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# EUROPEAN GREEN DEAL: INDICATION OF DIRECTIONS FOR THE TRANSFORMATION OF AGRICULTURAL LAND USE IN POLAND INTO ORGANIC FARMING

JOLANTA JEŃKOWSKA

## Abstract:

Organic agricultural land use in the European Union is one of the assumptions and challenges of the European Green Deal, also for Poland, where the share of organic agricultural land is among the lowest in Europe. With a share of 3.5% (2019) of organically farmed area, against an EU average of 8.1%, Poland ranks 23rd in the EU in this respect, out of 27 EU countries (Eurostat).

The purpose of this study is to indicate the directions of transformation of agricultural land use in Poland to organic farming in order to achieve 25% of organic agricultural land by 2030, according to the assumptions of the European Green Deal.

The study uses literature analysis, reports of the Agricultural and Food Quality Inspection (2004-2020), EUROSTAT data and the method of data aggregation from the level of communes to the level of entire Poland.

Due to the fact that the level of development of organic farming in Poland depends on many conditions, including natural ones, the article identifies the agricultural production space valuation ratio developed by the Institute of Plant Cultivation, Fertilisation and Soil Science in Puławy as the basis for calculating the preferred area of organic farmland. On its basis the areas of agricultural land fulfilling the condition of occurrence of adequate natural factors, called "location rent", were calculated for particular Polish voivodships.

The model for calculating the size of organic farmland can be used as an auxiliary research tool in work on drawing up strategic plans for the development of organic farming and rural areas in Poland and in other countries in order to maintain the principle of sustainable development, which is the overarching goal of the European Green Deal strategy.

## Keywords:

European Green Deal, European Union, sustainable development, organic farming

**JEL Classification:** Q01, R11, Z13

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## INTRODUCTION

Reaching 25% organic farming land as per the assumptions of the European Green Deal is a huge challenge for Poland, particularly given that it is currently at 3.47% (2020) and is comparable to the average level of organic farming land in the EU in 2005, when it was at 3.8%.

The objective of this article is to show a direction for the transformation of agricultural land use into organic farming. In the first part of the article, the assumptions of the EGD are presented in the context of sustainable development, and then the definition of organic farming and its participation in the overall size of agricultural land in Poland is presented. Next, natural conditions are highlighted as one of the factors that determine the development of organic farming in Poland. Using the agricultural production space evaluation coefficient, the size of the areas representing the potential for organic use was calculated. In the summary, the size of these areas in specific voivodships is indicated, whose sum for the territory of Poland exceeded the planned area limit of 25%. The studies were conducted based on an analysis of the literature, IJHARS reports and Eurostat.

## THE ORIGIN OF THE ASSUMPTIONS OF THE EUROPEAN GREEN DEAL IN THE LIGHT OF THE DEFINITION OF SUSTAINABLE DEVELOPMENT

The European Green Deal is a new strategy for growth, aimed at transforming the European Union into a fair and prosperous society with a modern resource-efficient and competitive economy assuming zero greenhouse gas emissions by 2050 while decoupling economic growth from the use of environmental resources (FAO, 2022). It also aims to implement the assumptions of Resolution 70/1 – the 2030 Agenda for Sustainable Development adopted in 2015 – which assumes a plan for sustainable development in terms of ecological, economic and social aspects called the "Triad of Sustainable Development", whose action plan for feeding the citizens of the planet and for improving their lives in safety and peace while maintaining environmental resources contains 17 related goals and 169 related actions (UN, 2015). The source of the United Nations 2030 Agenda is earlier actions by both the UN and the report of the "Club of Rome" founded in 1968, which is an independent, international, non-profit NGO. This report entitled "The Limits to Growth" contains an analysis of mankind in the face of an increasing population and diminishing environmental resources (Meadows, Meadows, Randers, Behrens, 1972). The report highlighted the need to maintain a global balance. While in times of the Industrial Revolution, the difference between the richest and the poorest countries, measured in GDP per capita, was negligible, it was 68 times higher in the 1960s, whereas now it is 456 times higher (Čermáková, Proházka, Kureková, Rotscheld, 2020). The European Green Deal, developed by the EU, assumes a transformation of the EU's economy into a sustainable future based on a circular, knowledge-based economy, while achieving a "self-sufficient" system in the economic, environmental and social spheres. The areas of action covered by the strategic plan include 2030 and 2050 climate neutrality; delivering clean, affordable energy; introducing a circular regenerative economy model; achieving energy efficiency; introducing sustainable and intelligent mobility; designing a fair, healthy and environmentally friendly food system called the "Farm to Fork" strategy; and to ensure and restore ecosystems and biodiversity (European Commission, 2020).

