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EMILIA SOBCZAK[*], GRZEGORZ MALITKA[*], TOMASZ SAMBURSKI[**], ANNA SOBCZAK[1*], WIOLETA SOBCZAK-MALITKA[*]

[*]Warsaw University of Life Sciences – SGGW, Poland
[**]Radom Academy of Economics, Poland

THE STATE OF POLISH ORGANIC AGRICULTURE COMPARED TO OTHER EUROPEAN COUNTRIES

Key words: organic farming, organic production, organic products, food security, organic food consumption

ABSTRACT. The study aims to assess the situation of Polish organic farming compared to selected European countries. Due to the complexity of these issues, a holistic approach to the topic was used. The research methodology is based on data obtained from three main sources: Research Institute of Organic Agriculture (FiBL), Central Statistical Office and literature studies. The results of the presented research indicate the development of the organic production sector in Poland, which is a positive phenomenon in the context of ensuring food security and promoting the culture of healthy food. Nevertheless, the analyzes conducted showed that Poland, although it has a significant area of organic products, has a small share of the area of these products in the total area of agricultural land, i.e. at the level of 3.5%, which is over 10 times smaller than the leader in this respect (Liechtenstein). Therefore, this result places Poland only at 27th position in the ranking compared to other European countries. At the same time, it indicates the need to promote organic farming practices in order to increase its importance in agricultural production in Poland. The analyzes conducted allow us to draw conclusions about the growing importance of agriculture and the organic market in Poland. The increase of expenses on organic food, trade, and involvement of producers and consumers in the organic sector is a promising trend, suggesting increased interest in and trust in organic products.

[1] Corresponding author: anna_sobczak@sggw.edu.pl

INTRODUCTION

One of the most important problems in the world of the 21st century is food security [Lashgarara 2008]. As defined by the 1996 World Food Summit, "food security" exists when all people, at all times, have adequate physical and economic access to sufficient amounts of safe and nutritious food to meet their needs for healthy and active lives. Food security is a complex process that includes dimensions such as availability, access, use and stability. Improving food insecurity on a global scale has long been closely linked to poverty reduction, as reflected in the World Bank's Poverty Reduction Strategy [Dasgupta and Robinson 2022a]. However, recently scientists have indicated that in the context of food security, elements such as economic slowdown, conflicts, extreme weather phenomena and climate variability should be considered [FAO 2020, Dasgupta and Robinson 2022b]. In another approach, food security means that people can consume the ingredients needed to lead an active and healthy lifestyle at any time, in any quantity and in any quantity. To address food access issues, a transformation of food systems is needed that can improve food security and nutrition. Given the interconnectedness of food systems, as well as their exposure to environmental change and socio-economic shocks, transforming them is key to achieving sustainable development goals [FAO, WFP 2020]. In the process of achieving food security, people must face various types of natural and man-made hazards. The growing demand for food is intended not only to achieve food security goals, but also to earn foreign exchange. However, the rapid increase in demand for food cannot be met by traditional methods, and people are inventing more ways to obtain good quality food. Hence, there was a need to have an alternative method of agriculture that could function in a friendly ecosystem while maintaining and increasing productivity. The answer to this seems to be organic farming. Organic farming is considered the most well-known alternative to conventional agriculture in terms of achieving food security while maintaining sustainable development [Ashoka et al. 2023]. Organic farming has three dimensions – social, economic and environmental – and these three dimensions can improve food security. Socially, organic farming requires more integrated work and can contribute to long-term employment in rural areas. Organic farming plays an important role in rural employment due to the employment of more seasonal workers, and given the increase in organic food sales, it is likely that there will continue to be opportunities in organic food occupations. Organic farming promotes entrepreneurship and reduces emigration to rural areas, thus enabling the involvement of new, different social groups in agricultural activities and contributing to improved employment [Azadi and Ho 2010, Peramaiyan et al. 2011, Ward and Reynolds 2013]. The issue of finding a balance between quantitative and qualitative indicators of food production is a scientific problem, the importance of which lies in adapting contemporary agri-food production to the principles of sustainable development aimed at environmental protection. It should

be mentioned that sustainable development is only possible when all people are provided with food and are well nourished, i.e. the condition of food security is met [FAO 2020, Tabe-Ojong et al. 2022].

