ROCZNIKI NAUKOWE STOWARZYSZENIA EKONOMISTÓW ROLNICTWA I AGROBIZNESU
2017 ● tom XIX ● zeszyt 1

doi: 10.5604/01.3001.0009.8361 received: 10.02.2017 accepted: 24.02.2017

Svetlana Trunova[*], **Marcin Chciałowski**[**], **Paulina Stolarczyk**[**], **Paulina Trębska**[**]

[*]*Russian State Agrarian University – TMAA,* [**]*Warsaw University of Life Sciences*

AGRICULTURE AND ITS ROLE IN THE ECONOMY OF RUSSIA

ROLNICTWO I JEGO ZNACZENIE W GOSPODARCE ROSJI

Key words: agriculture, Russia, Russian economy

Słowa kluczowe: rolnictwo, Rosja, gospodarka Rosji

JEL codes: O13, Q18

Abstract. The importance of agriculture in the Russian economy is relatively small, which is a characteristic feature of developed economies (about 4% of GDP). However, agriculture represents a significant share in the structure of the employed – 9.2%. The use of agriculture as self-sufficiency food has become essential after the embargo imposed on imported products. Russia as a country has a large area of land. The surface of used agricultural land after a fall in the nineties has stabilised at a level of 800 thous. km^2. At the same time intensified agricultural production has resulted in increased performance and larger crops. Due to the progression of technology there is an opportunity for the development of agriculture in Russia.

Introduction

One of the fields of the national economy is agriculture, the purpose of which is to provide people with food. This branch of the economy, although the most traditional one, is the relatively least involved in creating the Gross National Product of developed countries. Despite the continuous decreasing share of agriculture in the production of the world's GDP, increased interest in agriculture on a global scale has been observed recently. According to Jerzy Wilkin [2013], there are 5 main reasons for discussing the importance of agriculture in the international area:
- the dependence of developing countries on imported food, which resulted in food deficits in these countries,
- the rise in food prices in 2006-2007,
- progressive liberalisation of agricultural trade and its negative effects,
- observing the multifunctionality of agriculture,
- the increase in interest due to the possibility of obtaining biofuels.

The main purpose of the article is to assess the share of agriculture in the national economy of Russia and the designation of the main factors determining the development of agriculture in this country.

Material and methods

A review of academic literature on Russian and Polish approaches to the subject was also conducted and included in the study. The author reviewed the statistical data from the Russian Statistical Offices, which enabled conducting an analysis of historical data and suggesting conclusions concerning the future of agricultural development in Russia. A SWOT analysis contributed to the clarification of these conclusions. The study period for the Russian economy covers the years 1990-2016 however the agricultural data covers the years 2002-2016.

Socio-economic outlook

The main problem of the Russian economy is economic growth what is related to the history of this country. The USSR command economy and then the collapse of the Soviet Union,

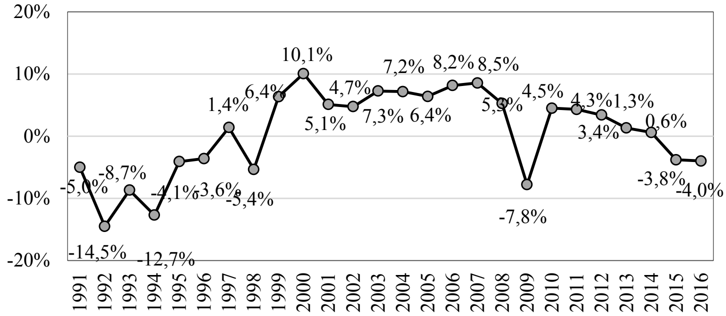


Figure 1. Growth rate of Russia's GDP
Rysunek 1. Tempo wzrostu PKB w Rosji
Source/*Źródło:*[http://investorschool.ru/vvp-rossii-po-godam]

as well as market reforms in the 1990's having provided liberalization and privatization as a fundamental instruments, had a negative impact on the economy of Russia [Osetrova 2015]. The economic situation in 1998 was characterized by serious economic crisis, but then stable economic growth was recorded in 2000 resulting mainly from prices on the global petroleum market. Since that time Russia has become a country with a commodity-dependent economy.

According to IMF Data, Russia's GDP per capita has been decreasing over the last two years [IMF 2016]. We can assume that the major cause of GDP falling is the implications of sanctions imposed on Russia.

