutsk Oblast¹⁹

Wild plant type	2009	2012	2013
Mushrooms, tons	907	657	2070
Berries, tons	924	3090	4019
Nuts, tons	2316	3090	1108
Total, tons	4989	8280	8320

Table 4
Wild Plant Harvesting in Tomsk Oblast²⁰

The region has more than 300 wild plant collection stations, harvesting involves more than 30 thousand citizens who sell the wild plants for more than 1 billion rubles annually. The share of export in total sales of agrarian products of Tomsk companies is 36.5%, the main export supplies (80%) go to China.

Wild plant harvesting and production is actively developing in Krasnoyarsk Krai, where the forest area is 164.0 m ha. Here, the average potential biological yield of nuts only is 1727 thousand tons, whereas the possible harvest is 424 thousand tons per year. In reality, about 4-5% of that volume is harvested²¹. Wild plants have good properties for deep processing and long-term storage in natural conditions. The main products of wild plant deep processing are the following: biologically active food supplements, syrups, salted fern, pickled and salted mushrooms, jam, berry juices. Especially valuable are the products with the use of Siberian pine nut, maral root (*carthamoid rhapontic*), and deer antlers. It is also important that over a long period of trading relations with China and India, the products of Siberian wild plants have become familiar in the markets of these countries. The sales geography also extends to Israel, Canada, USA, Germany, Japan. All Siberian wild plant products have a high demand in Russia.

Conclusion

The development of organic food production in Russia has significant prospects; it is supported on the one hand, with the international recognition of the food quality issues and on the other hand, with the growth of the middle class – the potential consumers of organic food. The recent rapid growth of the Asian market, particularly, China and India, provides the most promising prospects for the Russian food and agriculture sector development.

¹⁹ A. K. Tatarnikov, Special market characteristics of non-timber utility of forests. Special market characteristics of non-timber utility of forests, Current issues of Modern Marketing. (Irkutsk: 2015).

²⁰ V. V. Rozhdestvenskaya and T. N. Komarova, "The current state of harvesting industry in Tomsk Oblast", Bulletin of Novosibirsk Agrarian State University num 4(37) (2015): 213-214.

²¹ V. V. Kuimov; Yu. Yu. Suslova; E. V. Shcherbenko and L. V. Pankova, Marketing technology in the development of food markets of Siberian regions. Krasnoyarsk, Monograph (Krasnoyarsk: SibFU, 2015).

The prestige of organic farming, which has always been very high in Russia, is now supported by the state legislation, as well as a number of public initiatives.

In terms of organic food production, the best potential belongs to Siberia – the geographically unique region with its specific climate, vast forested territories, clean soils and waters. At the same time, the region is situated in relative proximity to the areas with the most rapid growth in demand for OFP – China and India. The resources of active OFP production development in Siberia are twofold. Firstly, they include the extensive abandoned agricultural lands, which have stayed fallow since the early 1990s and are now naturally recovered and ready for use. Secondly, a unique OFP resource of Russia are the wild plants – berries, mushrooms, nuts, herbs that are used as food and grow in natural conditions, the volumes of possible harvesting and processing being huge.

Thus, with due attention to the resources of Siberia and the necessary economic steps, Russia can take its place as one of the world's leaders in organic food production.

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