

Modern trends in the world food security

Lyudmila Kopteva^{1,*}, *Lyudmila Shabalina*² and *Andrey Prorokov*³

¹ St. Petersburg Branch Russian Customs Academy, Sofijskaya st., 52, A, Saint-Petersburg, 1912236, Russia

² Donetsk National Technical University, Artema str., 58. Donetsk, 83000. Ukraine

³ Moscow regional state University, 129125 Radio str. 10, Moscow, Russia

Abstract. The article is concerned with the international food safety from the point of view of steady human provision with food commodities. The article reveals the trend of food safety decline in the world, based on the analysis of the world exports / imports of agricultural crops and livestock products. The tasks for mitigation of the world food security are determined, the main one of which is the creation of small family farms. It is revealed, that the meat industry of Muslim countries is attractive, which is due to the high effective demand of the population in these countries.

1 Introduction

Currently, a food gap is a serious danger in the world to stable existence and development of humanity. The future humanity's capability to feed themselves is under a risk of failure due to an increasing pressure upon natural resources, as well as the growing inequality and negative effects of the climate change. Probably, the humankind will amount to almost 10 billion people by 2015. At a moderate economic growth, this population growth rate will lead to an increase of global demand for agricultural products by 50% in comparison with the current level, which, in its turn, will result into an increase of pressure upon the natural resources, already sapless. At the same time, more and more people will consume less grains and more meat, fruit, vegetables and manufactured foodstuff - the result of the continuing global change in the diet - a process that will also increase the pressure upon the resources [1]. Those will accelerate forest devastation, land degradation and greenhouse gas emissions.

Along with these tendencies, the climate change on the planet will bring additional difficulties. UN Food and Agriculture Organization (hereinafter referred to as FAO) estimates the current amount of starving people in the world, as 789.5 mln this is 10.7% of the total population in the world [2]. Despite a significant progress achieved during past 30 years regarding the global hunger decrease, "the extension of food production and economic growth often come at high cost for the environment", - says The Future of the Foodstuff and Agriculture: Tendencies and Problems Report.

Globalization influences significantly upon the competitive environment of commodity markets. First of all this relates to the food market, since the countries and regions in the world are much differentiated with regard to natural and economic manufacturing

* Corresponding author: luis63@mail.ru

conditions of food products, as well as with regard to the level and structure of the consumer demand for them. Based on that, it is reasonable to pay attention to such sector of the international commerce as the food market.

The Food Safety Doctrine of the Russian Federation, approved by Order No.120 of the President of Russia dated January 30, 2010 specifies the self-dependence on the key food products by 80-95% by 2020: grain - by 95%, sugar - by 80%, oil - by 80%, meat and prepared meat - by 85%, milk and dairy products - by 90%, fish products - by 80%, potatoes -by 95%, and edible salt - by 85% [3]. A necessity to implement the Doctrine, as well as the embargo for import of the European and American food as a response to the sanctions imposed by the European countries, the USA, Canada, Australia and Japan required from the Russian regions to set a course for import substitution in the area of agriculture.

For Russia, as one of the biggest food manufacturers and simultaneously a food importer, the base for food safety enhancement is, first of all, the enhancement of the national agrarian business and its basic industries, first of all, agriculture. Currently, the development of national agriculture is under essential influence of increasing imported procurements of raw materials and food. Over the last years, Russia spent around USD 40 billion per year for food import. The world community deems the country having high potential in agriculture development as a country, which is more oriented on the export of raw materials and hydrocarbons than on the development of own production/manufacturing, including agriculture.

A peculiarity of the agrarian sector of economy is that the processes it cannot be changed at once. As a rule, we deal with living systems that reproduce themselves gradually. That is why import substitution is the system complex activities requiring not only administrative interference, but the accounting of all the factors that may influence on its efficiency indeed. It is especially important for the regions with special conditions of the industry development. In the regions where the industrial manufacturing prevails, the climate conditions are unfavourable for agriculture development, at first sight, the agrarian business products take 2-5% of Gross Domestic Product cost; oftentimes, the appropriate efforts are not taken to develop the industry, despite the fact that all conditions for that are available.

The works of many outstanding national scientists in economy. such as V.G. Agaev, V.I. Nechaev, A.N. Altukhov, V.S. Balabanov, A.B. Melnikov, V.V.Maslakov, V.I.Gayduk, V.V. Miloserdov, etc. paid attention to the issues regarding food safety assurance of a state and globally. The works by N. Salyakhova, N.A. Vasilyava, Ye.G. Kazantseva, A.B. Melnikov, Ye.O. Kolesnikova, etc. focused on the peculiarities of the modern food market.

The main purpose of the research is to analyze the global food market and assurance of food safety. The object of research is the modern world market of food. The subject of research is the peculiarities of food safety of the modern world market of agricultural products.

