

The Development of Organic Farming in Poland and the Czech Republic - the Scope and Directions of Changes

Arkadiusz PIWOWAR¹, Maria DZIKUĆ², Martina HEDVIČÁKOVÁ³

¹ Wrocław University of Economics, Wrocław, Poland
arkadiusz.piwowar@ue.wroc.pl

² University of Zielona Góra, Zielona Góra, Poland
ma.dzikuc@wez.uz.zgora.pl

³ University of Hradec Kralove, Hradec Kralove, Czech Republic
martina.hedvicakova@uhk.cz

Abstract. Organic farming is an agricultural production system aimed at sustainable production, in particular maintaining and strengthening the health of ecosystems and organisms. This paper presents analysis in the area of directions of changes and assessment of the state of development of organic farming in Poland and the Czech Republic in the years 2004-2016. The area of ecological agricultural land, both in Poland and the Czech Republic, in 2016 was over 500,000 ha. This shows a high level of development of this production. In the period 2004-2014, the area of ecological crops in Poland increased more than six fold. However, during the analysed period, various trends in the development of organic farming in Poland and the Czech Republic were noted. In recent years, in Poland, despite the high potential, the number of farms and the area of ecological arable land have been decreasing. In the Czech Republic, the situation is stable. In both countries there is also strong internal differentiation of the development level of organic farming in the arrangement of individual regions. The article uses statistical data included in statistical yearbooks and reports published, among others, by the Central Statistical Office in Poland and the Ministry of Agriculture in the Czech Republic.

Keywords: Organic Farming, Poland, Czech Republic, Agriculture Sustainable Development.

1 Introduction

Securing food needs, the basic task of the agricultural sector, can be implemented in various management systems. Today, three main agricultural management systems are distinguished: conventional, ecological and integrated [23]. One of the main criteria for the division presented above is the degree of dependence of agriculture on industrial means of production and the impact of the method of managing agricultural space (in the scope of crops and animal production as well as their processing) on the natural environment. The subject of this article refers to the ecological system, which, due to its role in environmental protection, preservation of biodiversity, sustainable use of

natural resources, is an important element of shaping low-emission farming [11,17,19]. Organic farming is a way of farming that minimizes the adverse impact on the natural environment (prohibition of using synthetic chemical means of agricultural production). This is the management in accordance with natural processes occurring in nature, which do not disturb ecological balance. It is worth noting, however, that agricultural production, unlike other areas of economic activity, is always connected with the natural environment and with natural conditions.

This article attempts to analyse the field of changes in the number and area of crops in organic farming of two countries - Poland and the Czech Republic. Organic farming began to develop in Poland in the early 1990s [3]. Before that time, the ecological farming management system in Poland, in the conditions of chronic shortage of goods on the agri-food market, did not play a major role. An important date in the history of development of this form of farming in Poland was 1989, when the first organization dealing with organic farming was established in Poland (Ekoland Association), which was at the time the first certification body [12]. The time of emergence of ecological farming in the Czech Republic was similar. The beginning of its expansion took place after the political change in 1990 [20]. The scope of organic farming, in relation to the area of cultivation and the scale of farming, significantly expanded in the Czech Republic after 1997 [10].

Due to the higher labour inputs, unit costs of organic production are much higher than in the conventional production system. The use of natural substances and processes occurring in nature, in the absence of chemical means of agricultural production, results in lower efficiency of agricultural production in the ecological system than the conventional one. An important instrument for supporting organic farming is the system of subsidies for production, intended to cover additional costs and compensate for lost income. Financial support for ecological farms in Poland and the Czech Republic before accession to the European Union was implemented from national programs (e.g. subsidies for farm control costs), while after accession, under the Common Agricultural Policy, farmers receive direct payments. In Poland, organic farming received financial support from the state budget for the first time in 1998. Since Poland's accession to the EU, financial support for organic production comes from two sources: the national budget and the EU budget [7]. Organic farming in the EU is a highly complex and dynamic food system [1]. Selected numerical data and indicators regarding organic farming in Europe and the European Union are presented in Tab. 1.

Table 1. Organic farming in Europe and the European Union in numbers (data of 2015) [21].