Growing awareness of the environment and numerous food-related hazards, such as dioxins, prions responsible for bovine spongiform encephalopathy, and bacterial contamination, have significantly reduced consumer confidence in food quality in recent decades. Additionally, intensive conventional farming can lead to additional contamination of the food chain. For these reasons, consumers are increasingly looking for safe and higher quality food products that are produced in a more ecological and authentic way, often through local production systems. It is worth noting that food and food products grown and grown in accordance with ecological principles meet the growing expectations of consumers [Rembialkowska 2007]. In recent years, organic farming as a method of cultivation has been gaining more and more popularity. Organically grown food has become one of the best choices for both consumers and farmers. Organic products are an integral part of ecological strategies and lifestyles [Dangour et al. 2010].

Lord Northbourne stated that "the farm itself should have full biological integrity; it should be a living entity that contains within itself a harmonious organization of life". Furthermore, Lord Northbourne [2003] defined organic farming as "ecological production management that promotes and enhances biodiversity, biological life cycles and biological activity in the soil". According to Carl Winter and Sarah Davis [2006], organic farming is based on "minimal use of off-farm inputs and management practices that restore, maintain and enhance ecological harmony". Maria Magnusson et al. [2003] and Kristen Brandt and Jens Peter Mølgaard [2001] noted that the growing demand for fresh, organically grown produce has aroused interest from both consumers and producers in terms of the nutritional value of food, regardless of whether it is organically grown or conventional. Organic farming plays a key role in environmental protection. Additionally, organic farms are better adapted to maintaining biological diversity thanks to crop rotation practices compared to conventional farms.

Despite the modernization of agriculture that began in the early 1960s, organic farming has greater potential for niche and export markets than conventional agriculture due to higher prices. Organic farming occurs in some parts of the world because of its potential to solve some important problems such as environmental degradation and biodiversity loss [Yoshino 2010]. Economically, organic farming is a sustainable option for smallholder farmers to improve food security and overall farm income outcomes, and it can be said that an increase in household income can increase food security [Chhabra 2012, Omidi Najafabadi 2014]. Reasons that encourage farmers to opt for organic farming are the increase in product prices and, consequently, the increase in profits from the sale of these products and the lack of intermediaries who could sell them. Organic farming uses existing local resources instead of intensively using capital resources, so that poor farmers

can improve the productivity and fertility of their farms while avoiding dependence on costly external inputs. Organic farming can increase productivity and incomes, thereby contributing to improved food security. There are many economic opportunities that lead to increased added value of organic products through processing and marketing activities and improved food security in the long term [Torjusen et al. 2001]. Taking into account the importance of the topic of organic farming in the context of both food safety and sustainable development and potential benefits for farmers, the topic of characterizing the situation in Polish organic farming against the background of selected European countries was undertaken. The study aims to assess the situation of Polish organic farming compared to selected European countries.

MATERIAL AND METHODS

The research methodology is based on data obtained from three main sources: Research Institute of Organic Agriculture, Central Statistical Office and literature studies. The first research stage was to conduct a detailed literature review. The identification of key challenges, trends and benefits of organic agriculture practices enabled the building of a solid theoretical basis for further research. The next stage of the research was to collect data on the state of organic production in selected European countries. This data was obtained from Research Institute of Organic Agriculture as part of the analysis, information was collected on production volume, crop structure, and consumption of organic food. Comparison of these data allowed the identification of best practices and factors determining success in organic farming. The next research phase focused on analyzing the state of organic farming in Poland. Statistical data obtained from the Central Statistical Office included the area of organic crops, the number of organic farms and development trends. This immersion in national specificity allowed for understanding the context of Polish organic farming and its evolution over time. Integration of conclusions from individual sources was a key research stage. Comparison and integration of results from the literature review, analysis of organic production in Europe and data on organic farming in Poland allowed for the identification of areas of convergence and differences. This analysis aimed to focus further research on key aspects affecting food security and healthy eating. The summary and conclusions of the paper constituted a synthetic assessment of the situation in Polish organic agriculture. This paper provides a picture of the situation of organic agriculture in Poland, which may be a valuable source of information for both decision-makers and practitioners striving for sustainable development of the agricultural sector.