2 Policy and legislation

The Russian Ministry of Agriculture created the first draft of a National Food Security policy at the end of 1990's. This draft was not supported by other major economic ministries and at the last stage of its adoption in the Duma the act was vetoed by President Yeltsin. The reason for the veto was Russia's inability to provide the necessary budget support for the development of domestic agriculture and food production. Beginning in 2000, domestic agricultural production began recovering, and in 2006 Russia adopted the Federal Law on the Development of Agriculture which provided the legal basis for

agricultural programs and production (see GAIN report RS7005). In 2008 the Ministry of Agriculture re-initiated the idea of national food security, this time in the form of the National Food Security Doctrine (see GAIN report RS8089). The draft of the Doctrine included several target indices for achieving the country's food security, including per capita agricultural food production, consumption, share of imports in domestic consumption, and indicative prices for some major agricultural products. The draft envisioned that the Agricultural Ministry would be the main body to implement the Doctrine's targets. It took more than a year to coordinate the text of this draft with other ministries and to agree upon the final text of the Doctrine. The drafters of the Doctrine and some politicians, including Duma deputies consider that the Doctrine is only the first step towards the development and adoption of the Federal Law on the National Food Security.

The Food Security Doctrine is a framework that outlines Russia's objectives and goals for ensuring domestic food security. It is "the basis for development of regulative legal acts in the area of food security, modernization of agricultural-and-industrial and fishery complexes" (Article 4).

The Doctrine stipulates the terms of food independence and food security. Food independence means sustainable domestic production, while food security refers the physical and economic availability of safe foodstuffs for every citizen. The Doctrine establishes the following minimum production targets as the share of domestic production in the total supply of commodities:

- grain – 95 percent
- sugar – 80 percent,
- vegetable oil – 80 percent,
- meat and meat products (on meat basis) – 85 percent,
- milk and dairy products (on milk basis) – 90 percent,
- fish products – 80 percent,
- potatoes – 95 percent,
- edible salt – 85 percent

The Doctrine does not determine the time frame or means for achieving these targets. The only time reference in the Doctrine is in Article 1, which ties the Doctrine to the National Security Strategy of the Russian Federation through 2020. The Doctrine lists measures aimed at poverty alleviation, improvement of domestic market infrastructure, building of the national material reserves, and enforcing Russian food safety laws. Concerning food safety issues, the Doctrine specifically highlights products derived from genetically modified sources and the need to control these products (Articles 12, 18). In the reference to foreign trade (Articles 15 and 16) it notes that policy should be developed which is consistent with food security criteria. Specifically it states that it may be necessary to revise tariff measures to "rationalize the ratio" of imports and exports. It also justifies corrective action to when foreign governments dump or use export subsidies to access the Russian market. However it also cautions that when implementing sanitary, veterinary and phytosanitary controls, international standards need to be taken into consideration.

The Doctrine ends with the stipulation that "implementation of the Doctrine's provisions will allow to ensure food security as the essential component of the national security, predict and prevent emerging threats and risks to the country's economy, improve its stability, create conditions for dynamic development of agricultural-and-industrial and fishery complexes and improvement of the population's welfare" (Article 26).

However, The Food Security Doctrine does not specify who, when and how to finance and implement the provisions and measures.

The legal status of the Doctrine does not give it legislative power. It may only be considered as agreed upon goals for agricultural production and policy. In contrast to previous drafts of the Food Security Doctrine, the version signed by the President fails to

specify any concrete governmental measures for reaching its targets. Previous versions toted protectionism, subsidization and market management reminiscent of soviet style agriculture. The final version of the Doctrine has been considerably watered down and blatant references to protection have been removed. In this respect the Doctrine does not impose any additional incentives or deterrents for international trade. However, the Doctrine provides a political blessing and cover for the introduction of future legislation that might restrict trade through tariffs, quotas, and sanitary and phytosanitary measures. If the Russian government chooses to implement the Doctrine in the spirit it was originally drafted, it could result in challenging times for U.S. exporters. Mass media is already reporting the Minister of Agriculture’s rhetoric regarding self-sufficiency in poultry by 2012 As Russia moves toward the Doctrines’ goals and bolsters its domestic agricultural production, it may attempt to close the door on traditional U.S. exports, but in the process it will create new opportunities for agricultural inputs such as feeds, seeds and genetics.

3 Results

Despite the fact, that the index of the food gap depth in the world tends downward, misbalance between the consumption and manufacturing is seen, which has a negative impact upon the state of the food market (Fig. 1).

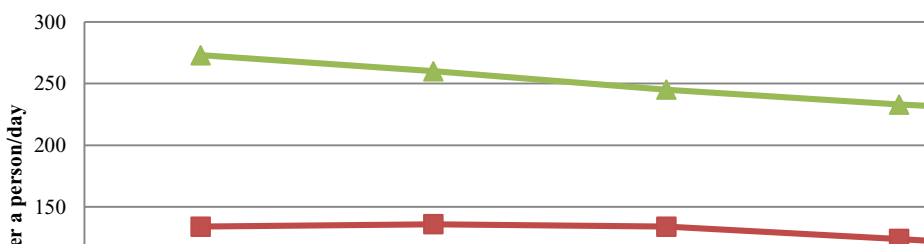


Fig. 1. Food gap depth in the world. 2000-2016 [4].