## EUROPEAN GREEN DEAL AND THE PERCENTAGE OF ORGANIC LAND IN POLAND

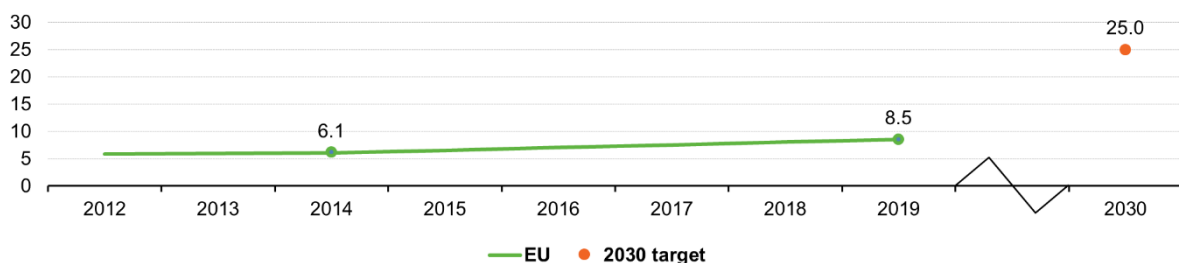
Organic farming that is part of the European Green Deal strategic plan is included in both the "Preserving and restoring ecosystems and biodiversity" action and the "Farm to Fork – designing a fair, healthy and environmentally friendly food system" action. The creation in 1972 of global standards for organic farming developed by IFOAM – the International Federation of Organic Agriculture Movements – has contributed to the promotion of this form of food production and consumption as the most sustainable. In Member States of the European Union, the development of organic farming occurred together with the 1991 introduction of Regulation (EEC) 2092/91 on organic products and indications referring thereto, and with the reform of the Common Agricultural Policy in 1992. In 2007, after the publication of Regulation 847/2008, organic farming was defined as an overall system of farm management and food production that combines best environmental practices, a high level of biodiversity and the application of high animal welfare standards (European Commission, 2007). Currently, a new regulation has been in force from 1 January 2022 – Regulation (EU) 2018/848 of the European Parliament and of the Council repealing Regulation (EC) 847/2008, in which on top of additional regulations, the import of organic products from third countries is restricted within the EU in line with the principle of equivalence.

The objectives of the European Green Deal strategic plan related to organic farming are implemented as per Goal 2 of the UN 2030 Agenda – "Zero Hunger", contributing to the sustainability of agricultural production. In the EU, the percentage of organic farming in the total agricultural area in 2014 – 2019 increased by 2.4% to 8.5% in 2019 (Eurostat, 2021).

Chart 1

### Area under organic farming, EU, 2012-2019

(% of utilised agricultural area)



Note: 2017-2019 data are estimated or provisional.

Source: Eurostat (online data code: sdg\_02\_40)

eurostat 

In Poland, the Ministry of Agriculture and Rural Development defined the dual nature of organic farming – not only is it a production system that positively affects the natural environment, but it is also a response to the changing structure of market demand and increasing consumer awareness (MRiRW, 2021).

With Poland's accession to the European Union in 2004, the size of the organic farming area in Poland began to increase, which was largely due to, inter alia, institutional support systems in the form of subsidies for areas of certified organic farming land. In this period 2004 -2013, the support policy made public funds available to subsidy seekers interested in payments rather than in organic production and in quest of a political rent, defined as an inappropriate benefit or reward not related to generating additional assets. The greater the political quest for

rent, the harder it is to implement the principles of social cohesion because the part of assets which is not invested in production activities has a detrimental effect on the efficiency of asset allocation (Łuczka, Kalinowski, Shmygol, 2021).

From 2004 (82,730 ha) to 2020 (509,291 ha), this area increased by 615.6%. In Poland, the area of agricultural land is 14.7 million hectares (Statistical Yearbook, 2019), of which the organic farming area is 509,291 ha (IJHARS, 2020) and constitutes 3.47% of the agricultural area. In EU, a similar percentage was seen in 2005 (3.8%). Assuming a 25% allocation of agricultural land in Poland to organic farming, the area of organic farming land in 2030 will amount to 3,675,000 ha, which is an increase of 721% compared with the area of organic farming land in 2020.

