

## Statistical evaluation of agriculture in the Republic of Belarus at the present stage

### Statystyczna ocena rolnictwa w Republice Białoruskiej na obecnym etapie

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**Abstract.** The article analyzes the dynamics of the basic economic indicators of the agricultural development in the Republic of Belarus at the current stage. Basic legal organizational forms of agricultural organizations were determined. The peculiarities of organization of agricultural production were revealed. Based on the analysis of the current state, it was conducted a SWOT analysis of agriculture in the Republic of Belarus which reveals opportunities and perspectives of industry development.

**Key words:** agriculture • statistical analysis • structure of agricultural production • farm enterprises

**Streszczenie.** W artykule analizowana jest dynamika podstawowych wskaźników ekonomicznych rozwoju rolnictwa w Republice Białorusi na obecnym etapie. Określone zostały główne organizacyjno-prawne formy organizacji rolniczych. Cechy organizacji produkcji rolnej stwierdzono na podstawie analizy aktualnego stanu, została przeprowadzona analiza SWOT rolnictwa w Republice Białoruś, która otwiera możliwości i perspektywy rozwoju branży.

**Słowa kluczowe:** rolnictwo • analiza statystyczna • struktura produkcji rolnej • gospodarstw

## Introduction

Rural sector and agriculture take a special place in economy of any country. Its role involves production of food stuffs and agricultural raw with the use of processes of natural reproduction. The level of agricultural development largely determines the level of economic safety of the country. In this context, it is particularly relevant to study the current industry trends and to conduct analysis of sub-sectors.

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## The aim of the article

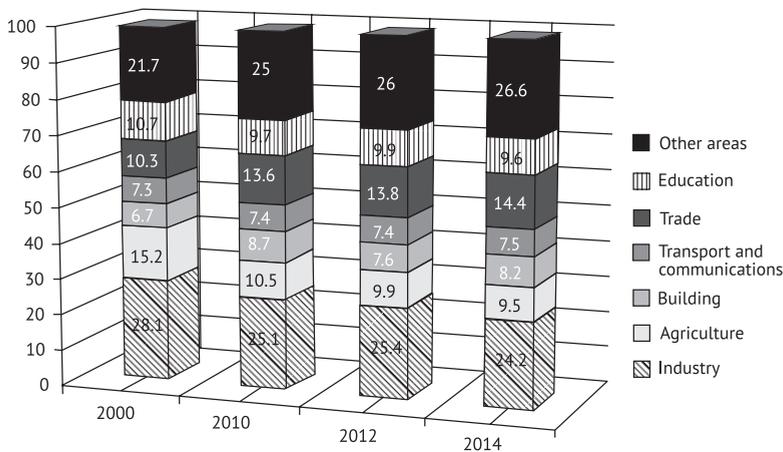
To conduct SWOT-analysis that allows to identify and structure the strengths and weaknesses of the industry and to assess the resulting opportunities and threats, based on the statistical analysis of agricultural situation in the Republic of Belarus during 2011–2015. It has paid a great attention to the issues, related to the analysis of the current situation, as well as trends and prospects for development of agriculture in the Republic. A scientific approach to the study of agro-industrial complex of the country was reflected in the works of V.G. Gusakov, A.P. Shpak, etc. (Gusakov et al. (Eds.), 2015; Gusakov, Shpak, Griboedova, 2015; Kukresh and Kazakevich, 2015; Shpak, Kirienko, Bajgot, Kondratenko, 2015).

## Materials and Methods

The materials of National statistical committee of the Republic of Belarus and analytical articles have served as basic data for a research. Within this article the research of agricultural branch was done with the use of various analysis methods, namely, the statistical analysis and SWOT analysis.