As we can see from the pie chart, service sector is represented by Real estate activities, rent and renting services as well as distributive industries, repair of cars and personal goods, which constitute the major share of Russia GDP [FSO 2015]. Agriculture and fishing comprise a very small share of GDP despite an abundance of agricultural lands, river and marine territories in Russia. However, manufacturing activity is well-developed and constitutes 12.73% of GDP.

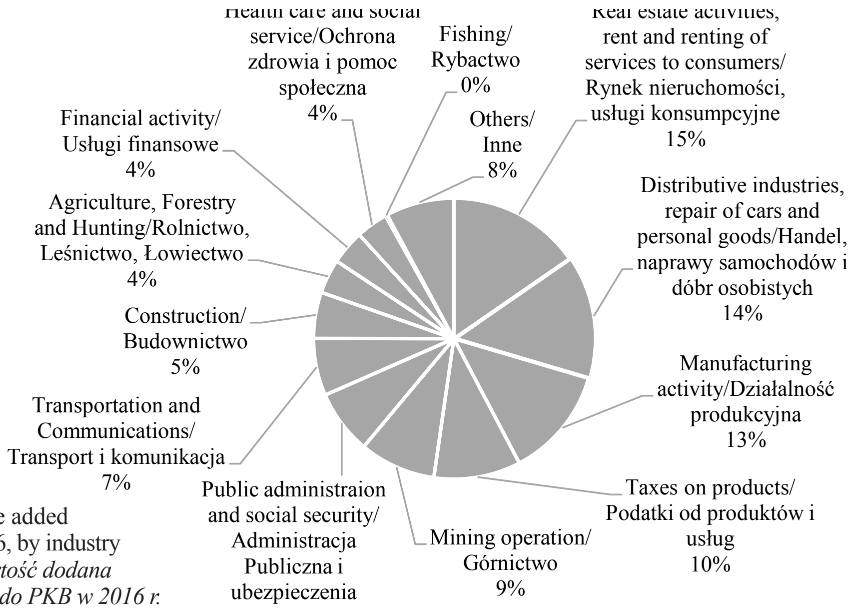


Figure 2. Value added to GDP in 2016, by industry
Rysunek 2. Wartość dodana przez przemysł do PKB w 2016 r.
Source: own elaboration based on Federal statistic office
Źródło: opracowanie własne na podstawie FSO

Agriculture and its role in the domestic economy

Agriculture is an important component in the economy of Russia, although its share had been declining in past years until small growth began in 2013. The greatest decline in the share of agriculture in GDP occurred between 2005 and 2008, when it was 0.94%. During the next years the decline slowed down and the share of agriculture reached its minimum in 2013. However, for the last two years the role of agriculture in the Russian economy has increased.

It should be noted that there could be two influencing factors such as the price factor and production level. We, therefore, consider that it is necessary to analyze the dynamics of agricultural production in physical terms in order to offset the price factor and to represent the situation with agricultural development more objectively.

The reported data show a steady increase of oilseeds, vegetables and grain production. The same trend is registered in livestock products as well. It is important to note that milk production is an exception from general statistics. Milk output shrunk by 8% during the period 2002 to 2014.

The average annual number of employed in agriculture, forestry and hunting is very low, with only 9.2% of economically active people employed in this sector (fig. 3). Also, the current level of fixed investments in agriculture, forestry and hunting is quite insufficient – 3.7% in 2014. Moreover, this indicator has not reached 5% since 1995.

As for fixed assets, only 2.7% are in the area of agriculture, forestry and hunting (fig. 4). This fact can be explained by well-developed "non-agricultural" sectors of the economy. According to some experts, in the modern world the role of agriculture is slowly declining in financial terms [Petrikov 2007]. On the other hand, it can also be a result of the underfunding of Russian agriculture. Highly specialized agriculture requires substantial investments in modern machinery and buildings.

