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DEVELOPMENT OF ORGANIC FOOD PRODUCTION AND PROCESSING FOLLOWING THE ACCESSION TO THE EUROPEAN UNION

Abstract: This paper discusses the evolution of organic food production and processing based on biannual organic agriculture reports published by the General Inspectorate of Agri-Food Trade Quality (GIJHARS). The subject matter of the analysis are the changes in organic farmland, in the number of and area structure of farms and in organic production and processing, seen from a spatial perspective. The timeframe of this study is the period of the Poland's membership in the European Union, i.e. 2004-2016. This paper concludes that organic farming experienced dynamic growth until 2013. In 2013-2016, a decline in the area of organic farmland was recorded, accompanied by a decrease in the number of organic farms in 2014-2015. It was concluded that in Poland, the volume of organic production and processing is too low.

Keywords: development, European Union, Poland, production, processing, organic food

INTRODUCTION

Today, plant protection products are commonly used in conventional farming. This provides increasingly better growth opportunities for organic farming which intentionally avoids such products in order to preserve the sustainability of the natural rural environment while offering high-quality foods. With its specific approach to the production of agricultural raw materials, this farming system is distinguished by its care for the public good which is the natural environment and the health of food consumers. The development of organic farming does not result in such adverse impacts as (and is some kind of counterbalance to) conventional farming. It helps preserve soil fertility, biodiversity and environmental sustainability in rural areas. The above argues in favor of supporting the development of organic farming not only with public resources but also with private funds of consumers who affect its economic sustainability by making their purchases.

Also, organic farming is a major sector of the economy due to its role in the durable and sustainable development of rural areas. It combines together the activities that contribute to economic objectives (food production, profitability of farms), environmental objectives (caring for the natural environment) and social objectives (jobs, food safety). Organic farming is also a part of new challenges resulting from the need to improve the levels of innovation in the economic and social sphere under the conditions of increased competitiveness in food markets. Innovativeness is reflected by all components of organic food management, from the production through to processing and distribution. Various forms of Schumpeter's innovation exist at subsequent stages of organic product creation, including process and product innovation as well as marketing innovation. Organic production, which excludes the use of agricultural chemistry, demonstrates demand for, and requires the use of, innovative solutions and highly specialized knowledge in the field of plant protection, yield improvement, feed management, animal breeding and processing. In this type of production, innovativeness is a highly complex process due to inability to use many chemical substances and components. Therefore, for organic farmers, excluding these measures means a high production risk. Minimizing that risk should be the objective of production support activities.

PURPOSE AND METHODS OF STUDIES

The purpose of this paper is to analyze the evolution of organic food production and processing following the Poland's accession to the European Union. The subject matter of the analysis are the changes in organic farmland, in the number of and area structure of farms and in

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organic production and processing, seen from a spatial perspective. The timeframes of this study are the period of the Poland's membership in the European Union, i.e. 2004-2016.

The source material for this analysis was statistical data from biannual reports on the condition of Polish organic agriculture published by the General Inspectorate of Agri-Food Trade Quality (GIJHARS), documents delivered by the Ministry of Agriculture and Rural Development, and relevant domestic literature. The objective scope of this analysis was conditioned by the availability of statistical data on organic foodstuffs production and processing. This study used descriptive statistics methods as well as tabular and graphical presentation methods.

RESULTS OF THE STUDY

A breakthrough for the development of organic farming, the Poland's accession to the European Union was followed by the introduction of legal regulations aligned with the Union legislation and by the implementation of the support system (Organic Farming Act, Łuczka 2016). The support is justified by a comprehensive approach to the implementation of environmental objectives which involve lower yield rates and higher unit costs of certain productive inputs and result in the loss of a part of the potential farming income and in lower production profitability. However, the costs related to environmental measures in organic farming and to the delivery of public goods, e.g. biodiversity in rural areas, cannot be expected to be borne by farmers alone. If these goods are accessed by the society, it is an important argument for allocating more support to organic farming than to conventional farming. Another major argument is the delivery of foods with rich health properties which is beneficial to consumers as it provides them with a broader selection of high-quality products in the foodstuffs market.