The food gap difference between the groups of the countries is over 200%. Moreover, the index of the calories consumed per capita tends upwards in the developing (9.5%), the hard-core developing (8.1%) and developed countries (1.8%). According to FAO, by 2024 the consumption per capita will grow approximately the same percentage for each group of the countries (Fig. 2).

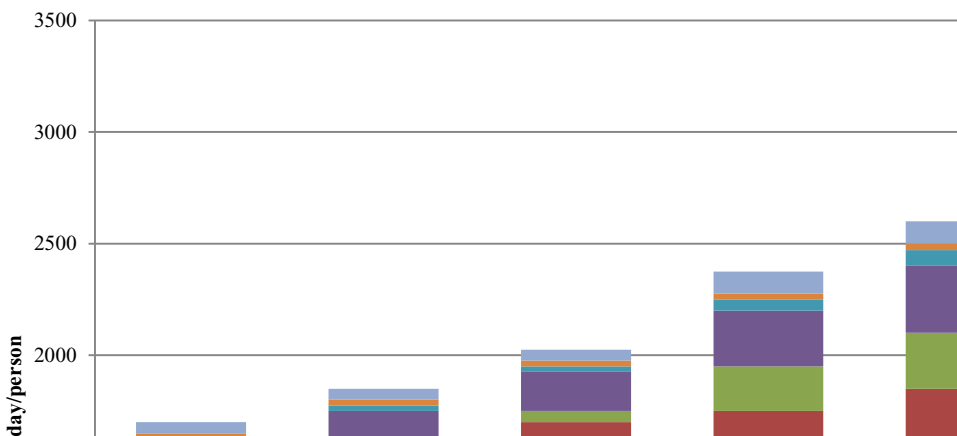


Fig. 2. Calories consumption per capita with regard to the groups of countries, 2002-2024 [5].

The long-drawn financial crisis that is decreasing food safety of many countries affects adversely the state of the world food. Within the period of 2012-2016, Russia's food safety index decreased 4.3 points, Japan's – 2.3. Belgium's – 2.1 (Table 1). This situation preconditions, to a large extent, the growth of prices for food, which is becoming the main problem in the world since the price growth concerns agricultural products, first of all [6].

Table 1. Food safety index for 2012-2016.

Rating	Country	2012	2013	2014	2015	2016	Changes within 5 years
1	USA	86.1	85.6	86.2	85.8	86.6	+0.5
4	Netherlands	82.9	82.4	82.8	82.2	82.6	-0.2
6	France	83.5	83.0	81.5	81.6	82.5	-1.0
13	Switzerland	81.4	81.0	81.4	80.8	80.9	-0.5
14	Denmark	81.1	80.5	80.7	79.2	80.0	-1.0
17	Finland	79.6	79.4	78.4	77.2	78.9	-0.7
19	Spain	78.3	77.7	78.4	76.9	77.7	-0.6
21	Belgium	77.9	76.6	76.9	76.5	77.4	-0.5
22	Japan	77.9	76.5	75.7	75.2	75.9	-2.0
31	Greece	74.7	71.5	72.3	70.7	71.5	-3.3
41	Brazil	67.8	67.7	67.6	66.8	67.6	-0.2
42	China	62.3	62.3	63.5	64.3	65.5	+3.2
48	Russia	66.7	65.6	62.8	61.5	62.3	-4.4
57	Egypt	50.5	50.8	52.3	56.1	57.1	+6.5
75	India	48.7	48.2	47.9	48.9	49.4	+0.7
113	Burundi	26.7	26.0	26.1	24.8	24.0	-2.8

The prices for agricultural products in 2009-2010 grew by 11%, but from 2010-2011 - by 22 % more. In 2017 the price growth for agricultural products is expected to be slight (by 0.6%) in comparison with 2016 and for food (0.4%) (Table 2) [7].

Table 2. Actual and projected prices, indices (2010=100).

	Actual prices								Project	
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Agricultural products	89	100	122	114	106	103	89	89	90	91
Food	93	100	123	124	116	107	91	92	93	94
Grains	99	100	138	141	128	104	89	82	79	81
Fats and oils	90	100	121	126	116	109	85	90	92	94
Other food	90	100	111	107	104	108	100	105	105	105
Beverages	86	100	116	93	83	102	94	91	90	90

The EU countries are both the largest exporters and importers of agricultural products. Their share is equal to 37.1%. 10.4% of the world export in 2015 fall to the USA (Table 3); moreover, the American export structure is noted for high degree of diversification with soybeans, corn and wheat prevailing.

Such traditionally agrarian countries as Paraguay – 89.3%. Argentina - 51%. Brazil - 28%. New Zealand – 46.3% and Greece – 20.4% have a significant share in the agricultural products export [8].

Table 3. Key food exporters and importers 2015.