According to the data from National statistical office, the average monthly wage of those employed in agriculture, forestry and hunting has always been below the average salaries in Russia. In 2014, it was only 55% of the average level. Moreover, the agricultural sector is the lowest paid in Russia (fig. 4). By comparison, the average salary in financial activity, being the highest paid sector, is significantly higher than the average monthly wage in Russia. The average monthly wage in this sector is more than twice as high (211% in 2014) of the

Table 1. Agriculture in Russian economy 2002-2015
Tabela 1. Rolnictwo w gospodarce rosyjskiej w latach 2002-2015

Years/*Rok*	GDP [bln EUR]/*PKB [mld euro]*	Share of agriculture in GDP/*Udział rolnictwa w PKB [%]*
2002	169.96	5.30
2005	339.10	4.54
2008	647.71	3.60
2011	936.77	3.36
2013	1114.99	3.19
2014	1222.29	3.48
2015	1261.83	3.98

Source/*Źródło:* [Nemchenko 2016]

Table 2. Output of agricultural products in Russia, 2002-2014
Tabela 2. Produkcja rolna w Rosji w latach 2002-2014

Product/*Produkt*	Year/*Rok*						
	2002	2005	2008	2011	2012	2013	2014
Grain/*Ziarno [mln t]*	86.6	78.2	108.2	94.2	70.9	92.4	105.3
Oilseeds/*Nasiona oleiste [mln t]*	4.3	7.5	9.0	13.1	11.3	14.2	13.8
Potato/*Ziemniaki [mln t]*	32.9	37.3	28.8	32.7	29.5	30.2	31.5
Vegetables/*Warzywa [mln t]*	13.0	15.2	13.0	14.7	14.6	14.7	15.5
Cattle and poultry [thous. t]/ *Bydło i drób [tys. t]*	4,316	7,616	9,331	10,940	11,621	12,223	12,894
Milk/*Mleko [mln t]*	33.5	31.2	32.4	31.7	31.8	30.5	30.8
Eggs [bln]/*Jaja [mld szt.]*	36.3	36.9	38.1	41.0	42.0	41.3	41.8

Source/*Źródło:* [Nemchenko 2016]

Figure 3. Share of agriculture, forestry and hunting in Russian economy in 2014
Rysunek 3. Udział rolnictwa, leśnictwa i łowiectwa w gospodarce Rosji w 2014 r.
Source/*Źródło*: [FSO 2016]

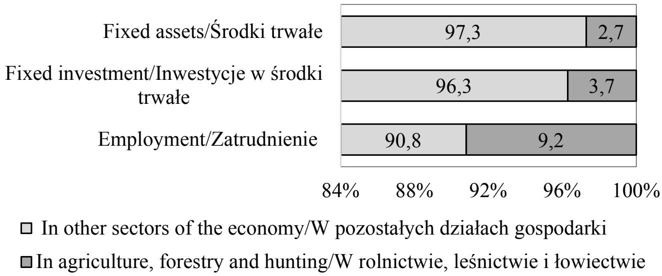
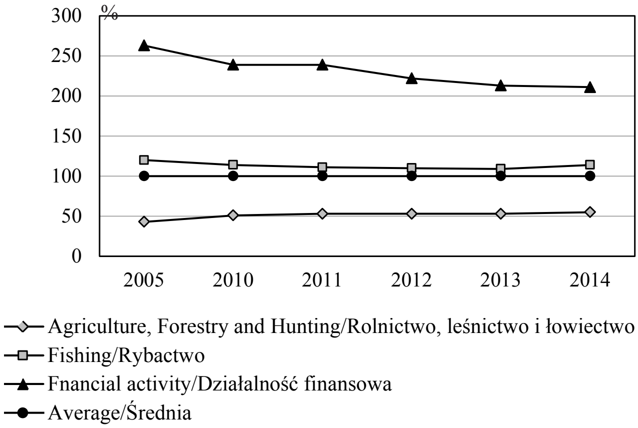


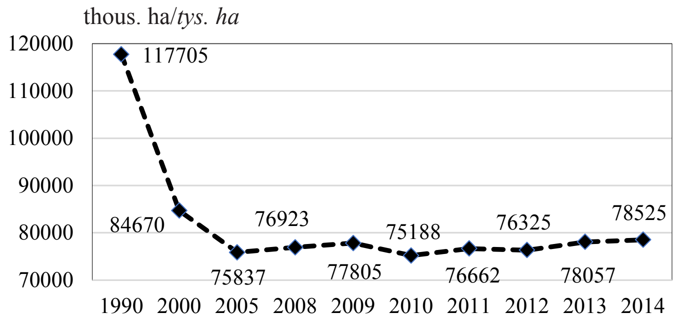
Figure 4. Average monthly wage in some economic activities in comparison with average monthly wage in Russia
Rysunek 4. Przeciętne miesięczne wynagrodzenie w wybranych działalnościach gospodarki w stosunku do przeciętnego miesięcznego wynagrodzenia w Rosji
Source/*Źródło*: [FSO 2016]