RESULTS

ORGANIC FARMING IN SELECTED EUROPEAN COUNTRIES – A SHORT REVIEW

The analysis of the area of organic crops in selected European countries reveals significant differences between countries in this respect (as of 2021). France has the largest area of organic crops. In 2021, this area amounted to almost 2.8 million hectares. This indicates an active pursuit of sustainable food production and a response to the growing consumer demand for organic products in this country. In second place in terms of area is Spain with an area of over 2.6 million hectares, followed by Italy with an area of almost 2.2 million hectares. Poland, with over half a million hectares of organic crops in 2021, is in a solid position (11th place). Bearing in mind that individual European countries are characterized by great diversity, including: in terms of the area of arable land or agricultural land, the above analysis has been extended. Namely, data on the share of organic areas in the total area of agricultural land in individual countries in 2021 was analyzed (Figure 1). The analyzes carried out showed that Liechtenstein, despite the small area of the country and the small area of organic crops, presents a unique model with the share of this type of production at the level of 40.2%. The leaders in this respect also include Austria, where the share of organic production in total agricultural land in 2021 was 26.48%, showing systematic involvement in the development of organic agriculture. Estonia was also among

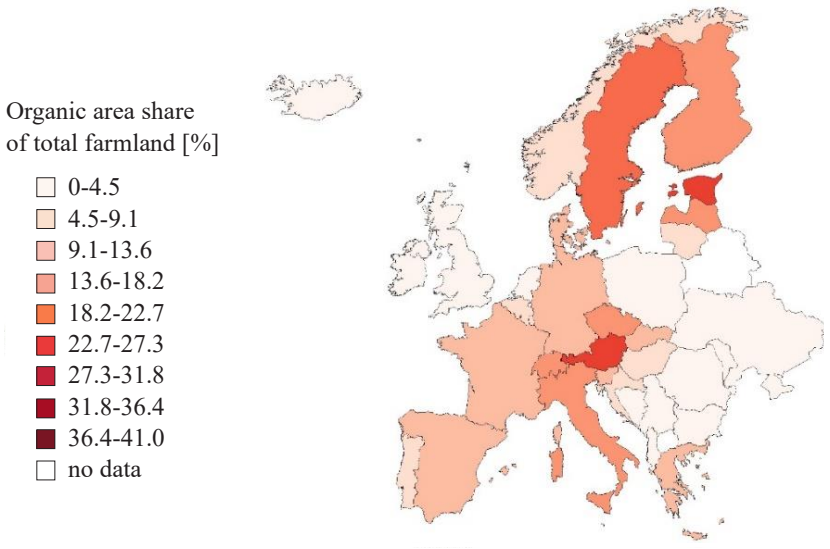

Figure 1. Organic area share of total farmland in selected countries in 2021
Source: own study based on statistical data Research Institute of Organic Agriculture FiBL

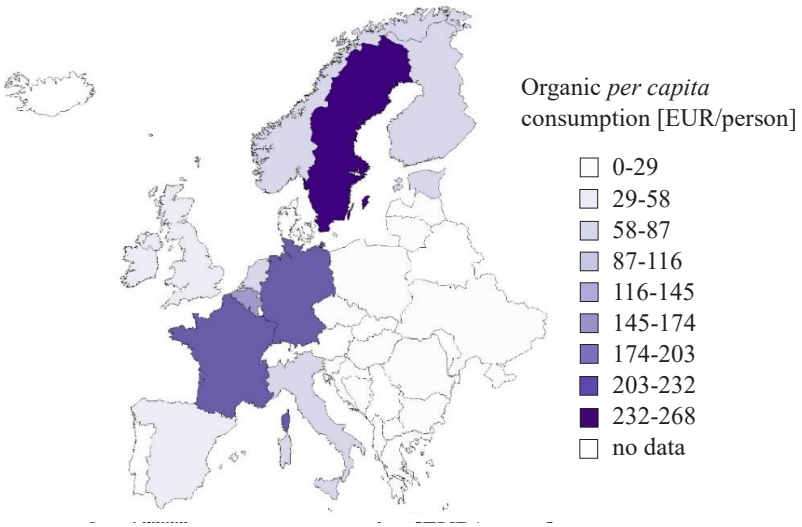

Figure 2. Organic *per capita* consumption (in the level of expenses on organic food) in selected countries in 2021