In Poland, out of 16 voivodships, three achieved a percentage of organic farming land that is higher than the EU average (8.5%). These are the Zachodniopomorskie (12.3%), Warmińsko-Mazurskie (11.47%) and Lubuskie (11.11%) voivodships. The size of the organic farming land area in two of these voivodships is also the largest in all of Poland: in Zachodniopomorskie (101,507 ha) and in Warmińsko-Mazurskie (108,808 ha). The smallest percentage (below 1%) of organic farming land is found in the Kujawsko-Pomorskie (0.65%), Opolskie (0.68%) and Śląskie (0.93%) voivodships (IJHARS, 2021). Given that the European Green Deal and its "Farm to Fork: designing a fair, healthy and environmentally-friendly food system" action assume, under the greening of the Common Agricultural Policy, an allocation by 2030 of at least 25% of agricultural land in the EU to organic farming, the author of the article indicates the direction of transforming the use of agricultural land in Poland into organic farming.

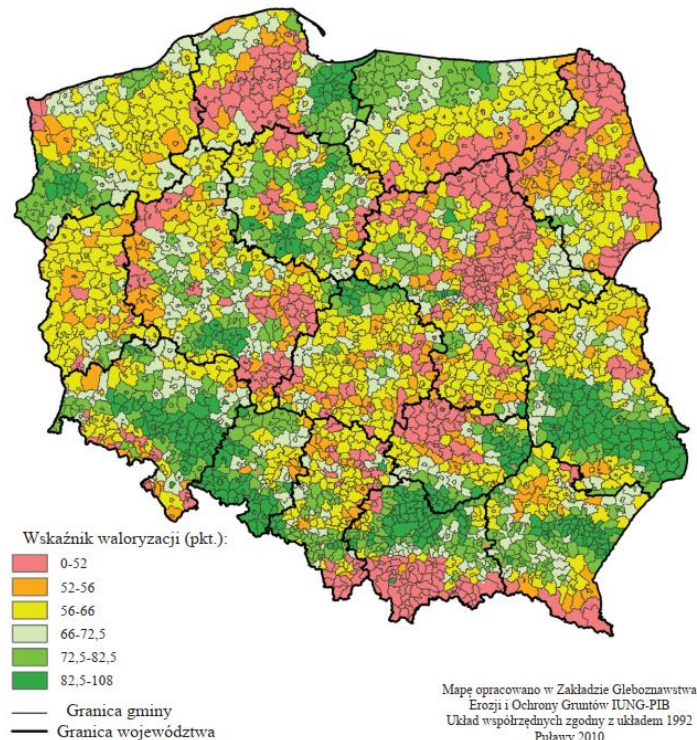
## **NATURAL CONDITIONS AS A DETERMINING FACTOR IN THE DEVELOPMENT OF ORGANIC FARMING IN POLAND**

The conditions for the development of organic farming in specific regions are determined by many factors, which can be catalogued into four categories: natural (agricultural suitability of soils) and operational conditions, such as size, production structure and farm profile, sowing structure, form of ownership (ownership or lease), as well as socio-economic conditions (for example, membership in organisations that promote organic farming and the health importance of organic food, distance to processing plants, consumer market) and socio-business factors, i.e. the amount of subsidies for organic farming, the presence of protected landscape areas (especially nature and water) (Bichler, Häring, 2003). Research conducted by the Institute of Agricultural Economics at the University of Hohenheim in Germany showed that one of the factors determining the spatial distribution of organic farms is natural conditions, in particular, the agricultural usefulness of soils (World Reference Base for Soil Resources) presented on a scale from 0 to 100, whose components include soil quality, topography, climatic conditions and water conditions.

In Poland, the entity that developed the first soil and agriculture maps in the 1960s was the Institute of Soil Science and Plant Cultivation in Puławy. At the end of the 20th century, the maps started being developed using digital methods, thanks to which in 2010, a digital soil and agriculture map of Poland was created. Based on information contained in the soil and agriculture map, the above-mentioned institute in Puławy developed the agricultural production space evaluation coefficient (WWRPP), in which the point-based grading system comprised the components of the natural environment, such as soil quality, agroclimate, topographical

relief and water conditions. The evaluation coefficient synthetically presents an assessment of the entire natural environment of rural areas for the needs of conducting agricultural activity (Jadczyzyn, Smreczak, 2017).