Russian average. Noticeable that average salaries in fishing remain almost at the same level as the Russian average. In 2014, those were 14% higher than the average monthly wage in Russia. Constitutional changes that affected Eastern Europe contributed to underestimating agriculture in Russia in comparison to Western Europe countries. Such a situation is of particular reference to globally competitive products. As a result, deviations have emerged in income parity, adverse for agriculture [Czyżewski, Kułyk 2012].

One of the basic factors of agricultural production is land. It is not only a means of production, but also a place where agricultural production begins. It is inflexible by its nature and is unevenly divided both among countries and individual farmers. Only 1% of the largest farms (greater than 50 ha) own 65% of the cultivated land. Similarly, only 8% of the world's agricultural land is owned by 72% of the smallest farms with an area not exceeding 1 ha [Wilkin 2015]. Figure 5 demonstrates trends in cultivated land areas in Russia. Cultivated lands have been declined annually since 1990 up to 2007. The total decrease was 39.180 thous. ha. However, since 2000

Figure 5. Dynamics of cultivated areas in Russia, 1990-2014
Rysunek 5. Zmiana areału uprawy w Rosji w latach 1990-2014
Source/*Źródło*: [Moisejkina, Darda 2015]



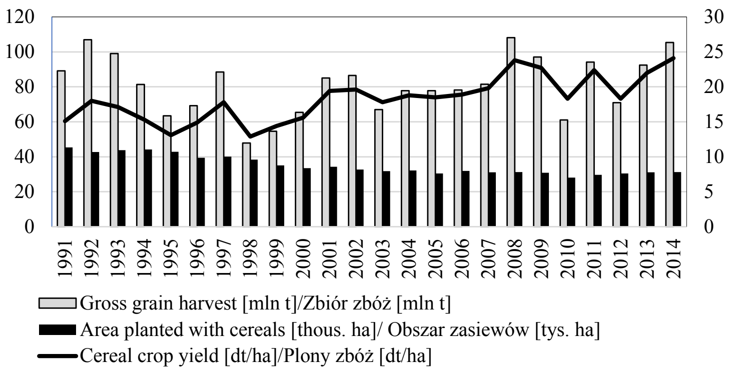


Figure 6. Dynamics of gross grain harvest, lands planted with cereals and cereal crop yields 1991-2014
Rysunek 6. Zmiany w zbiorach, plonowaniu i areale uprawy zbóż
Source: own study based on Central statistics database FSO
Źródło: opracowanie własne na podstawie centralnej statystycznej bazy FSO

size of cultivated areas has been increasing until 2014 (1.602 thous. ha). By and large, cultivated areas have decreased by 34%, from 117.705 ha in 1990 to 78.525 ha in 2014.

It is important to note that the main reasons for the decrease in cultivated lands is a tendency of land degradation, as well as unsustainable exploitation, for example allocation of land for non-agricultural purposes [Moisejkina, Darda 2015].

Data represented in figure 6 show dynamics of gross grain harvest, lands planted with cereals and cereal crop yields for 15 years. The highest harvest of cereals was in 2008, when it exceeded 108 mln ton. Gross grain harvest increased by 18% from 89.1 mln ton in 1991 to 105.3 mln ton in 2014.

Areas planted with cereals decreased by 31% in 2014 (31.3 thous. ha) in comparison with 1991 (45.3 thous. ha). At the same time cereal crop yield increased by 59% for the period under analysis. One distinctive feature of grain production in Russia is the high volatility of cereal crop yield and gross grain harvests. This can be explained by inadequate provision of resources, which, in turn, poses the risk of losing yields.