## Results and discussion

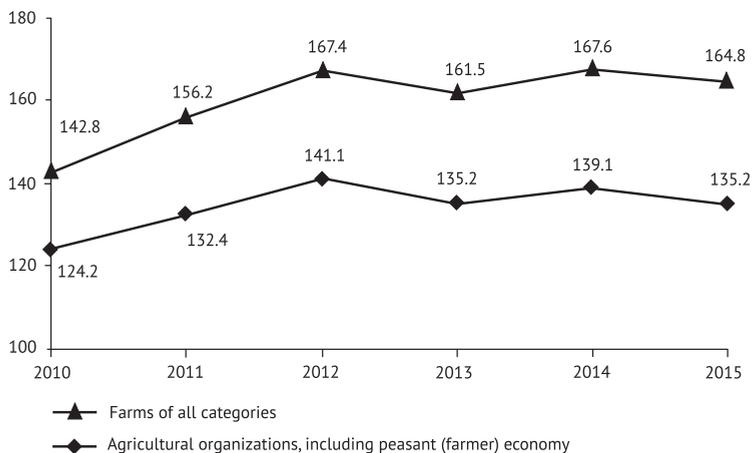
In the Republic of Belarus agriculture is a priority branch. Agriculture specific gravity in gross national product is about 8%. About 9.5% of all employees in economy work here (Fig. 1).



**Fig. 1.** Distribution of the employed population according to the kinds of economic activity (percentage to the total number of employed population)

*Source:* It is calculated by authors by data of Statisticheskij ezhegodnik Respubliki Belarus (2015, Sept.)

The research showed that countrywide in 2015 to the level of 2005 the growth rate of agricultural production volumes in all categories of farming amounted to 167.8%, below that figure in 2014 (Gosudarstvennayaprogramma..., 2016; Fig. 2). In 2015 compared with 2014 there also was a decline in output in agricultural organizations, including farms.



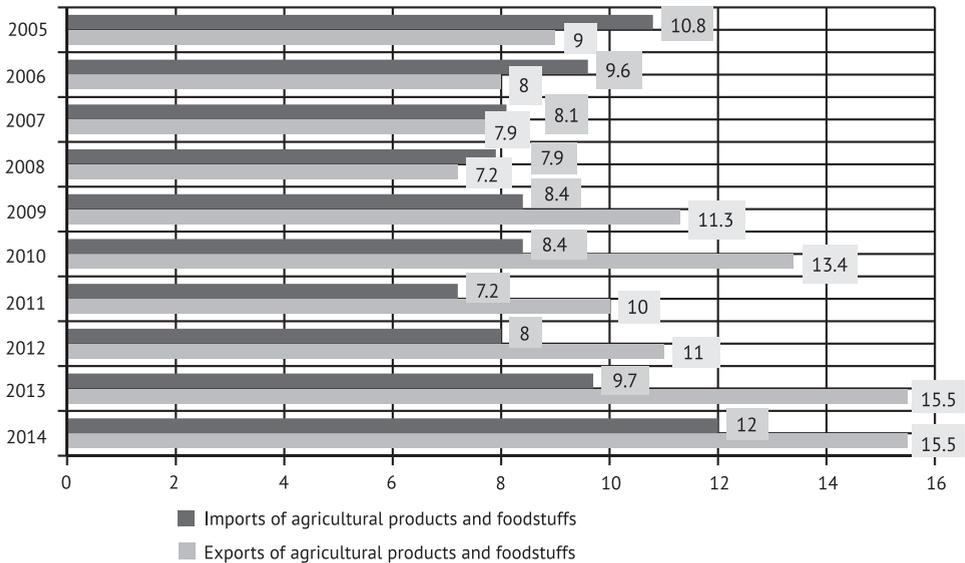
**Fig. 2.** Agricultural production in the Republic of Belarus (in comparable prices, in percent by 2005)

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

All this has led to the formulation of the problem and the elaboration of complex of measures on development of the Belarusian agriculture at the state level. The government approved the State program of agrarian business development in the Republic Belarus for 2016–2020 (Gosudarstvennayaprogramma..., 2016b). Actuality and up-to-dateness of this document, developed by the Ministry of Agriculture and Food of the Republic of Belarus and National Academy of Sciences of Belarus, is determined by the fact that in the conditions of changing external and internal factors there are also new challenges for the economy in general and an agrarian sector in particular. The goals of the government program are to increase the efficiency of agricultural production and marketing of agricultural products and foodstuffs, making them more competitive, providing the home market with national agricultural products and food in the required quantities of appropriate quality on the basis of formation of market managing mechanisms and agrarian business development. All above, along with the deterioration of the financial condition and the accumulated organizational and economic problems in the agrarian sector requires urgent decisions, which have adequately been reflected in the document. It is important to consolidate the positive trends in the development of agriculture that were received in the years 2000–2013 (Gosudarstvennayaprogramma..., 2016a).