Prior to the Poland's accession to the EU, the level of support allocated to organic farming was very low. Initially, i.e. in 1989, subsidies were introduced to co-finance the costs of farm inspections, and were disbursed to inspection bodies. In 1999, per-hectare payments were made available to organic farmers. The rates and farm area limits changed each year. A degressive formula was used to calculate the payments in function of farm area. Generally, payment rates were relatively low. A significant increase was observed only after the Poland's accession to the EU which provided an incentive for many farmers to shift to organic farming.

After the Poland's accession to the EU, support was offered for organic farming under the Rural Development Plan (2004-2006 RDP) and the Rural Development Programs in the 2007-2013 and 2014-2020 Financial Perspective (with EUR 28.5 billion, Poland is the EU's fifth beneficiary of funds allocated under agricultural programs). The support was a strong financial incentive for the farms to shift to organic methods. The high interest in the organic farming package, especially during the 2004-2006 RDP and 2007-2013 RDP, was caused by the relatively high level of payments allocated and the relatively low requirements to be met by eligible beneficiaries. That situation changed only upon the entry into force of the 2014-2020 RDP (Table 1). A change of major importance was the introduction of degressive rates, with 100% of the base rate disbursed for agricultural land area ranging from 0.1 ha to 50 ha; 75% for areas ranging from 50 ha to 100 ha; and 60% for areas in excess of 100 ha.

In the period under consideration, Poland experienced a dynamic growth of the number of organic farmers (Fig. 1). Started in 2004, that trend continued for a decade until 2013. In 2014 and 2015, a decline in the number of organic farms was recorded. In 2013, the number of farms was 26,598; in the next two years, it went down to 24,829 and 22,277, respectively. In 2016, it increased slightly to reach 22,435. Note that 2014 was the first year (since 2004) to witness a decline in the total number of organic producers and a reduction in the number of organic farmers. The decline in the number of farms over the 2014-2015 period was caused by changes in the allocation of subsidies for organic farming which became dependent on the production volume and area of agricultural land (Regulation of the Minister of Agriculture and Rural Development). As regards the latter

aspect, degressive rates were applied which resulted in smaller amounts of aid accessed by large farms.

Table 1. Payment rates in the organic farming package under the 2014-2020 RDP

Environmental payment rates			
No.	Organic farming packages	Organic farming variants	Payment rates
1.	Package 1. Cultivation of agricultural crops during the conversion period		PLN 966 per ha
2.	Package 2. Cultivation of vegetable crops during the conversion period		PLN 1557 per ha
3.	Package 3. Cultivation of herbs during the conversion period		PLN 1325 per ha
4.	Package 4. Cultivation of horticultural crops during the conversion period	4.1.1.Cultivation of horticultural crops during the conversion period 4.1.2. Cultivation of berries during the conversion period	PLN 1882 per ha
		4.2. Extensive cultivation of horticultural crops during the conversion period	PLN 790 per ha
5.	Package 5. Fodder crops cultivated in arable land during the conversion period		PLN 787 per ha
6.	Package 6. Permanent pasture in the conversion period		PLN 428 per ha
7.	Package 7. Cultivation of agricultural crops after the conversion period		PLN 792 per ha
8.	Package 8. Cultivation of vegetable crops after the conversion period		PLN 1310 per ha
9.	Package 9. Cultivation of herbs after the conversion period		PLN 1325 per ha
10.	Package 10. Cultivation of horticultural crops after the conversion period	10.1.1. Cultivation of basic horticultural crops after the conversion period 10.1.2. Cultivation of berries after the conversion period	PLN 1501 per ha
		10.2. Extensive cultivation of horticultural crops after the conversion period	PLN 660 per ha
11.	Package 11. Fodder crops cultivated in arable land after the conversion period		PLN 559 per ha
12.	Package 12. Permanent pasture after the conversion period		PLN 428 per ha