Figure 7 demonstrates the dynamics of livestock for the period between 1991 to 2014. There has been a reduction in the overall number of all types of livestock, a 65% decrease in cattle, 45% – pigs, 56% – sheep and goats over this period. The lowest number of pigs was in 2004 (13.7 mln heads). Since 2005, an increase was observed and the number of pigs was 19.5 mln heads in 2014. A change of trend in the dynamics of sheep and goats numbers could be seen in 2000. Small increases replaced constant decline, the minimum point was in 1999, when the number of sheep and goats was 14.8 mln heads. By the year 2014, it was 24.7 mln heads. As there as the number of overall cattle is concerned, it continued to stagnate and fall slowly.

Meat import in Russia is steadily declining, this is confirmed by data from Table 3 on the share of import products in Russia. The share of canned meat import is insignificant, moreover

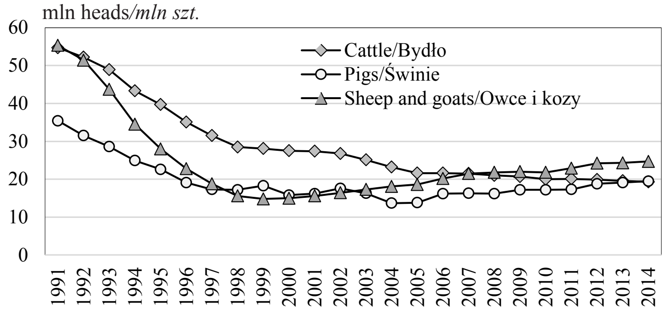


Figure 7. Dynamics of livestock for the period since 1991 to 2014
Rysunek 7. Zmiany wielkości inwentarza żywego w latach 1991-2014
Source/*Źródło:* [*Agriculture*... 2016, p. 91, Federal Statistic Office]

Table 3. Certain food products import share in the commodity products in Russia
Tabela 3. Niektóre produkty spożywcze import akcji w produktach surowców w Rosji

Product/*Produkt*	Year/*Rok*					
	2005	2010	2011	2012	2013	2014
Meat and poultry/*Mięso i drób*	45.9	33.7	30.0	30.3	26.2	19.8
Canned meat/*Mięso puszkowane*	24.3	17.1	22.0	25.1	20.0	13.7
Animal oils/*Tłuszcze zwierzęce*	35.8	32.3	32.2	34.2	35.9	34.4
Vegetable oils/*Oleje roślinne*	31.9	23.9	22.0	16.3	19.0	14.7
Cheese/*Ser*	46.5	47.4	46.1	47.8	48.0	37.3
Sugar/*Cukier*	10.0	5.4	3.7	5.3	8.2	7.4

Source/*Źródło*: [*Agriculture*... 2016]

it decreased in 2014 in comparison with data in 2005, when it was 24.3%. Thus, Russia can not be considered as a country dependent on the import of canned meat. During the last 10 years the import of animal oils has remained the same and the share of import is slightly above 30%. In fact, Russia holds one of the highest rates on import of animal oils all over the world.

The accession of Russia into WTO structures in 2012 has resulted in strengthening the image of the country to potential business partners. It also has given the opportunity to resolve disputes with the help of the Dispute Settlement Body. However, membership in the largest of the organizations established for the purpose of liberalization of world trade does not mean stability in this area. Geopolitical factors still play the key role [Kraciuk 2013]. Looking at the dynamics of vegetable oil import during the last 10 years, it may be noted that the import of these products has decreased. According to some experts, it was caused by depreciation of the dollar and euro against the Russian ruble, and therefore, rising prices for imported vegetable oils. Also, the reduction of vegetable oil import can be explained by a substantial increase of domestic production of oils. The share of cheese import in Russia has always been significant, amounting to nearly 50% during the analyzed period. But in 2014 the food embargo was the cause of the declining share of cheese import to Russia. As for sugar, import of this product in Russia is variable, and in most cases the decline of sugar import is attributable to the increase of sugar production in Russia. The embargo included 10% of EU export to Russia, which according to the European Commission has contributed to the reduction of trade in this sector from 13.7 mln USD in 2013 to 5.2 mln Euro in 2014 [Rosińska-Bukowska 2015].