Belarus is almost self-sufficient in food supplies: import is less than 10% of the total consumption. Specific gravity of agricultural production and food staffs in the

volume of foreign trade in goods of the Republic of Belarus is showed in figure 3. It is obvious that from 2009 volume of export of agricultural production and food stuffs not only overshoots import but also over two last years increases constantly, having achieved 15.5% (*Selskoekhozyaystvo...*, 2015, p. 95–96).



**Fig. 3.** Specific gravity of agricultural production and food stuffs in the volume of foreign trade in goods of the Republic of Belarus

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

1% of world exports of milk, 11% – butter, 5.7% – cheese are accounted for the country. Together with Australia, New Zealand, Brazil and Argentina, Belarus is the biggest exporter of dairy production to the world market. Milk production per capita in Belarus (information about production in European Union and in the world in 2013) is 2.2 times higher than in the countries of European Union, and 6.6 times higher than in the world in the whole, meat – in according 1.4 and 2.9 times, grain – 1.2 and 2 times higher.

The republic takes the first place in the world on potatoes production per capita and is itemized among the basic manufactures of this kind of vegetable production. Besides, 25.7% of world flax plantings are concentrated in the country. Belarus is in the top ten among 26 leading producers of flax fiber.

Area of farm lands in the republic is 8.63 million ha, that is on 265 thousand ha less in comparison with the year 2011. One of the reasons is that because of the growth of crop yield and, consequently, improvement of food stuffs supply, some unproductive plots of area were taken out for more effective use in forestry.

From the total agricultural lands 7.5 million ha or 86.94% are in use of agricultural organizations. 153.9 thousand ha (1.8%) are used by peasant farms. 842 thousand ha

(9.8%) are owned by citizens and used for horticulture/gardening and for private part-time farms management. Area of lands, used directly by population (including plots under houses, lands of private part-time farms, lands for dacha cooperatives) from 2011 to 2015 has decreased from 924.3 thousand ha to 842 thousand ha. The main reasons are alternation of generations in country side, moving of youth to cities, fall of interest to dacha horticulture.

The prevailing organizational-legal forms in the organization of agricultural production are joint-stock companies (37.9%), unitary organizations (24.1%), agricultural production cooperatives (21.9%) and others. As on the beginning of 2015 1454 agricultural organizations, 2953 peasant farms, about 1100 private part-timer farms functioned in the republic (Gosudarstvennyyaprogramma..., 2016b, p. 47). The total land area in the farm sector between 1995 and 2015 has expanded to 124 thousand hectares or 3 times. Currently one farm has, on average, about 75 ha of land, including farming lands –65 ha, arable lands – 47 ha (*Razvitie...*).

Allocation of agricultural enterprises according to the forms of property is reflected at table 1.

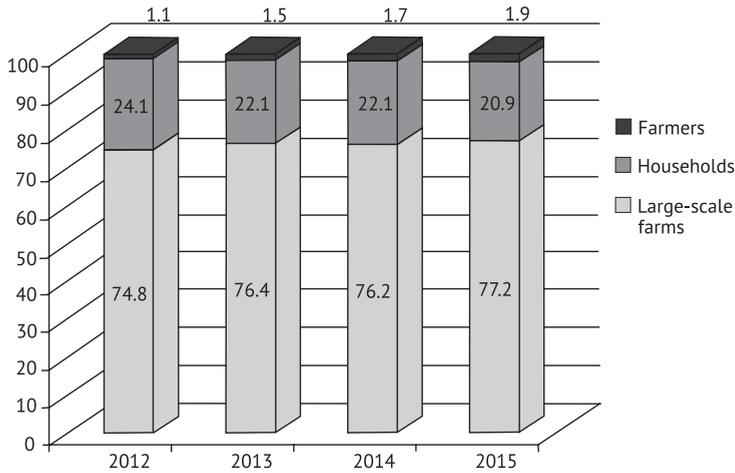
**Table 1.** Allocation of agricultural organizations in the Republic of Belarus according to the forms of property (in percentage from total number)

Agricultural organizations according to the forms of property		Year				
		2011	2012	2013	2014	2015
State property		24.6	23.7	22.0	19.3	18.9
Including	Republican	1.7	1.7	2.0	2.0	2.1
	Municipal	22.9	22.0	20.0	17.3	16.8
Private property		74.2	74.8	75.6	78.4	78.4
From it mixed	Organizations with state property share 1	12.7	24.1	26.7	30.1	35.5
	Organizations with foreign property share	2.6	3.1	3.5	4.1	4.4
Foreign property		1.2	1.5	2.4	2.3	2.7