**Map 1: Map of the evaluation of Poland's agricultural production space**



Source: IUNG, 2017

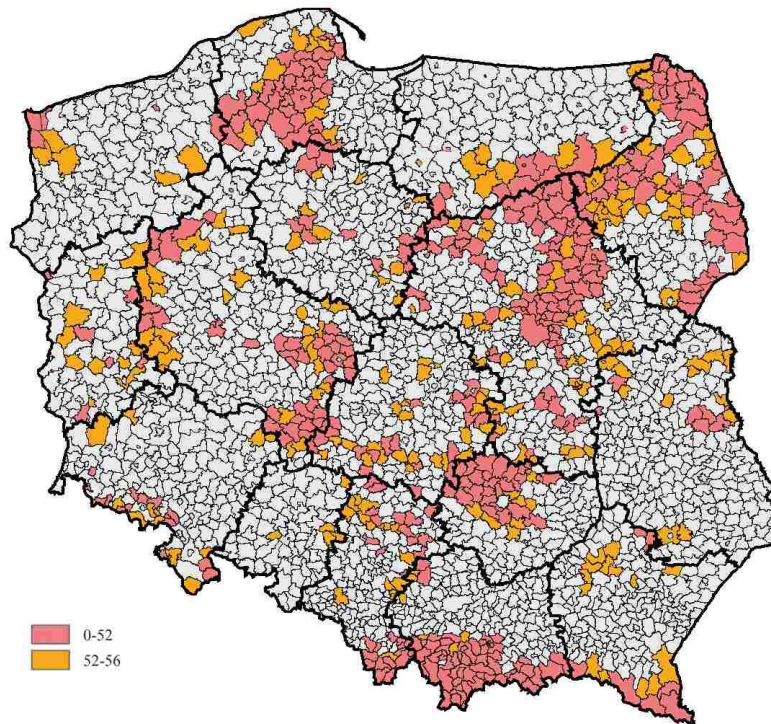
The agricultural production space evaluation coefficient (WWRPP) was used by the author of the article to determine the preferred areas of agricultural land in individual voivodships, favourable to use using organic methods.

## INDICATION OF DIRECTIONS FOR THE TRANSFORMATION OF AGRICULTURAL LAND IN POLAND INTO ORGANIC FARMING USING THE AGRICULTURAL PRODUCTION SPACE EVALUATION COEFFICIENT

Economic analyses carried out by the Institute of Agricultural Economics at the University of Hohenheim in Germany showed that a higher agricultural production value of the soil is a factor hindering the running of organic agricultural farms on more-productive lands (Bichler, Häring, 2003). The results regarding the influence of natural conditions were confirmed by the research conducted by the Institute of Rural and Agricultural Development, Polish Academy of Sciences. The analysis of the distribution of organic farms shows that municipalities with the highest number of organic farms are characterised by lower values of the valorisation index of agricultural production space, lower agricultural production efficiency and more than 50% of the area of legally protected areas (Gradziak, Matyka, Poczta, Czerniak, Czubak, Jończyk, Kopiński, Kozyra, Pawlak, Sadowski, Siebielec, Stalenga, Wawer, Zawalińska, Berbeć, Krupin, Madej, Skowron, Jendrzewski, Komisarek, Łopatka, Wojciechowska, Klepacki, Wrzaszcz, Gradziuk, Trocewicz, 2021). Gives these results, assuming that Poland will reach 25% certified

organic farming land by 2030, this article presents a direction for the transformation of agricultural lands in Poland into organic farming. The basis for the calculation of the proposed area is the map with the agricultural production space evaluation coefficient. An analysis of data was carried out at the level of voivodships and the data aggregation method for features provided at the commune level to the level of Poland was used to calculate individual areas for voivodships". "Commune" has been defined in Poland as a basic unit of the lowest level of the basic three-tier territorial division of the country. As at 1 January 2021, the administrative division of Poland included 2,477 communes (including 302 municipal communes, 652 municipal and rural communes, and 1,523 rural communes) located in 16 voivodships (Statistics Poland, 2022). In the development of directions for the transformation of agricultural land in Poland into organic farming, calculation of the area was made using data related to the size of the agricultural land in communes with the lowest evaluation coefficients in the 0–56 point bracket.