SWOT analysis for agriculture

Results of SWOT-analysis for agriculture in Russia are represented in Table 4. The presented SWOT analysis makes it possible to adopt a strategy of Russian agriculture in view of opportunities and threats. Bearing in mind the huge potential of available area, it would be undoubtedly beneficial to increase the number of areas under cultivation. Modernizing Russian agriculture is becoming a necessity both in terms of machinery and biotechnology. Further work in order to create new varieties of plants adapted to different climate zones in Russia seems to be essential as well. The policy of protectionism based on tariff and non-tariff instruments is not conducive to the growth of competitiveness of food products in Russia. A good solution for such a dilemma may be direct payments applied in the European Union and equally by some of EU members. On the one hand, they impact significantly on the reduction of the prices of agricultural products, on the other hand, they let prices stabilise, not leading to overproduction. The importance of food security is a substantial factor, however, it can be implemented under international trade agreements. Therefore, it is worth considering whether, in light of the theory of trade exchange based on comparative costs, own production is more cost-effective than importing cheaper foreign products.

Table 4. SWOT analysis for agriculture in Russia
Tabela 4. Analiza SWOT dla rolnictwa w Rosji

Weaknesses/*Słabości*	Strengths/*Mocne strony*
1. Need for public support/*Konieczność publicznego wsparcia* 2. Heavy output dependence on the natural environment/*Duża zależność produkcji od warunków środowiska naturalnego* 3. Weak meat cattle breeding/*Słaba jakość mięsa bydła rozpłodowego* 4. Low level of intensification, extremely low use of biotechnologies/*Bardzo niski poziom rozwoju oraz bardzo niski poziom użycia biotechnologii* 5. Lack of opportunity to produce all kind of crops on the territory of Russia with return of profit/ *Niemożność uprawiania wszystkich rodzajów roślin z zyskiem na terytorium Rosji*	1. Significantly large cultivated area/*Duży obszar uprawianej ziemi* 2. Availability of unoccupied competitive food market niches/*Dostępność nisz rynkowych w sektorze żywności* 3. Food safety in Russia must be ensured by developed domestic agriculture/ *Bezpieczeństwo żywnościowe w Rosji powinno być zapewnione przez rozwiniętą krajową gospodarkę*
Threats/*Zagrożenia*	Opportunities/*Szanse*
1. Natural and technological disasters/*Katastrofy z przyczyn naturalnych i technologicznych* 2. Infectious diseases of animals and plants/*Choroby zakaźne zwierząt i roślin* 3. Impossibility of some quantitative forms of public support of agriculture because of WTO membership/*Brak wsparcia rolnictwa przez sektor publiczny z powodu członkostwa w WTO* 4. Volatility in prices on agricultural products/*Nagłe zmiany cen produktów rolnictwa* 5. Threat to food safety because of dependence on imported agricultural products/ *Zagrożenie bezpieczeństwa żywnościowego spowodowane uzależnieniem kraju od importowanej żywności* 6. Displacement of domestic producers with cheaper imported products/*Zastąpienie krajowych produktów tańszymi produktami importowanymi*	1. Output growth through the use of unused lands/*Wzrost produkcji poprzez zagospodarowanie nieużytków rolnych* 2. Usage of modern machinery and mechanization of agriculture/ *Wykorzystanie nowoczesnych maszyn i mechanizacja rolnictwa* 3. Increase in the number of solvent consumers on the food market/*Bogacenie się konsumentów w sektorze żywności* 4. Development and wide implementation of biotechnologies into agriculture/*Rozwój i wdrożenie biotechnologii w rolnictwie* 5. Converting agricultural products to biofuel/*Możliwość przekształcania produktów rolnictwa w biopaliwo*

Source: own study
Źródło: opracowanie własne

Conclusions

The role of agriculture in Russian economy is significant, but a weak material and technical resource base hampers intensive development. Insufficient assistance from the government is weakening the competitiveness of indigenous agricultural producers in the domestic market, as well as not creating suitable conditions for export. Wages in agriculture in Russia are less than half of the average wage in the Russian economy. Low wages and the absence of mechanisms for the equalization of opportunities is unconducive to the development of this branch of the economy. It seems to be necessary to implement a policy of support for agriculture in this country. Further pursuing a policy of protectionism will shortly contribute to the improvement of quantitative indicators of agriculture in Russia. Given the progressive liberalisation of trade, it seems to be impossible to use restrictive tariff tools in the long run, which in the absence of high-quality native products can lead to the regression of this branch of the economy.