	Volume. USD bln	Share in the world export/import		Annual percentage change			
		2000	2015	2010-15	2013	2014	2015
Exporters							
EU (28)	585	41.9	37.1	2	8	1	-13
Out of EU (28)	158	10.0	10.0	4	8	1	-11
USA	163	13.0	10.4	3	2	4	-10
Brazil	80	2.8	5.1	3	5	-3	-9
China	73	3.0	4.6	7	6	6	-2
Importers							
EU (28)	590	42.7	35.0	1	6	2	-13
Out of EU (28)	166	13.2	9.8	2	3	2	-9
China	160	3.3	9.5	8	6	3	-6
USA	149	11.6	8.8	5	3	7	-5
Japan	74	10.4	4.4	-1	-8	-5	-10

The developed countries make heavy use of comparative competitive advantages of other countries - natural and economic, as well as the possibilities of international specialization and cooperation. The USA, being the biggest exporter of soybeans, corn, wheat and prepared food, is at the same time the biggest importer in the world of the alcoholic and soft drinks, coffee, meat and breadstuff. Japan is the fourth with regard to the volume of food import, which is preconditioned by quite limited land resources of the country per capita and shortage of home-produced food products. Japan assures production of rice, fruit, vegetables and seafood using own resources, but at the same it is very import-dependent on grains, beans and corn.

The volume of imported crop and livestock products in terms of value tends to grow (Fig. 3). The crop import has increased by 35% during past 15 years. It is a decline in export-import volume in 2008-2009 (the years of the global financial crisis), which is explained by the intention of the countries to cut the expenses; the biggest volume falls to the countries of Europe and Asia. In experts' opinion. China is the reason why the indices of the global commerce declined in 2016 both in general and in the food sector, particularly. The data about China's foreign trade indices in 2016 certify the volume decrease by 14.3% (until USD 291.7 billion) [4].

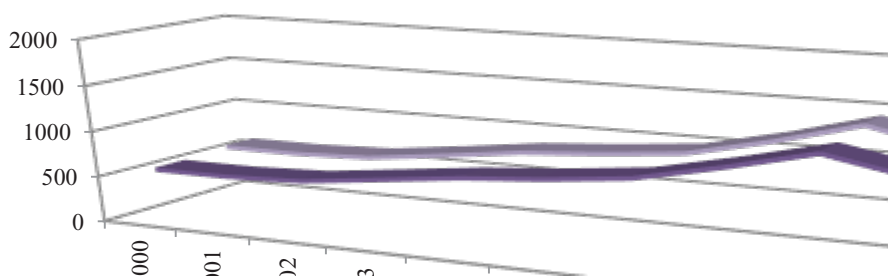


Fig. 3. The volume of the world export/import of the crop and livestock products, USD billion.

The same tendency is seen in the export volume. However, here the main exporters are Europe and America (Fig. 4). Moreover, export prevails in the structure of America and Oceania, and in Europe, import - in Asia and Africa.

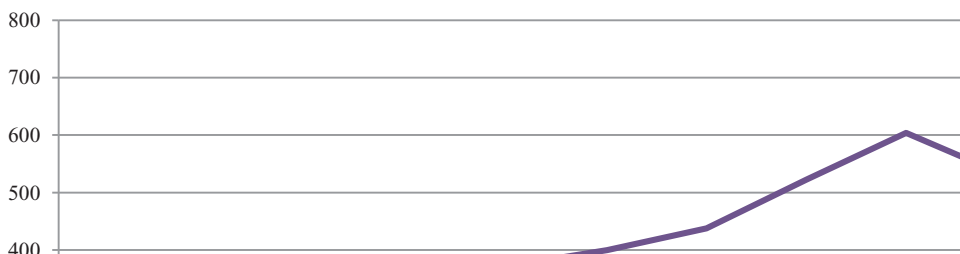


Fig. 4. The volume of the crop and livestock products export with regard to main regions of the world. USD billion [9].

In 2015, inside its region, Europe exported the crop by USD 475.4 billion, Asia - USD 215.5 billion, North America - USD 103.2 billion, Asia is a prevailing direction for export of South and Central America (USD 63.7 billion). Europe is the one for CIS and Africa (USD 15.9 billion and USD 20.5 billion correspondingly). Moreover, one should pay attention that the import volume exceeds export volume by 5% on average, which says for trade deficit. Contraposition of the tendencies in the area of manufacturing and consumption provides an opportunity to project probable trends of foreign trade net balance by different raw material goods with regard to the regions (Table 4) [2].

Table 4. Trade balance in volume terms for 2023.

Products	APR	Africa	Europe	CLACS	ODC	North America	Oceania
	Volume of net export. thousand tons						
Wheat	-49.963	-44.987	45.788	-7.074	-8.299	46.206	18.329
Rice	21.083	-18.052	-1.368	-1.192	-2.637	2.419	299
Coarse grain	-63.999	-22.851	30.402	21.795	-19.595	53.574	4.154
Oil plants	-98.449	-3.494	-11.469	57.748	-5.185	58.323	2.921
Protein meal	-27.206	-4.461	-19.586	49.715	-4.912	8.963	-2.669
Beef	-2.105	-877	-1.110	3.341	-1.147	42	2.224
Pork	-2.625	-714	1.715	-376	-1.280	3.621	-362
Lamb	-790	53	-140	9	-40	-71	1.032
Poultry	-5.234	-2.192	877	3.677	-1.729	4.710	57
Fish	9.625	-3.323	-1.822	2.015	-2.769	-3.406	-220
Fish meal	-1.418	43	-7	1.398	-112	125	-28
Cod-liver oil	-124	56	-189	296	-30	4	-12
Butter	-413	-161	80	-22	-39	98	476
Cheeses	-633	-219	879	-284	-365	318	518
Non-fat dry meal	-1.241	-387	640	-367	-95	826	642
Whole milk powder	-1.372	-618	379	-46	-21	4	1.656
Seed oil	5.447	-8.775	-2.366	8.362	-2.279	235	-386
Sugar	-17.342	-11.684	-591	38.337	-475	-4.511	3.636
Cotton	-7.164	1.620	48	927	741	2.562	1.035