Indicator	Europe	European Union	Top countries
Organic farmland	12.7 million ha	11.2 million ha	Spain, Italy, France
Organic share of total farmland	2.5%	6.2%	Liechtenstein, Austria, Sweden
Producers	349 261	269 453	Turkey, Italy, Spain
Importers	3 681	3 474	Germany, Netherlands, Italy
Retail sales	29.8 billion euros	27.1 billion euros	Germany, France, United Kingdom

In the European Union, organic farming is considered only the type that meets the conditions contained in the Council Regulation (EC) No. 834/2007 [2]. Of all EU countries, the largest area of organic farming occurs in Spain, Italy, France and Germany. Among the new Member States from Central and Eastern Europe in the European Union, the largest area of organic farms is recorded in Poland and in the Czech Republic. Accession to the European Union enabled the members to join the common market and influenced the development of the agri-food sector in the studied area, including organic farming [5, 8].

2 Purpose, Methodology and Sources of Information

The aim of the article is to present the directions of changes and assessment of the state of development in the field of organic farming in Poland and the Czech Republic. The analysis included diversification in the number and area of organic farms. The basic time range of analyses covered the years 2004-2016. Additionally, the state of organic farming development in the analysed countries was presented in regional approach (as of 2016). The empirical part of the work was based on a quantitative analysis of data obtained from secondary sources - studies of the Central Statistical Office in Poland and the Ministry of Agriculture in the Czech Republic.

3 The Process of Ecologisation and the Current State of Polish and Czech Organic Farming after Accession to the European Union

Thanks to the implementation of subsidies under the agri-environmental program, in Poland in the first years of membership in the European Union, dynamic development of organic farming was recorded. In the Czech Republic, a high growth rate has been

recorded since 1998, and in 2004, the area of ecological arable land was 263 299 ha. In Poland in 2004, this area amounted to only 82 729.5 ha (Fig. 1).

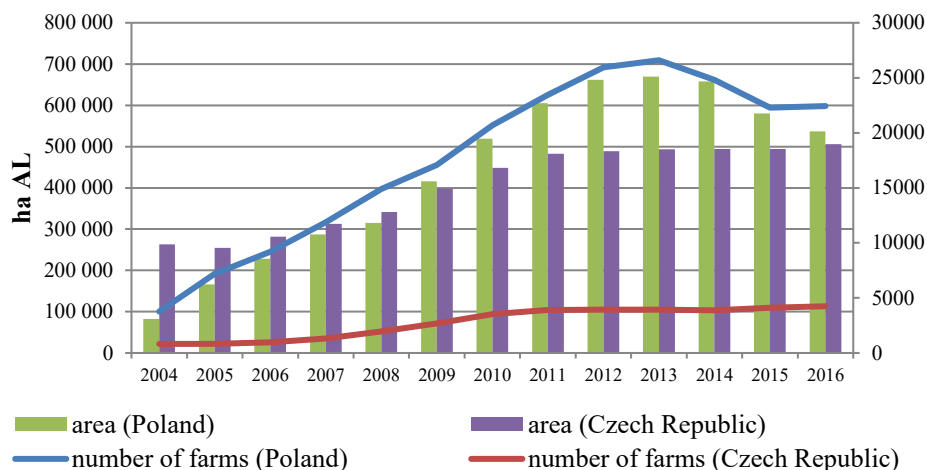


Fig. 1. The number of farms carrying out production with the use of ecological methods and area of ecological arable lands in Poland and Czech Republic in 2004-2016 [4, 18, 22].

In 2016, the area of ecological arable land in Poland amounted to 536,579 ha (including 105 683 ha in the conversion period). In turn, in the Czech Republic, the area of agricultural land in organic farms in 2016 amounted in total 506 079 ha, including 62 473 ha in the conversion period [4, 22].

In the years 2004-2016, the number of organic agricultural producers in Poland increased by 18 675 farms. According to statistical data, due to the high growth rate of the number and area of organic crops in Poland, in 2009 the total area of arable land for organic farming in Poland was higher than the corresponding area in the Czech Republic. A characteristic feature is the relatively constant, unchanging level of the number of organic farms and area in the Czech Republic in 2011-2016. It may seem that the ecological system of agricultural production in the Czech Republic shows saturation characteristics, and the further development of the scale of primary (agricultural) production is conditioned by the increase in internal demand for organic products and the development of exports in this respect. On the other hand, in Poland, a rapid increase in the number of farms using ecological methods in the cultivation of plants and animal husbandry which took place in 2004-2012 abated and in 2014-2016 a downward trend in the studied area was noted. In the subject literature, it is emphasized that the high dynamics of growth mainly concerned horticulture and newly established large-area walnut, hazelnuts, as well as blueberries plantations [6]. It was also problematic to legally subsidize unused permanent pastures and orchards as part of the implementation of organic farming packages [13]. In the new financial perspective (2014-2020), abuses in this area have been significantly reduced.