Source: own study based on statistical data Research Institute of Organic Agriculture FiBL

the top three countries, with a share of organic areas of 22.99%. Poland, although it has a significant area of organic crops, has a small share of the areas of these crops in the total agricultural area, i.e. at the level of 3.5%. It can therefore be suggested that it faces the challenge of harmonizing agricultural growth with environmental protection.

In an attempt to answer the question whether agricultural producers are able to meet consumers' expectations regarding the supply of organic food, the analysis covered expenditure on organic products *per capita* in selected European countries in 2021 (Figure 2). This analysis showed, as in the previous cases, significant differences. It can be concluded that Switzerland, presenting the highest expenses (424.56 EUR/person), indicates the readiness and financial capabilities of consumers to invest in organic food. This may result from the availability of high-quality products, awareness of health benefits, education and the financial ability of society to incur such expenses. Denmark came in second place, with expenditures of EUR 383.55 per person, which corresponds to a fairly well-developed market of organic products. Liechtenstein was also at the top, with high expenditures on organic products *per capita* (EUR 229.77), which may be due to the strong preference of the local community towards sustainable food practices. Poland will be ranked 22nd with expenditures of EUR 8.28 per person. It can be safely concluded that it is at a critical point where the increase in ecological awareness encounters economic challenges. It should be emphasized that consumer trends depend on local economic, cultural and social conditions, which are not the subject of analysis in this article.

ORGANIC FARMING – THE CASE OF POLAND

In order to present the organic food sector in Poland, data regarding the organic agricultural area in 2010-2021 was analyzed (Figure 3). It shows changes in the development of this sector against the background of the total area of agricultural land. Based on the data, it can be indicated that in Poland between 2010 and 2013 there was a significant increase in the area of organic crops, i.e. from 521,970 to 669,863 hectares. However, in the following years there was a gradual decline. As a result, since 2019 it has fluctuated around 509 thousand hectares. Despite some stabilization in later years, the level from the beginning of the analyzed period has not been achieved. It should be noted, however, that despite fluctuations in individual years, the trend in organic area share of total farmland remains at the level of 3.5%. Despite the decline in the area of organic crops since 2014, it is positive that this trend has stopped and has stabilized in recent years. The reasons for the decline in the organic production area since 2014 can be found in the difficulties associated with organic production, i.e. production costs, restrictions related to the limited use of plant protection products, as well as too low demand and price levels for this type of products.

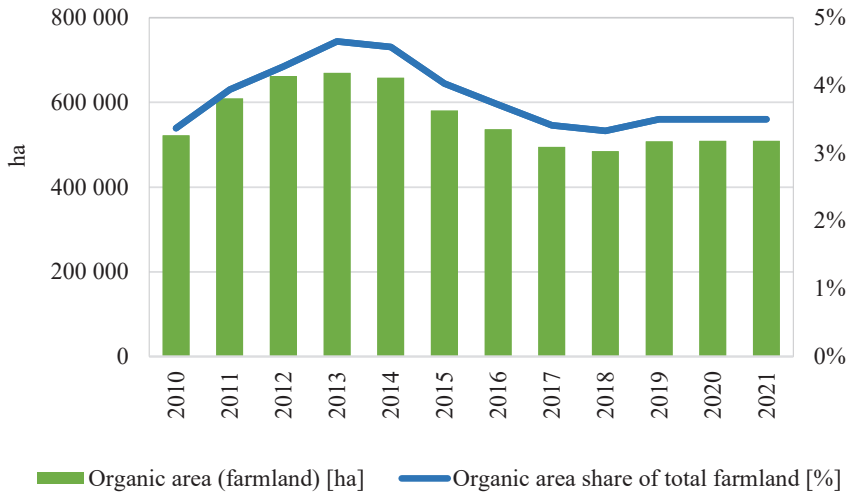

Figure 3. Changes in the level of organic area (farmland) and organic area share of total farmland in Poland in 2010-2021