Note: APC -Asian-Pacific Region. CLACS-Community of Latin American and Caribbean States.

ODC- other developed countries.

Note: cells with trade surplus is highlighted grey.

The Republic of Ivory Coast is the main cocoa producer and exporter in the world. In its turn, a range of countries, such as the Netherlands, the USA, Germany, Spain, etc. exported this product in 2015. Brazil is the first in the world in coffee production (49.4 mln pcs bags of 60 kg), the main consumer of which is the EU (44.1 mln pcs) and the USA (25.1 mln pcs). The main producer of soybeans is the USA but the main exporter is Brazil. Indonesia led in the palm oil production (32 mln tons) in 2015, China - in soybean oil production (14.6 mln tons). The USA is the key corn producer and exporter. Despite the fact that China leads in rice production in the world (145.8 mln tons in 2015), the main exporters at the international market are India (10.2 mln tons) and Thailand (9.5 mln tons), China is also a key importer of rice in the world (4.8 mln tons). It is explained by the fact, that the Chinese diet is based on rice. EU takes one of the first places in wheat production and export (Table 5).

According to FAO, the food project for 2016-2017 had positive tendencies. It was supposed, that the world food markets would not be subject to leap due to stable supplies. The world production of the crop in 2016 appeared to be under projected demand for 2016-2017. Correspondingly, the reserves for the end of 2017 will be below record index of 2016, achieved due to high crop yield in 2016. As estimated by FAO, the world production of wheat in 2016 reached almost 2.543 mln tons, which is 0.6% higher than the index of 2015. This gain is assured by the increased indices with regard to destinations: Argentina, the EU countries, Russia and Canada. It is also projected the increase of rice and coarse grain production in comparison with 2015.

Table 5. Key food producers, exporters and importers [7, p.68].

	2000/01	2013/14	2015/16
Cocoa (thousand metric tons)	-	-	-
Producer: Ivory Coast	1212.4	1746.2	1570
Exporter: Ivory Coast	903.4	1191.8	1234
Importer: Netherlands	549.0	632.5	471
Coffee (thousand bags of 60 kg)	-	-	-
Producer: Brazil	34100	57200	49400
Consumer: EU	-	41475	44115
Soybeans (mln metric tons)	-	-	-
Producer: USA	75.1	91.4	106.9
Exporter: Brazil	15.5	46.8	54.4
Importer: China	13.2	70.4	83.2
Palm oil (thousand metric tons)	-	-	-
Producer: Indonesia	8300	30500	32000
Consumer: India	4100	8412	9100
Soybean oil (thousand metric tons)	-	-	-
Producer: China	3240	12335	14569
Consumer: China	3542	13657	15250
Corn (thousand metric tons)	-	-	-
Producer: USA	251.9	351.3	345.5
Exporter: USA	49.3	48.8	48.2
Importer: Japan	16.3	15.1	15.2
Rice (mln metric tons)	-	-	-
Producer: China	131.5	142.5	145.8
Exporter: India	1.7	10.6	10.2
Importer: China	0.3	4.0	4.8
Wheat (thousand bags of 60 kg)	-	-	-

Producer: Brazil	34100	57200	49400
Consumer: EU	-	41475	44115
Sugar (mln metric tons)	-	-	-
Producer: Brazil	17.1	37.8	34.7
Exporter: Brazil	7.7	26.2	24.4
Importer: China	1.1	4.3	6.0

Consumption of grains for the period of 2016/17 amounted to 2.546 mln tons, which is 0.9% higher than the index of 2015/16. It is expected, the decrease of the world trade in grains in 2016/17 by 1.9% in comparison with 2015/16 due to the decline of demand for barley and sorghum from the importers, which caused escalation of competition among exporters for the market share (Table 6).

Table 6. World grains market, projected values of FAO [10].