There is no doubt that financial support for organic farming after Poland's accession to the European Union contributed mainly to the dynamic development of this system of agricultural production in 2004-2012. Favourable factors were the very large potential resulting from natural resources (area of arable land) and lower specialization and concentration. Comparative analyses of the diversification of the agrarian structure and productivity of land and labour in the Visegrad Group countries are presented in the literature on the subject [16]. Relatively lower subsidies for organic farming in Poland in the new financial perspective (2014-2020) than in the years 2007-2013 contribute to the decline in the number of organic farms (as well as the area of ecological land).

An interesting research problem related to organic farming is the analysis of its aspects concerning the location of farms [14,15]. Agricultural production carried out using ecological methods and areas for ecological cultivation are not evenly distributed in Poland and the Czech Republic (Tab. 2 and 3).

Table 2. Organic farms land according to land use compared to total acreage in regions of Poland in 2016 [18,22].

Specification	Number of organic farms	Total organic acreage	Share of organic farms land in total agricultural land
		[ha]	[%]
Dolnośląskie	813	29 200	3.2
Kujawsko-pomorskie	470	9 263	0.9
Lubelskie	1 980	31 343	2.2
Lubuskie	1 148	43 234	10.8
Łódzkie	497	9 986	1.0
Małopolskie	1 093	12 364	2.2
Mazowieckie	2 426	49 517	2.6
Opolskie	68	3 217	0,6
Podkarpackie	1 252	15 485	2.6
Podlaskie	3 437	55 168	5.0
Pomorskie	679	23 328	3.2
Śląskie	180	5 325	1.4
Świętokrzyskie	834	10 739	2.,2
Warmińsko-mazurskie	4 142	108 667	10.6
Wielkopolskie	843	29 171	1.7
Zachodnio-pomorskie	2 573	100 570	11.8
Total	22 435	536 579	3.7

Of all voivodships in Poland in 2016, the largest number of organic agricultural producers used land in Warmińsko-Mazurskie (4 142), Podlaskie (3 437) and

Zachodniopomorskie (2 573) voivodships. It is worth emphasizing that in these three voivodships, 45.3% of all organic agricultural producers in Poland were found. The highest share of the area of organic farming in the structure of agricultural area in individual voivodships was recorded in Zachodniopomorskie, Lubuskie and Warmińsko-Mazurskie voivodships. On the other hand, the lowest number of ecological farms in Poland in 2016 was recorded in Opolskie voivodship. In this voivodship in Poland, very intensive agricultural production is conducted. Agricultural production using ecological methods is not evenly distributed in the Czech Republic either (Tab. 3).

Table 3. Organic farms land according to land use compared to total acreage in regions of Czech Republic in 2016 [4].

Specification	Number of organic farms	Total organic acreage	Share of organic farms land in total agricultural land
		[ha]	[%]
Karlovy Vary	223	54 056	43.6
Liberec	260	34 130	24.5
Moravia-Silesia	390	55 265	20.2
Zlín	370	36 838	19.1
Ústí nad Labem	295	46 852	17.0
South Bohemia	624	75 309	15.4
Pilsen	475	58 072	15.4
Olomouc	256	37 237	13.4
Hradec Králové	225	22 802	8.2
Pardubice	169	14 255	5.3
Vysočina	347	19 488	4.8
South Moravia	301	18 219	4.3
Central Bohemia	295	18 359	2.8
Prague	13	79	0.4
Total	4243	490 960	11.7

In spatial terms, particularly strong development of organic farming in the Czech Republic is recorded in the region of Karlove Vary (223 agricultural holdings with a total area of 54 056 ha, which accounts for 43.6% of agricultural land in this region). In 2016, in the Czech Republic, the largest number of organic farms was recorded in the South Bohemia region (624 farms), the largest area of ecological arable land in the field of research (75 309 ha) was also recorded in this region.

As it was mentioned earlier, subsidies are an important element conditioning the development of organic farming. In Poland and the Czech Republic, the rates depend on whether agricultural crops are in the conversion period (i.e. conversion to organic

farming) or after conversion. The current subsidy rates (in the financial perspective 2014-2010) are presented in Tab. 4 and 5. In the 2014-2020 financial perspective, 12 packages with differentiated ecological payment rates were identified in Poland (Tab. 4).

Table 4. Ecological payment rates in Poland in the financial perspective 2014-2020 [9].