Source: own study based on statistical data Research Institute of Organic Agriculture FiBL and Statistical Office Poland data

Analyzing the structure of agricultural areas according to different plant species is a key element in understanding the importance of individual organic crops in a given area. Figure 4 presents an extensive analysis of the share of individual organic crops in organic production in Poland. The dominant role in the structure of organic agricultural crops is played by rye production, i.e. 27% of the area of organic crops. It should be noted that this species is an economically important species in Poland, and the diversity of rye applications, including the production of food, feed and industrial raw materials, positions this grain as an important component of sustainable agriculture and ensuring the country's food security. The area of protein crops cultivation, which accounts for 21% of organic crops in the country, is part of the growing interest in the production of plants that are a valuable source of protein. This phenomenon may be the result of both changing consumer preferences guided by a healthy lifestyle and increased ecological awareness of society. The next most important crop was oats, i.e. 20% indicates the important role of this species in food and feed production. These grains are a key ingredient of many food products, which is important from the point of view of food security and at the same time they play an important role in maintaining the balance of agricultural ecosystems. Other important organic crops include berries (7%), apples (4%) and plumps (11%). It should be noted that these are fruit species that play an important role in the production of fruit and vegetables in Poland, also in conventional cultivation. Among other crops, this share was much smaller. It should be noted, however, that among the species there are crops that are important in nutrition.

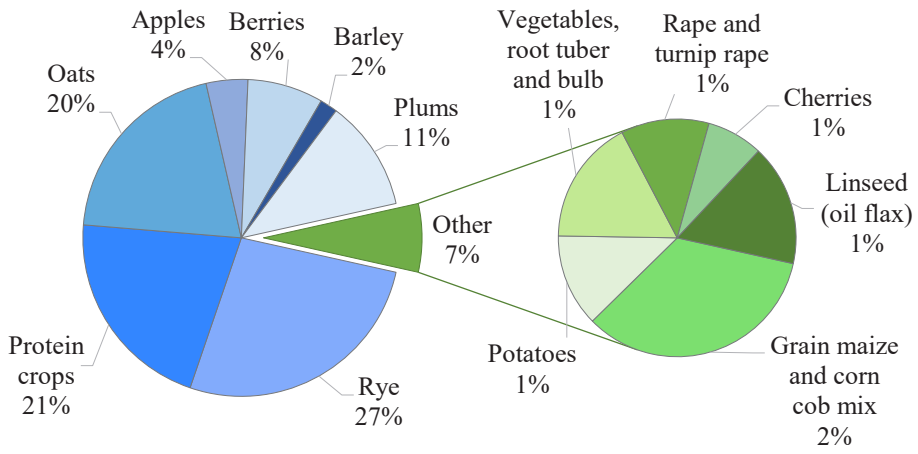

Figure 4. Structure of organic crops area for selected species in 2021

Source: own study based on statistical data Research Institute of Organic Agriculture FiBL

Table 1. Changes in the number of operators in the organic food sector, *per capita* purchase expenses of organic products, retail sales and the share of these products in retail sales in Poland in 2010-2021

Years	Number of organic						
	exporters	importers	processors	producers	*per capita* expenses [EUR/ person]	retail sales [million EUR]	retail sales share [%]
2010	-	14	249	20,578	2.62	100	0.23
2011	-	17	260	23,430	3.15	120	0.28
2012	33	30	312	25,944	3.15	120	0.28
2013	50	46	407	25,944	3.15	120	0.28
2014	71	68	484	24,829	3.15	120	0.28
2015	107	92	562	22,277	4.39	167	0.39
2016	180	120	705	22,435	4.39	167	0.39
2017	216	161	795	20,257	6.15	235	0.51
2018	249	208	533	19,224	6.59	250	0.53
2019	256	238	636	18,655	8.28	314	0.62
2020	319	267	668	18,598	8.28	314	0.62
2021	319	267	668	18,598	8.28	314	0.62

Source: own study based on statistical data Research Institute of Organic Agriculture FiBL