	2014/15	2015/16 estimation	2016/17 project	Change. % 2016/17 by 2015/16
WORLD BALANCE (mln tons)				
Production	2 561.8	2527.7	2 542.9	0.6
Trade	376.1	376.2	369.1	-1.9
Total consumption	2501.2	2522.9	5545.7	0.9
Food	1080.2	1091.7	1105.7	1.3
Forage	889.8	901.7	914.7	1.5
Other	531.2	529.5	525.3	-0.8
Reserves as of the end of the period	644.1	644.0	642.2	-0.3
Demand and offer indices				
Food consumption per capita				
In the world (kg/year)	148.9	148.8	149.0	0.2
Countries with low income and consumption shortage (kg/year)	147.1	146.5	146.8	0.2
Ratio of the world reserves to consumption (%)	25.5	25.3	24.5	-
Ration of reserves to home consumption and export (%)	17.7	16.1	15.6	-
Fao index of grain prices	192	162	149	-11.8

As estimated by FAO, the wheat production in 2016 amounted to 724 mln tons, which is 1.4% lower than in 2015. The index decrease is specified by the decrease of wheat production in EU by 6.5 mln tons, Marocco - 5 mln tons, Ukraine – 4.5 mln tons, the USA – 1.4 mln tons. The consumption of wheat in the world remained stable and amounted to 718.3 mln tons, which is preconditioned by the increased consumption for the purposes of food due to the growth of the population and simultaneous decrease of consumption for forage and industrial purposes. This situation is preconditioned by the increased availability of corn in China and the EU countries. According to FAO, the world trade in corn will go up to 155 mln tons in 2016/2017 due to the supplies from Argentina, Australia, Canada and the USA (Fig. 5).

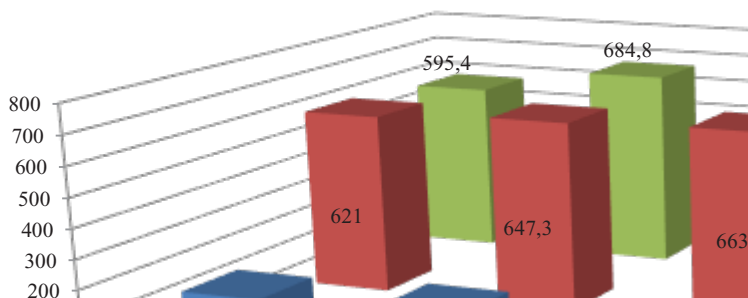


Fig. 5. The world market of wheat, mln tons [11, p.125].

China's decision to cut the corn reserves stimulated the demand for corn as forage fodder and decreased the demand for barley and sorghum. As projected by FAO, it is expected that the world trade in coarse grains will decline by 3.9% in 2016/17 due to the decrease of the corn trade by 1.1%, barley - 9% and sorghum - 27% (Fig. 6).

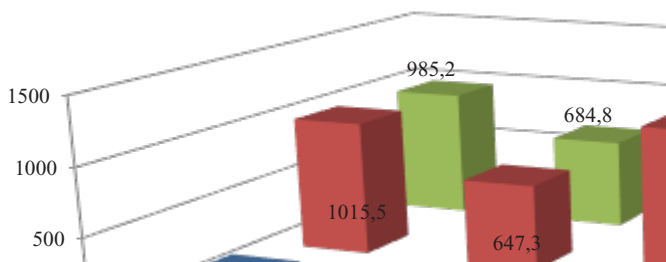


Fig. 6. The world market of coarse grains, mln. tons [12].

In 2016 the index of international rice trade amounted to 44.7 mln. tons, which is 0.9% more than in 2015. It is preconditioned by the increased demand from the countries of Latin America, the Caribbean and Africa. The rice consumption in the world is estimated as 502.6 mln tons in 2016/17, which is 54.6 kg per a person per year. Moreover, the ratio of the world reserves to consumption in 2016/17 decreased by 32% (Fig. 7).

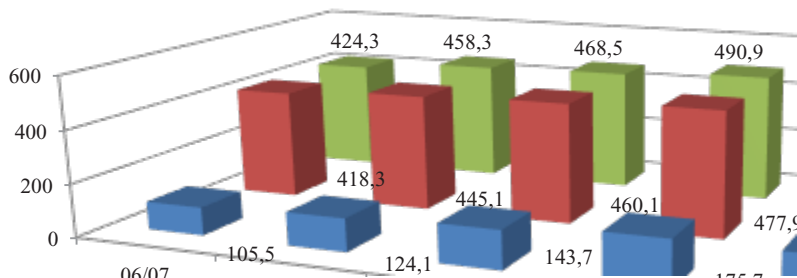


Fig. 7. The world rice market, mln tons [13].

According to FAO, the reduction of oil plants production is seen in 2016/17. Moreover, the consumption increase is projected by 3% on average due to the increase of the population and economic growth in the world, which will lead to misbalance between production and consumption, and, correspondingly, to the decrease of the global reserves (Table 7).

Table 7. The world market of oil plants [1].