**Map 2: Map of the evaluation of Poland's agricultural production space in the 0-56 point bracket**



*Source: own work based on the map of the evaluation of agricultural production space*

The aggregated sum of the area of agricultural land in communes in Poland with an evaluation coefficient in the 0–56 point bracket, characterising agricultural land as very poor and poor in terms of the evaluation of agricultural production space, is 3,937,475 ha, which at a total agricultural land area in Poland of 14,669,024 ha is 26.84%. In half of the voivodships studied, the areas with the highest percentage of the evaluation coefficient in the 0–56 point bracket exceeding 25% of the area the following voivodships: Podlaskie: 681,536 ha (64.47%), Pomorskie: 382,385 ha (50.93%) Małopolskie: 251,028 ha (45.06%), Śląskie: 159,079 ha (42.77%), Świętokrzyskie: 183,784 ha (39.06%), Mazowieckie: 726,114 ha (33.80%), Łódzkie:

291,581 ha (29.30%), and Podkarpackie: 159,079 ha (29.09%). In the above-mentioned voivodships, the percentage of certified organic agricultural land is currently less than 5% (table 1).

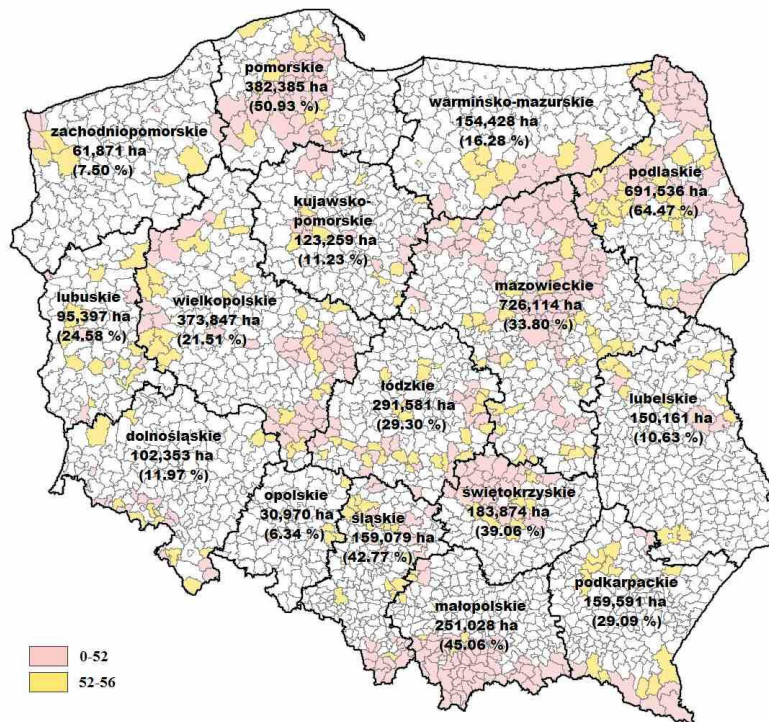
The voivodships with the lowest share in the 0–56 point category are: Opolskie: 30,970 ha (6.34%), Zachodniopomorskie: 61,871 ha (7.50%), Lubelskie: 150,161 ha (10.63%), Kujawsko-Pomorskie: 123,259 ha (11.23%), Dolnośląskie: 102,353 ha (11.97%), Warmińsko-Mazurskie: 154,428 ha (16.28%), Wielkopolskie: 373,847 ha (21.51%) and Lubuskie: 95,397 ha (24.58%). In the Lubuskie and Wielkopolskie voivodships, the percentage share in the 0–56 point category is close to the 25% level planned in the European Green Deal strategy and is 24.58% and 21.51% respectively. The Zachodniopomorskie voivodship, whose share in the 0–56 point category is the lowest, is currently the leader in having the most certified organic farming land – 101,507 ha and the highest percentage share in certified organic farming land compared with its overall area in the country (12.3%). Poland reaching 25% certified organic farming land by 2030 will result in the need to transform the use of some of the agricultural land from conventional use to organic use.

**Table 1: Size of agricultural land in Poland taking into account the evaluation coefficient in the 0–56 point bracket (ha)**