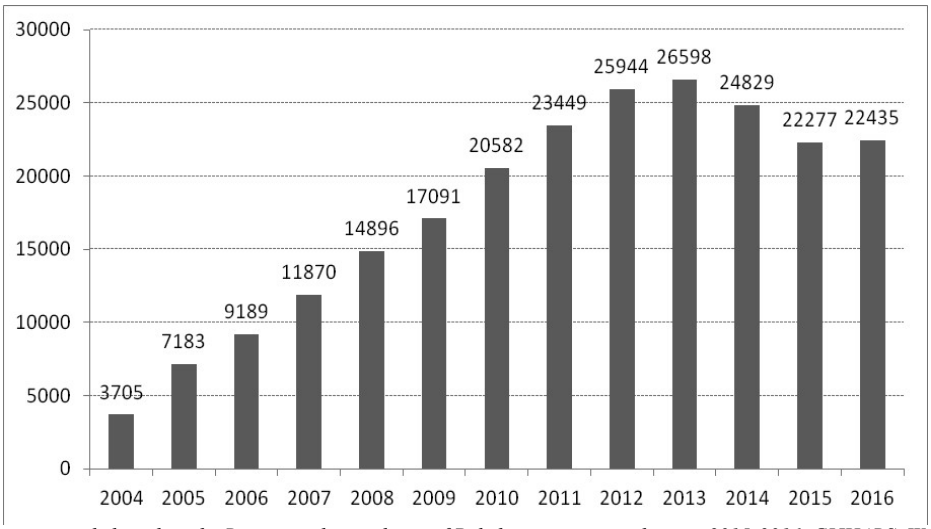
Source: Regulation of the Minister of Agriculture and Rural Development on detailed conditions and procedure for granting financial aid under the "Organic farming" measure covered by the 2014-2020 Rural Development Program.

In Poland, organic farming is dominated by vegetable production. In 2016, 83.2% of producers were engaged exclusively in vegetable production while the other 16.8% dealt with both vegetable and livestock production. Organic farmers represent a vast majority (98% approximately) of organic producers. The other 2% were organic producers active in organic products processing, and in the marketing of domestic organic products and organic products imported from third countries.

The spatial distribution of the largest number of farms changed in 2016 compared to 2004. In 2004, the largest number of organic farms were located in the Świętokrzyskie, Zachodniopomorskie and Lubelskie voivodeships whereas in 2016, the highest figures were reported in the Warmińsko-mazurskie (4,142), Zachodniopomorskie (2,573) and Podlaskie (3,437) voivodeships. The total number of organic producers in the above voivodeships was more than 39% of the total number of organic producers on a countrywide basis. The concentration of organic farms in three voivodeships located close to each other provides favorable conditions for the development of various forms of regional collaboration aimed at reducing the barriers to the processing and distribution of organic food. However, these opportunities are not fully exploited, which is illustrated by the low level of

interest on the part of farmers in the establishment of producer groups as a form of integration with major importance for a more efficient disposal of products on the market.

Figure 1. Number of organic farmers in Poland in 2004-2016



Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016, GIJHARS, Warsaw.