	2013/14	2014/15 Estimation	2015/16 Project	Change 2015/16 2014/15	% to
Totally oil plants (mln tons)					
Production	513.3	548	532.7	-2.8	
Oils and fats					
Production	203.3	210.9	207.4	-1.6	
Supplies	236.0	247.3	245.9	-0.5	
Consumption	199.3	205.9	211.5	2.7	
Trade	108.1	114.0	117.0	2.6	
World reserves for consumption (%)	18.2	18.7	16.4	-	
Reserves for consumption and export (%)	10.4	11.1	9.6	-	
Cake meal and protein cake					
Production	128.8	140.9	137.7	-2.2	
Supplies	146.9	162.1	163.7	1.0	
Consumption	125.9	133.4	139.2	4.3	
Trade	81.4	86.4	89.5	3.5	
World reserves for consumption (%)	16.8	19.5	17.4	-	
Reserves for consumption and export (%)	9.0	11.3	10.6	-	
Fao prices index (02/04=100)					
Oilseeds	184	149	148	-3.1	
Cake meal/protein cake	243	179	160	-16.1	
Vegetable oil	181	147	156	1.4	

In 2016 FAO predicted the global stagnation of meat production, which index amounted to 320.7 mln tons. This is 0.3% more than in 2015. The production increase is preconditioned by such countries as the USA, Brazil, EU, India and Russia. Thus, the world trade volumes in 2016 grew by 2.8% in comparison with 2015, which amounted to 30.6 mln tons. This situation is the result of the increase in poultry trade volume by 3.5% up to 12.7 mln tons and pork by 4.4% up to 7.5 mln tons caused by the increased consumption of these products in Saudi Arabia, SAR, Japan, Vietnam, Cuba and UAE (Table 8).

Table 8. The world market of meat and fish, projected values of FAO [14].

	2014	2015 Estimation	2016 Project	Change. 2016 to 2015	%
World balance (mln tons)					
Meat production, incl.:	315.4	319.6	320.7	0.3	
Beef	68.0	67.9	68.4	0.8	
Poultry	111.0	114.9	116.2	1.1	
Pork	116.9	117.2	116.4	-0.7	
Lamb	13.9	14.0	14.1	0.7	
Fish production, incl.:	167.2	171.0	175.0	2.3	
Fishing	93.4	93.5	93.6	0.1	
Aquaculture	73.8	77.5	81.4	5.0	
Meat trade, incl.:	30.6	29.8	30.6	2.8	
Beef	9.6	9.1	9.3	1.3	
Poultry	12.8	12.3	12.7	3.5	
Pork	7.0	7.2	7.5	4.4	
Lamb	1.0	1.0	0.9	-3.2	

Fish trade	60.0	59.9	59.9	0.0
Demand and offer indices (kg/year)				
Meat	43.4	43.3	43.4	0.1
Edible fish	20.1	20.3	20.6	1.7
Fishing	10.0	9.8	9.7	-0.7
Aquaculture	10.1	0.5	10.9	3.9
Fao prices index (2002-2004=100)				
Meat	198	168	148	-15.5
Fish	156	142	141	-5.0

In 2016 twelve Russian companies received permission for meat supply to Egypt due to the intention of the Russian companies to get into the markets of the UAE, Middle East, Southeast Asia, Africa and other regions where the meat of broiler chickens will be on demand and competitive. First of all, they are the Muslim world countries with high level of poultry consumption and actual demand.

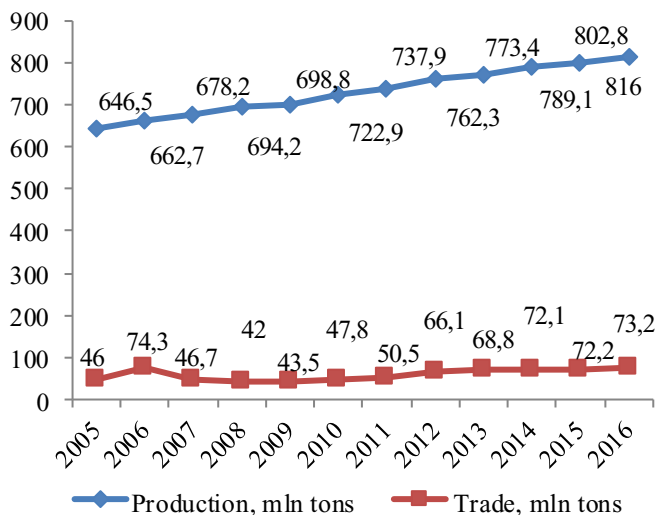
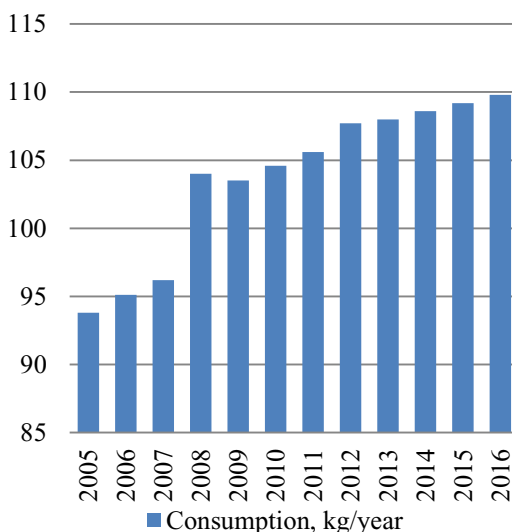


Fig. 8. Indices of the world dairy product market [15. p. 133].