Package	Variant	Payment rate (PLN/ha)
Package 1. Agricultural crops in the conversion period		966
Package 2. Vegetable crops in the conversion period		1 557
Package 3. Herbal crops in the conversion period		1 325
Package 4. Orchard crops in the conversion period	4.1.1. Basic orchard crops in the conversion period	1 882
	4.1.2. Berry crops in the conversion period	
	4.2. Extensive orchard crops in the conversion period	790
Package 5. Forage crops in arable lands in the conversion period		787
Package 6. Permanent pastures in the conversion period		428
Package 7. Agricultural crops after the conversion period		792
Package 8. Vegetable crops after the conversion period		1 310
Package 9. Herbal crops after the conversion period		1 325
Package 10. Orchard crops after the conversion period	10.1.1. Basic orchard crops after the conversion period	1 501
	10.1.2. Berry crops after the conversion period	
	10.2. Extensive orchard crops after the conversion period	660
Package 11. Forage crops in arable lands after the conversion period		559
Package 12. Permanent pastures after the conversion period		428

In Poland, the ecological payment may be granted to the area of organic farming, and under the measure of "Organic farming", an agricultural producer may undertake obligations in the scope of:

- crops on arable land: agricultural, vegetable, herbal, forage and berry,
- orchard crops,
- permanent pastures.

Current rates of payments for agricultural organic producers in the Czech Republic are presented in Tab. 5.

Table 5. Payment rates in organic farming in the Czech Republic [4].

Land use	Subsidies for	Amount of payment (EUR/ha)	
		2016 (conversion period)	2016 (under OF system)
Permanent grassland	Permanent grassland*	84	83
Arable land	Growing vegetables or special herbs	536	466
	Growing strawberries	669	583
	Growing grass for seed	265	180
	Growing other crops	245	180
	Grassland on arable land	79	69
	Fallow land	34	29
Permanent crops	Orchards – intensive	825	779
	Orchards – others	424	424
	Vineyards	900	845
	Hop-fields	900	845
	Other permanent crops – landscape orchards	165	165

* The higher per-hectare payment for permanent grassland (89 EUR/ha) applied in 2014 had been established since 2008 for organic farms managing all areas in organic farming. i.e. without parallel conventional areas.

The detailed conditions for the provision of subsidies to organic farming in Czech Republic are stated in Government Regulation No. 76/2015 Coll., on conditions for carrying out “Organic Agriculture” measure. Specific sum to be paid in Czech Crowns varies from year to year depending on the current exchange rate. In 2016, the exchange rate was 27,023 CZK/EUR. In 2016, 3 862 applications were submitted in support (farmers applied for nearly 1 332 million CZK) [4].

Conclusion

In the years 2004-2016, both the number of ecological farms and the area of ecological arable land in Poland and the Czech Republic increased, which proves the development of the organic production sector. However, the dynamics of changes in this area was different. In Poland, the number of organic farms increased over this period by 18 675 farms, and in the Czech Republic by 3 407. In the years 2004-2016, the area of ecological arable land in Poland increased by 453 850 ha (in the Czech Republic by 242 771 ha). It is observed in Poland a decrease in the area of organic agricultural land from 2014. Financial support for organic farming after Poland's accession to the EU contributed to the dynamic development of this system of agricultural production, especially in the years 2004-2012. Both in Poland and in the Czech Republic, significant territorial diversification of the development of organic farming is observed.

The major difference in organic farming in Poland in relation to the Czech Republic is the size of farms implementing this production system. The ecological farming system in Poland is implemented mainly by farmers owning small, traditional, low-cost agricultural holdings. In turn, in the Czech Republic, like in the whole agriculture, these are large-scale farms.

Further development of organic farming in Poland and the Czech Republic depends on the market demand for goods supplied by ecological farms. This is related to both changes in the structure of internal consumption (including changes in consumer attitudes) and the situation on the market of organic products in the European Union. The financial conditions are also important, especially the level and scope of direct payments to farmers for the area of organic farming. There are significant differences in this respect between the countries surveyed, not only in the amount, but also the subject of these payments.