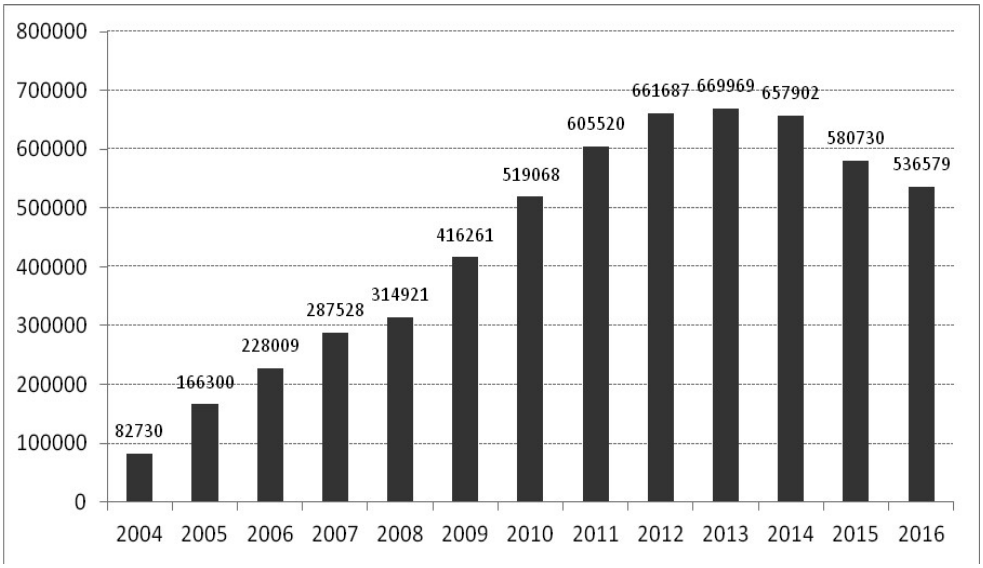
In the period covered by this study, the largest area of organic farmland in Poland (667,902.1 ha) was recorded in 2014 (Fig. 2). Over the next two years, it declined to reach 536,579 ha in 2016. In Poland, the average area of an organic farm in 2016 was in excess of 25 ha, with the national average farm area of 10 ha. After 2004, the average area of organic farms grew dynamically for a decade. This was caused by the increased share of large farmers who enrolled for agri-environmental programs to be granted with subsidies. A significant part of them did not run any agricultural activities.

The area of organic farmland was spatially diversified. For several years, organic farms have been concentrated in three regions: the Warmińsko-Mazurskie (108,667 ha), Zachodniopomorskie (100,570 ha), and Podlaskie (55,168 ha) voivodeships. Organic farms from these three voivodeships represented over 46% of the total area of organic farmland on a countrywide basis. In turn, the smallest area of organic farms was reported in the Opolskie (3,216 ha), Śląskie (5,324 ha) and Kujawsko-Pomorskie (9,267 ha) voivodeships.

In 2016, in the structure of arable land, the largest area was occupied by crops intended for animal fodder (206,171 ha; 35.5%), grassland and pasture (157,984 ha; 27.2%) and cereals (101,436 ha; 17.5%), with a total share of 82.2%. Horticultural crops and berries had a low share of 6.6%. The situation was slightly better as regards vegetable crops with a share of 9.7%, representing a growth by 2.7% compared to 2015. When it comes to organic livestock farming, the activity levels have been negligibly low for many years, as reflected by the poor supply of meat and meat products in the domestic market. In 2015-2016, the number of beef cattle, pigs and sheep declined to 8,433 (by 7,8%), 4,449 (29.5%) and 19,474 (24.4%), respectively. At the same time, the number of laying hens, broilers, goats and dairy cattle increased to 179,764, 36,337, 3,519 and 11,864, respectively. When converted to per-100-ha ratios, these figures are extremely low and demonstrate the existence of production barriers and the absence of effective drivers of animal production growth in organic farms. In 2016, there was 2.2 dairy cattle, 1.6 beef cattle and less than 1 pig per 100 ha. Although

the organic farming support system is in place, these levels have changed little over the period considered. This suggest organic farming is dominated by vegetable production and has a disadvantageous structure (Brodzińska 2014, Pawlewicz, Szamrowski 2014).

Figure 2. Area of organic farmland in Poland in 2004-2016 (ha)



Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016.