Analysis of data on the number of companies involved in the organic food sector in Poland in 2010-2021 shows the dynamic development of this industry and variable trends in individual segments (Table 1). In the case of exporters of organic products, there is a systematic increase from 33 companies in 2012 to 319 in 2020-2021. This significant increase may indicate the growing interest of Polish enterprises in foreign markets and the developing export capacity of this sector. During the analyzed period, the number of importers also increased from 214 in 2010 to 267 in 2020-2021. This suggests that while there is growing interest in importing organic products, the rate of growth is somewhat more stable than that of exporters. The segment of processors also shows significant growth, the number of which increased almost three times over the analyzed period. From the point of view of the organic production potential in Poland, it seems important to analyze the number of agricultural producers specializing in organic crops. As indicated by the data presented in the table below, the largest increase in the number of farmers specializing in organic crops occurred in 2012-2013, when this value reached the level of

23,944 producers. In the following years, there is a noticeable reduction in this number, to a level of approximately 18,600 agricultural producers specializing in organic production (as of 2019).

To sum up, the analysis of data regarding companies exporting, importing, processing and producing organic products in Poland shows the dynamic development of this industry. The increase in the number of exporters and importers may indicate the growing role of Poland in the international arena in the context of organic products.

Analysis of data on expenditure on the purchase of organic products per person, retail sales and the share of these products in retail sales in Poland in 2010-2021 shows significant changes on organic products market. In the context of the purchase level, there is a significant increase from EUR 2.62 per person in 2010 to EUR 8.28 per person in 2019-2021, which indicates a more than three-fold increase in this level. This proves the evolving preferences of consumers who are more and more willing to choose organic products and are ready to pay a higher price/spend more for the value of food with higher quality standards. As spending on organic food increases, the value of retail sales of organic products also increased from EUR 100 million in 2010 to EUR 314.12 million in 2019-2021. This dynamic growth may be the result of both growing demand and increased availability of organic products on the market. It is worth noting that despite a significant increase in consumption per person (indicated in the form of expenditure on organic food), retail sales are growing proportionally, which may suggest maintaining a balance between supply and demand. The share of organic products in retail sales is also gaining importance, increasing almost three times over the period under study, i.e. from 0.23% in 2010 to 0.62% in 2019-2021. This is an important phenomenon, proving the gradual increase in the role of organic products in the overall structure of the food market.

CONCLUSIONS

The analyzes conducted showed that the market for organic agricultural products in European countries is characterized by significant diversity. It should be noted that countries where the level of organic production and interest in purchasing these products are high may become role models for other countries where this development is just beginning. At the same time, countries with lower levels of production and lower retail sales values must face challenges related to consumer education and the availability of ecological products. Increasing social awareness and investing in market development are becoming key to overcoming these barriers. On the other hand, retail leadership countries play a key role in shaping Europe's organic agricultural products landscape, both as consumers and as a source of revenue for producers on the continent. Their effective promotional and regulatory strategies are fundamental for the further development of the sector on

a European scale. To sum up, the analysis of these data allows us to draw conclusions about the growing importance of agriculture and the organic market in Europe, with particular emphasis on Poland. Increase in expenses on organic food, trade, and involvement of producers and consumers in the organic sector is a promising trend, suggesting increased interest in and trust in organic products. In the context of global challenges related to sustainable development, the development of the organic sector is becoming an important element in the transformation of agricultural and food systems in Europe. Bearing in mind that the share of organic products in the total agricultural area in Poland is 3.5%, it can be suggested that this market faces the challenge of harmonizing agricultural growth with environmental protection. Also, Malta, as a country with a small share of organic areas (0.61%), may constitute a research area in the identification of limiting factors and potential measures to support the development of organic farming in conditions of limited space. To sum up, the analysis of retail sales data of organic agricultural products in Europe shows not only significant differences between countries, but also clear trends and potential for the development of the organic sector. High sales values are usually associated with a developed organic market, effective promotional strategies and growing consumer awareness. In contrast, countries with lower values may face challenges related to accessibility, consumer education and overall sector development. Further research into the specificity of each market and analysis of the impact of cultural, social and economic factors are key to a more complete understanding of this dynamic area and to effectively support its further development. It is believed that the changes presented in the paper are not only a reflection of changing consumer preferences, but also the result of producers' activities and promotional activities of the organic sector. The long-term application of such analyzes may contribute to understanding the mechanisms shaping the organic food market, which is crucial for the further development of this industry. Despite the data included, this paper contains some limitations. Firstly, there are data limitations, i.e. it is mostly secondary data. Although the data refer to quantitative aspects, the article may not include an analysis of the quality of organic products, which is an important element in the context of healthy eating. Moreover, the paper does not take into account aspects such as cultural conditions in individual European countries or regional differences in Poland. Moreover, in order to fully assess consumer interest in purchasing organic products, attention should be paid to the dynamic impact of many factors, such as the price of organic products, social awareness, availability and local consumer preferences, which is planned in future analyses. A more complete understanding of these aspects is crucial for the effective shaping of promotional strategies and the long-term development of the organic products market in individual countries. Recognizing these limitations, the authors are working to collect further data to address these limitations in the future and, if possible, expand the scope of the analysis to provide a more comprehensive view of organic farming.