References

1. Brzezina, N., Biely, K., Helfgott, A., Kopainsky, B., Vervoort, J., Mathijs, E.: Development of organic farming in Europe at the crossroads: looking for the way forward through system archetypes lenses. *Sustainability*, 9(5), 821 (2017).
2. Council Regulation (EC) No 834/2007 of 28 June 2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91 (2007).
3. Dzikuć, M.: Prospects for the development of organic food processing in Poland, [in:] *Spoleczno-ekonomiczne pogranicza* (Eds. W.Wawrzyniak, R. Woźniak, T. Zaborowski), Instytut Badań i Ekspertyz Naukowych, Gorzów Wlkp., 125-134 (2017).
4. *Ekologické Zemědělství v České Republice. Ročenka 2016*. Ministerstvo zemědělství, Olomouc, 60-65 (2017).
5. Firlej, K., Kowalska, K., Piwowar, A.: Competitiveness and innovation of the Polish food industry. *Agricultural Economics*, 63, 502-509 (2017).
6. Gil, A.: Stan i przyszłość gospodarstw ekologicznych w drobnoobszarowym rolnictwie województwa małopolskiego. *Studia Obszarów Wiejskich*, 42, s. 197–208 (2016).
7. Golinowska, M., Adamska, H.: Wsparcie rolnictwa ekologicznego w Polsce po 2004 roku. *Journal of Agribusiness and Rural Development*, 1(31), 31-41 (2014).
8. Hrabalova, A., Zander, K.: Organic beef farming in the Czech Republic: structure, development and economic performance. *Agricultural Economics*, 52(2), 89-100 (2006).
9. http://www.arimr.gov.pl/fileadmin/pliki/PB_2018/WPRE/RE/stawki_platnosci.pdf, last accessed 2018/09/27.
10. Jánský, J., Živělová, I., Novák, P.: The influence of state subsidies on the development of organic agriculture in the Czech Republic and in the EU. *Agricultural Economics*, 50(9), 394-399 (2004).

11. Jouzi, Z., Azadi, H., Taheri, F., Zarafshani, K., Gebrehiwot, K., Van Passel, S., Lebailly, P.: Organic farming and small-scale farmers: Main opportunities and challenges. *Ecological Economics*, 132, 144-154 (2017).
12. Kowalska, A.: Czynniki wpływające na rozwój rolnictwa ekologicznego w Polsce i innych krajach europejskich. *Annales Universitatis Mariae Curie-Skłodowska, Sectio H, XXIV*, 47-63 (2010).
13. Niewęłowska, G.: Gospodarstwa ekologiczne – szansą czy zagrożeniem dla polskiego rolnictwa? *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, 361, 169-176 (2014).
14. Piwowar, A.: Spatial variability in development of organic farming in Poland. Double-blind peer-reviewed proceedings part II. of the International Scientific Conference Hradec Economic Days 2011, 233-238 (2011).
15. Piwowar, A.: Przestrzenne zróżnicowanie rozwoju rolnictwa ekologicznego w Polsce w latach 2004-2012. *Roczniki Naukowe SERiA, XVI*, 2, 217-222 (2014).
16. Piwowar, A.: Struktury rolne i produktywność rolnictwa w Grupie Wyszehradzkiej. *Problemy Rolnictwa Światowego*, 17 (XXXII), 1, 152–160 (2017).
17. Qiao, Y., Halberg, N., Vaheesan, S., Scott, S.: Assessing the social and economic benefits of organic and fair-trade tea production for small-scale farmers in Asia: a comparative case study of China and Sri Lanka. *Renewable Agriculture and Food Systems*, 31(3), 246-257 (2016).
18. *Rocznik Statystyczny Rolnictwa 2017*. GUS, Warszawa (2018).
19. Schoonbeek, S., Azadi, H., Mahmoudi, H., Derudder, B., De Maeyer, P., Witlox, F.: Organic agriculture and undernourishment in developing countries: Main potentials and challenges. *Critical Reviews in Food Science and Nutrition*, 53(9), 917-928 (2013).
20. Vaněk, J., Brožová, I., Šimek, P., Jarolímek, J., Vogeltanzová, T., Červenková, E.: Organic Farms in the Czech Republic – Map Portal Presentation Opportunities. *Plant. Soil and Environment*, 12(57), 565–570 (2011).
21. Willer, H., Lernoud, J. (Eds): *The World of Organic Agriculture. Statistics and Emerging Trends*. FIBL & IFOAM – Organics International, Frick and Bonn, 206 (2017).
22. Zdrojewska, I. (red.): *Raport o stanie rolnictwa ekologicznego w Polsce w latach 2015–2016*. GIJHARS, Warszawa, 70-102 (2017).
23. Zimny, L.: Definicje i podziały systemów rolniczych. *Acta Agrophysica*, 7, 507-518 (2007).