The research made by the government of Egypt shows that only 11% out of 90 mln of the Egyptian population eat less than 2 kg of meat per month. 32% of the population consume from 2 to 4 kg of meat per month, 30% - 4-6 kg, 8% - 6-8 kg, 6% - 8-10 kg, 7% - more than 10 kg per month. During Ramadan, a sacred month, when the Muslims fast at the daytime and break it at night, the Egyptians consume even more meat than usually, which says for a stable demand for meat [10].

As estimated by FAO, the fish and seafood production will increase up to 175 mln tons, which is 2.3% more than the index of 2015. The volumes of the world trade tend to stable growth; however, due to the price decrease, the total worth of trade will be going down by 1% on average.

The annual price level change for fish in 2016 was negative and amounted to 5%. With this regard, income of the Asian suppliers from China, Philippines and Thailand is expected to decline. The global demand for seafood, according to FAO, will increase by 2.8% up to 20.6 kg per year per person (Table 8) [11].

The production of milk in the world in 2016, as estimated by FAO, will increase by 1.6%, which will be equal to 810 mln tons due to Europe, Asia and America. After a long period of low demand for dairy products, which resulted into accumulation of significant reserves in the countries-exporters, in 2016 the world trade is expected to grow by 1.5% reaching 73.2 mln tons due to low prices prevailing and increased demand from the Asian countries (Fig. 8).

The reduction of trade volumes was preconditioned by the decrease of supplies to China and embargo on import to Russia.

The total import cost of agricultural products in 2016, according to FAO, decreased by 9%; this amounted to USD 986 bln. Similar volume decrease was seen only during the crisis of 2009. In experts' opinion, the revenues decline is projected with regard to all the types of products.

FAO Report dated February 22, 2017 (Rome) determines 15 tendencies and 10 tasks related to the food systems of the world (Table 9).

4 Discussion

The global future of food safety is "endangered" due to numerous problems. Only the most resistant food systems are able to use rationally land, water and other resources, reduce the use of fossil fuel.

This will eventually lead to the reduction of greenhouse gases, as a result, of running an agricultural business, conservation of biodiversity and decrease of wastes. These will require the investments into the agro-industrial business, into scientific researches and innovative developments, as well as the search of more efficient ways of combating water deficit and climate change.

The purpose of hunger liquidation by 2030 will have not be achieved without additional efforts. The extension of rights and possibilities of small farmers, and provision to them of a wider access to information, markets and technologies are the key to the assurance of future food safety.

Table 9. Tendencies and tasks of the food systems of the world.

Food systems of the world	
Tendencies	Tasks
1. Fast growth of the population in the world is accompanied by increased speed of urbanization and population ageing. 2. Unequal tendencies in the area of economic growth, family incomes, investments into agriculture and economic inequality. 3. Competition for natural resources has significantly increased 4. Climate change 5. Deceleration of crop yield in agriculture 6. Cross-border diseases 7. Increased frequency of conflicts. Crisis and acts of God. 8. Permanent state of poverty, inequality and no food safety 9. Changes in diet influencing the alimentation and health 10. Structural changes in economic systems and consequences for employment 11. The growth of migration 12. Change of food systems and its impact upon the farmers' maintenance 13. Growth of wood wastage and losses 14. New international management mechanisms to respond to the problems related to the food safety and alimentation 15. Changes of international mechanisms of financing for the purposes of development.	1. Stable increase of crop yield in agriculture to meet the growing demand 2. Assurance of the stable natural resources base 3. Solution of a problem of climate change and intensification of acts of God. 4. Liquidation of hardcore poverty and reduction of inequality 5. Liquidation of hunger and all forms of poor nutrition 6. Building more efficient, inclusive and stable food systems 7. Enhancement of opportunities for income reception in rural areas and liquidation of upstream causes of migration 8. Enhancement of resistance to protracted crisis and conflicts 9. Prevention from the appearance of cross-border hazards to agriculture and food systems 10. A necessity to introduce a consecutive, efficient national and international management

Along with the growth of production and the increase of resistance, the creation of foodstuff supply network will be the same important. They will allow farmers in the countries with low and average level of incomes to receive an access to city markets; the same as the measures assuring the access of consumers to nutritious and safe food at the accessible prices, such as policy in the area of pricing and program of social safety net.

5 Conclusion

It has been found out, that the food safety in the world and the volumes of world foodstuff trade are going down. The key food exporters and importers in the world have been determined. The EU countries are leading among them. The analysis shows a dramatic decrease of the world import/export of agricultural crop and livestock products in 2016 due to a dramatic decrease of China's share in the world trade. Moreover, attention has been paid to a fact that the import volume exceeds the export volume by 5% on average, which says for a world trade deficit. The markets for different types of foodstuff have been considered and noted for a decline of revenues with regard to all the positions in 2016. It has been found, that the Russian companies intend to get into the Islamic markets of meat products, which is specified by high effective demand from these countries.

Thus, the main task is to create small family farm businesses, which will allow assuring an access to food for the most vulnerable groups of population. This requires investments into a social safety net and pro-poor industrial activities, i.e. agriculture and agricultural economy.

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