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STAN POLSKIEGO ROLNICTWA EKOLOGICZNEGO NA TLE INNYCH KRAJÓW EUROPEJSKICH

Słowa kluczowe: rolnictwo ekologiczne, produkcja ekologiczna, produkty organiczne, bezpieczeństwo żywnościowe, konsumpcja żywności ekologicznej

ABSTRAKT. Celem badania była ocena sytuacji rolnictwa ekologicznego w Polsce na tle wybranych krajów europejskich. Przedstawiono strukturę polskiego rolnictwa ekologicznego. Ze względu na złożoność analizowanych zagadnień zastosowano holistyczne podejście do tematu. Do badań wykorzystano dane pochodzące z Instytutu Badawczego Rolnictwa Ekologicznego (IBRE) i Banku Danych Lokalnych GUS, a także zastosowano przegląd literatury przedmiotu. Wyniki badań wskazują na rozwój sektora produkcji ekologicznej w Polsce, co jest zjawiskiem pozytywnym w kontekście zapewnienia bezpieczeństwa żywnościowego i upowszechniania kultury zdrowego odżywiania. Jednak analizy wykazały, że w Polsce, pomimo znaczącej powierzchni upraw ekologicznych, jej udział w ogólnej powierzchni użytków rolnych jest niewielki i wynosi około 3,5%, czyli ponad 10-krotnie mniej niż w wiodącym pod tym względem Liechtensteinie. Wynik ten plasuje Polskę dopiero na 27. miejscu w rankingu na tle innych krajów europejskich. Jednocześnie wskazano na potrzebę propagowania praktyk rolnictwa ekologicznego w celu zwiększenia jego znaczenia w całkowitej produkcji rolniczej kraju. Uzyskane wyniki analiz świadczą o rosnącym znaczeniu polskiego rolnictwa ekologicznego i powiązanego z nim rynku. Wzrost wydatków na żywność ekologiczną, rozwój handlu oraz zaangażowanie producentów i konsumentów w sektorze ekologicznym to obiecujący trend, sugerujący wzrost zainteresowania i zaufania do produktów ekologicznych.

AUTHORS

ANNA SOBCZAK, MSC ENG.
ORCID: 0000-0003-0383-5372
Warsaw University of Life Sciences – SGGW
e-mail: anna_sobczak@sggw.edu.pl

WIOLETA SOBCZAK-MALITKA, PHD
ORCID: 0000-0003-3812-3877
Warsaw University of Life Sciences – SGGW
e-mail: wioleta_sobczak@sggw.edu.pl

EMILIA SOBCZAK
ORCID: 0009-0009-3410-7408
Warsaw University of Life Sciences– SGGW
e-mail: sobczakemilia2018@gmail.com

GRZEGORZ MALITKA
ORCID: 0009-0003-2765-5349
Warsaw University of Life Sciences – SGGW
e-mail: grzegorz.malitka91@gmail.com

TOMASZ SAMBURSKI
ORCID: 0009-0009-1695-4697
Radom Academy of Economics, 26-610 Radom
e-mail: tomasz.samburski@interia.pl

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