In the period considered, the key determinant of changes in the processing sector was the number of processing plants which grew 10 times, from 55 in 2004 to 546 in 2016. In this context, it needs to be noted that 436 producers were active in the production of processed organic products in 2016, and their production volumes were low. Therefore, the dynamic growth of the number of processing plants does not translate into a dynamic growth of production volumes of processed products. The production volume of cow's milk was 242,031 hectoliters (Table 2), with the highest levels reported in the Małoposkie voivodeship. In the last year under consideration, there was a breakthrough increase in milk processing volumes, from 4,096 tons in 2015 to 149,305 tons in 2016. Also, a quite important increase in the volumes of processed vegetables and fruits (reaching 3,821,028 tons) was reported. As regards this industry, the Zachodniopomorskie voivodeship demonstrated some outstanding statistics, and was ranked first with a share of 78.8%. The production volume of the meat and fish processing sector grew to reach 154,038 tons. However, this is not much, considering the unmet demand for these products. In this respect, Poland finds itself in a situation similar to that of most of the EU countries where meat and product processing plants are not fully developed due to lack of production capacities. In Poland, a worrying development is the concentration of meat processing in two voivodeships only (Małopolskie and Podkarpackie), located far away from metropolitan markets for organic products, i.e. Warsaw, Poznań and Tricity. Despite a quantitative growth (of the number of processing plants), the Polish processing sector remains poorly developed and is one of the reasons behind the narrow range of organic foods available in the market (Smoluk-Sikorska, Łuczka 2014). The market consequences are the relatively low share of processed products and the high price levels resulting from their rarity.

Table 2. Production of selected organic products by voivodeships in 2016

Voivodeship	Cow's milk (hectoliters)	Milk processing and cheese making	Fruit and vegetable processing (tons)	Milling of cereals (tons)	Meat and fish processing (tons)
Dolnośląskie	8,279	2.64	581.51	240.33	0
Kujawsko-Pomorskie	9,630	2,900	1,593.27	2,070.6	36
Lubelskie	1,895	0	36,2442.22	21,66.01	294.67
Lubuskie	385	0	26,276.02	0	26
Łódzkie	2,276.5	0	2,616.91	289.9	0
Małopolskie	63,966.89	192.81	5,872.03	13.22	141,321.31
Mazowieckie	22718.3	137,619.76	247,111.12	2,534.6	934.79
Opolskie	0	0	0	3.6	0
Podkarpackie	38,700	548.56	85,251.25	600.64	10,865.75
Podlaskie	12,287.5	2,234.22	11,464.22	347.1	0
Pomorskie	16,620	5400	7743.7	2	101.61
Śląskie	705	0	321.12	86.67	0
Świętokrzyskie	11,039	0	2,915.71	0	0
Warmińsko-Mazurskie	19,155	394.6	53.46	151.1	0
Wielkopolskie	270	12.67	54,831.7	472.37	43.65
Zachodniopomorskie	34,104.55	0	3,011,953.94	4.8	415
Poland	**242,031.74**	**149,305.26**	**3,821,028.19**	**8,982.94**	**154,038.77**

Source: own study based on the Report on the condition of Polish organic agriculture in 2015-2016, GIJHARS, Warsaw.

CONCLUSIONS

Based on the above analysis, several conclusions may be drawn concerning the production and processing sectors of Polish organic farming after the accession to the European Union.

1. Since 2004, Polish organic farming has been among the fastest growing sectors of food economy. This period witnessed an increase in the area of organic farmland and in the number of organic farms. The growth processes of organic farming are strictly related to the support granted to organic farmers from the Union and national budget.

2. However, the dynamic growth of organic farming did not contribute to an adequate increase in the production and processing of organic foods. The shortage of supply in the organic food market reflects its immaturity and requires the reorientation of the support system focused on stimulating production growth.

3. The diagnosis of the development of Polish organic farming is the basis for making recommendations to the national agricultural policy makers. They should consider the rationale behind the reorientation of support mechanisms (including environmental payments) increasingly linked to production so as to stimulate the supply and processing of organic products.

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