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

It is necessary to mention that there are some peculiarities of national legislation in Belarus, related to land use and, in particular, to use of agricultural lands: agricultural lands can't be sold, and it is impossible to change mission of a land plot to another one (for example, for forest plantations, populated places, industry) without a special approval. Private farmers can cultivate till 100 ha of land, and members of their families or partners can inherit this land in order to use it in further with agricultural purpose, and plots with area more than 100 ha are leased from the state on a long-term leasehold basis. Foreign enterprises use land only on lease.

Large commodity agricultural enterprises take the basic place in production of agricultural products (Fig. 4).

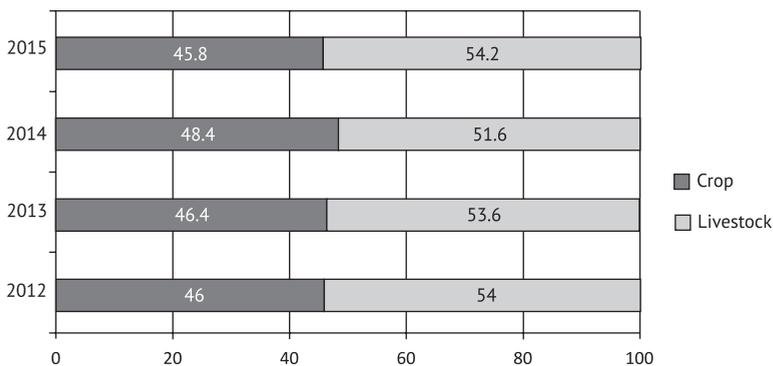


**Fig. 4.** Structure of agricultural production according to the nature of household (in current prices, in percentage to the end result)

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

At present farms with agricultural lands area of about 3000 ha (62%) prevail in the republic. Farms with agricultural lands area from 3000 to 6000 ha amount to 33%, and large enterprises – about 5%. Taking into consideration tendencies of last years to farms extension; it is possible to suppose that the main share of farms will have agricultural lands area from 3000 to 6000 ha.

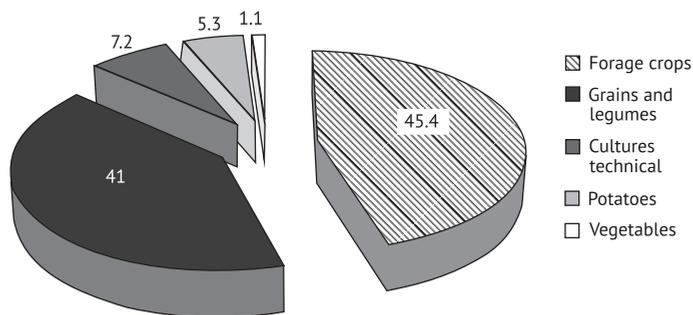
In structure of agricultural production at 2015 animal production prevails – over 54.2%, plant production accounts for 45.8%, except that both branches pass through the stage of reconstruction, new technologies adoption and investment assets attracting (Shpak et al., p. 21–24; Fig. 5).



**Fig. 5.** Production structure of agriculture(%)

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

In plant growing grain, grain legumes, and forage crops prevail (Fig. 6).



**Fig. 6.** Structure of planted acreage of agricultural crops in Belarus in 2015(%)

*Source:* It is calculated by authors by data of Selskoek hozyaystvo Respubliki Belarus. Statisticheskiy sbornik (2015, June)

Taking into account structural developments and orientation to renewable power sources volumes of grain legumes and oil crops cultivation are extended in the republic. Potatoes and flax take a special place. The main vegetable crops are carrot, beet, and cabbage. In animal husbandry for meat and milk production basically cattle is grown, as well as pigs and poultry (*Selskoekhozyaystvo...*, 2015, p. 28).

Chernobyl accident has influenced greatly on development of Belarusian agriculture. Economic damage of a state is evaluated at 235 billion USD that is equal to 32 national budgets in 1986. In total 23% of territory of Belarus was polluted in comparison with 7% in the Ukraine and 1.5% in the European part of Russia. As of January 1, 2016 on the territory of Belarus in zone of radioactive pollution 2371 settlements were located, as well as 28 cities and urban type settlements where 12% of population lives (*Statisticheskiye zhegodnik...*, 2015, p. 318).