Despite the small share of agriculture in GDP of Russia, this section is significant as a place of work and as a part of the sustainable development of rural areas. An important point is that the maximization of the potential of agriculture can stabilize financial and economic conditions of other economic sectors, which the agricultural sector consumes and supplies. It must be remembered that ensuring the food safety of a country is one of the major conditions for the implementation of active foreign policy.

Bibliography

Czyżewski Andrzej, Piotr Kułyk. 2012. Dostosowania cen i dochodów w rolnictwie w Polsce i Rosji. próba porównania (Adjustments of prices and earnings in the agriculture in Poland and Russia: attempt of the comparisons). *Roczniki Ekonomii Rolnictwa i Rozwoju Obszarów Wiejskich* 99 (2): 47-51.

FSO (Federal Statistic Office). 2015. *National accounts data set*. http://www.gks.ru/bgd/regl/b15_13/Main.htm.

FSO (Federal Statistic Office). 2016. *Agriculture, hunting and forestry 2015*. http://www.gks.ru/free_doc/doc_2015/selhoz15.pdf.

FSO (Federal Statistic Office). *Central statistics database*. http://www.gks.ru/dbscripts/cbsd/dbinet.cgi.

IMF (International Monetary Fund). 2016 *World economic outlook* http://www.imf.org/external/russian/pubs/ft/weo/2016/02/pdf/textr.pdf.

Kraciuk Jakub. 2013. Akcesja Rosji do WTO i jej wpływ na polsko-rosyjski handel rolny (Russia's accession to the WTO and its impact on Polish-Russian agricultural trade). *Roczniki Naukowe SERiA* XV (5): 177-178.

Moisejkina Ludmila Gatchaevna., Ekaterina Darda 2015. Statistical analysis of agricultural lands. *Scientific Journal Statistics and Economics* 6: 91-94.

Nemchenko A.V. 2016. Place and role of agricultural production in the Russian economy. *International Scientific Journal* 3 (45): 42-54, doi: 10.18454/IRJ.2016.45.096.

Osetrova Olga. 2015. Russian model of economic development: features, status and prospects. *Tula State University Scientific Journal* 1: 398-405.

Petrikov Aleksander Vasilevich. 2007. Agriculture and agricultural policy in Russia: 1975-2005 years. [In] *State of Russia in surrounding world* 2007. http://www.rus-stat.ru/stat/207POM_2007_15-52_1.pdf.

Rosińska-Bukowska Magdalena. 2015. Handel rolno-spożywczy UE-Rosja – efekty rosyjskich sankcji (Agri-food trade between EU and Russia – the effects of Russia's sanctions). *Zeszyty Naukowe SGGW w Warszawie. Problemy Rolnictwa Światowego* 15 (1): 113-124.

Wilkin Jerzy. 2013. Rolnictwo. Funkcje teraz i w przyszłości (Agriculture. Features now and in the future). *Pomorski Przegląd Gospodarczy* 4.

Wilkin Jerzy. 2015. Międzynarodowe uwarunkowania wykorzystania ziemi rolniczej (International agricultural land use conditions). *Zeszyty Naukowe SGGW w Warszawie. Problemy Rolnictwa Światowego* 15 (1): 155-156.

Streszczenie

Znaczenie rolnictwa w rosyjskiej gospodarce jest relatywnie niewielkie, co jest cechą charakterystyczną dla rozwiniętych gospodarek (około 4% PKB). Stanowi jednak istotny udział w strukturze zatrudnionych – 9,2%. Wykorzystanie rolnictwa jako czynnika samowystarczalności żywnościowej stało się istotne w momencie wprowadzenia embarga na produkty importowane. Rosja dysponuje ogromnym areałem gruntów. Powierzchnia wykorzystywanych gruntów rolnych, po spadkach w latach 90. XX wieku, ustabilizowała się na poziomie 800 tys. km^2. Jednocześnie zintensyfikowana produkcja rolna zaskutkowała zwiększeniem wydajności oraz większymi zbiorami. Duży potencjał gruntów, jak również postępujący rozwój technologiczny są szansą dla rozwoju rolnictwa w Rosji.

Correspondence adderess
MSc Marcin Chciałowski
Warsaw University of Life Sciences
Department of European Policy and Marketing Faculty of Economic Sciences
Nowoursynowska Str. 166 , 02-787 Warsaw
e-mail: marcin_chcialowski@sggw.pl