Voivodship	Total area	Area of certified organic agricultural land		Area of land according to the agricultural evaluation coefficient, level 0–56 points		Target area of organic land by 2030 (as per the EGD)	Area indicated for transformation of land from conventional to organic
	ha	ha	% share	ha	% share	ha	ha
1	2	3	4	5	6	7	8
dolnośląskie	855 087	30 481	3,56	102 353	11,97	3 667 256	71 872
kujawsko-pomorskie	1 097 622	7 093	0,65	123 259	11,23		116 166
lubelskie	1 413 267	28 357	2,01	150 161	10,63		121 804
lubuskie	388 070	43 126	11,11	95 397	24,58		52 271
łódzkie	995 184	9 953	1,00	291 581	29,30		281 628
małopolskie	557 114	8 360	1,50	251 028	45,06		242 668
mazowieckie	2 148 222	41 218	1,92	726 114	33,80		684 896
opolskie	488 568	3 324	0,68	30 970	6,34		27 646
podkarpackie	548 548	12 726	2,32	159 591	29,09		146 865
podlaskie	1 072 680	52 415	4,89	691 536	64,47		639 122
pomorskie	750 770	20 792	2,77	382 385	50,93		361 593
śląskie	371 897	3 460	0,93	159 079	42,77		155 618
świętokrzyskie	470 743	8 340	1,77	183 874	39,06		175 534
warmińsko-mazurskie	948 701	108 808	11,47	154 428	16,28		45 619
wielkopolskie	1 737 617	29 330	1,69	373 847	21,51		344 517
zachodniopomorskie	824 934	101 507	12,30	61 871	7,50		-39 636
<b>Total area</b>	<b>14 669 024</b>	<b>509 291</b>	<b>3,47</b>	<b>3 937 475</b>			<b>3 667 256</b>

Source: own work



**Map 3**

Source: own work

The calculated area of agricultural land in the 0–56 point evaluation bracket, being at 3,937,475 ha is 107.37% of the 25% level of organic farming land (3,667,256 ha). Column 8 in the above table means the size of the additional area of agricultural land in Poland that would be preferred for transformation from conventional to organic use. As regards the Zachodniopomorskie voivodship, the result means that the current size of the area of organic farming land is 39,636 ha higher than the preferred area calculated using the evaluation coefficient for the 0–56 point bracket. In the Opolskie, Warmińsko-Mazurskie and Lubuskie voivodships, the current size of the organic farming land areas and area calculated using the evaluation coefficient is the closest and is 27,646 ha, 45,619 ha and 52,271 ha respectively.

Increasing the present level of 3.47% share of organic farming compared with the overall area of all agricultural land in Poland to 25% will require a range of necessary changes. One of the documents that start this process was the document prepared by the Ministry of Agriculture and Rural Development – Framework Action Plan for Organic Food and Agriculture in Poland for 2021-2027. This plan assumes a series of actions involving, inter alia, the consolidation of the organic farming sector, the development of a compendium of knowledge for organic farmers to increase effective and safe organic production, an increase of the role of agricultural advisory centres, the raising of the awareness of producers and consumers about organic production and food, and the introduction of organic food into mass catering (MRiRW, 2021).

## STUDIES AND CONCLUSIONS

The above analysis regarding the setting of directions for the transformation of agricultural land in Poland into organic farming has highlighted natural conditions as one of the crucial factors that determine such a transformation. The use of the agricultural production space evaluation coefficient developed by the Institute of Soil Science and Plant Cultivation in Puławy has made

it possible to single out the size of agricultural land in Poland with the weakest evaluation level (0–56 points). Based on the calculations, it was shown that this area is 3,937,475 ha and is higher than the planned level to be achieved by Poland by 2030 of 25% organic farming land (3,667,256 ha). The analysis has allowed the author to determine that in Poland, the resource of the natural environment of rural areas for the purposes of organic farming activity is sufficient. The literature review did not reveal the topic of carrying out global studies in the above regard using the method of calculating preferred agricultural areas using the agricultural production space evaluation coefficient. The above analysis can be used as a helpful research tool in the work of expert teams aimed at creating framework strategic development plans related to the potential of the resources of the natural environment of rural areas for the needs of organic farming activity in Poland and in other countries that have a map of the country with an evaluation coefficient developed similarly to the map of the Institute of Soil Science and Plant Cultivation in Puławy. The use of analysed data can be helpful; however, this tool is not sufficient to single out communes that are predisposed to organic farming, because to holistically select organic agricultural land areas in a given region, one must at the same time also check the level of impact of other factors that determine the development of organic farming, such as operational, organisational, as well as socio-business and socio-economic factors. The Zachodniopomorskie voivodship, which was home mainly to State-Owned Agricultural Holdings after 1949, is an example of the need to conduct holistic studies. In this voivodship, the area of certified organic farming land (101,507 ha in 2020) is 64.06% higher than the size of the area of agricultural land arising from the calculation of areas using the agricultural production space evaluation coefficient (0–56 point level). Studies carried out in specific countries taking into account all the determinants of the development of organic farming will allow them to be used in the preparation of action plans for the development of organic farming, including those planned by 2030 under the "European Green Deal" strategy.

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