Agriculture of Belarus is one of the most subsidized branches by the state. The funds are directed to enterprises' support, their re-equipment. At present one of the key moments of agrarian complex development is extension of the network of large regional agro-industrial holding companies that are oriented to export activity. 10 holding companies function in the field of agro-industrial production.

Domestic needs are met by means of smaller market participants and farm enterprises. Total area of lands in farm sector from 1995 to 2013 has increased in 2.7 times. At present one farm on an average accounts for 67.8 ha of land, which includes 59.6 ha of arable lands and 43.4 ha of plough lands.

In 2014 farm enterprises produced about 2% of agricultural production, including 2% of grain, 3% of fruit and berries, 5% of potatoes, more than 15% of vegetables. From 1995 to 2014 specific gravity of farm enterprises among the organizations engaged in agricultural activity, in potato production has increased from 3.4 to 22.1%, vegetables – from 2.6 to 46.6% accordingly.

In animal farm enterprises in 2014 there have been significant towards the development of cattle husbandry and poultry breeding. As of January 1, 2015 in farm enter-

prises 13.6 thousand of heads of cattle, 12.8 thousand of sheep and goats, and 121 thousand of poultry were bred. Pig population became less on 8.4% to the previous year and accounted for 25 thousand of heads. Production of milk to the previous year has increased on 4%, sales of cattle and poultry in live weight on 9.9% (*Statistic heskiy-ezhegodnik...*, 2015, p. 308–326).

It is established that one of the most popular and effective methods is the SWOT-analysis of Strength, Weakness, favourable opportunities and Threats which was first introduced by K. Andrews in 1963. The conducted researches of the current state of agriculture in the Republic of Belarus allow us to generalize the received results on the basis of the SWOT-analysis method (Table 2).

**Table 2.** SWOT analysis of agriculture in the Republic of Belarus

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• The availability of sufficient agricultural lands</li> <li>• The presence of state programs of development and support of agriculture, a clear system of monitoring their implementation</li> <li>• A high proportion of large-scale agricultural enterprises</li> <li>• A high level of provision of the population with food (a high level of agricultural production per capita)</li> <li>• The high share of industry in export and GDP of the country</li> <li>• Specialization on cultivation of agricultural crops: forage crops, grain, potatoes, flax</li> <li>• Significant export potential of agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• The dependence on weather conditions</li> <li>• The presence of a zone of risk farming in the northern regions of the Republic</li> <li>• Low diversification of the markets</li> <li>• A reduction in profitability of agricultural production</li> <li>• Reducing of a net profit during the current year</li> <li>• Financial instability, lack of working capital</li> <li>• Insufficient level of use of methods of modern marketing</li> <li>• Insufficient development of insurance system of risks in agricultural industry</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Production increase due to effective use of means of production</li> <li>• A possibility of production intensification due to the use of the modern equipment</li> <li>• The increase in production volume in agriculture</li> <li>• Growth of specific weight of agricultural production in volume of foreign trade of the Republic of Belarus</li> <li>• The increase in number and share of farms in the total amount of agricultural products production</li> </ul>	<ul style="list-style-type: none"> <li>• A development of the competition in the world food market</li> <li>• A development of protectionism tendency on the export markets</li> <li>• A world price-cutting on food and agricultural raw materials</li> <li>• The part of the territory of Belarus has been polluted as a result of the accident on the Chernobyl nuclear power station</li> <li>• Epidemics of various diseases, both plants and animal</li> </ul>

Table 2. cd.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• The development and widespread adoption of organic farming and biotechnologies in agriculture</li> <li>• An improvement of functioning conditions in agrarian business</li> <li>• Further development of farm tourism</li> </ul>	<ul style="list-style-type: none"> <li>• Price discrepancies on the manufactured agricultural and industrial products</li> </ul>

Source: The matrix developed by the authors

## Conclusions

The conducted statistical analysis of the current state of agriculture in the Republic of Belarus and SWOT-analysis showed that further development of agriculture must be directed to the development of all organizational-legal forms of economic management, creation equal economic conditions for them, protection of national commodity producers and maintenance of necessary food safety of a state, and also support of production of competitive products and making agriculture oriented to export.

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