European Journal of Sustainable Development (2023), **12**, 1, 143-158 ISSN: 2239-5938
Doi: 10.14207/ejsd.2023.v12n1p143

Tendencies and Perspectives of Organic Farming Development in the EU – the Significance of European Green Deal Strategy

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Abstract
Organic system of agricultural production is particularly important in the context of agriculture sustainability. Taking into consideration sustainability premises, agricultural sector should deliver environmental, social and economic profits. One of the most important form of agriculture in this context is organic production. In 2019, the European strategy of Green Deal underlined the need of further and faster development of organic farms in the EU. The purpose of the paper is establishing current tendencies, as well as perspectives of organic farming development, including its market environment in the EU. The accent was focused on Poland`s situation and experiences. The period of the analysis covered the years 2012-2020. The data used in the research came from national institution Agricultural and Food Quality Inspection, Statistics Poland reports and papers, as well as database of Eurostat. Indicator analysis methods were used and trends were established.
The results of the study revealed, that during the analyzed period, organic farming developed in the EU. The main statistics, such as the number of organic farms and organic agricultural land improved significantly. The current trends in individual European countries in the field of development of the organic management system indicate, that this segment of the agricultural market has different significance in individual countries, which may also result from local economic and market conditions. Based on the research results, it was stated, that organic farming development in the EU – in the nearest further – will be challenging, especially in the context of the european strategic purposes, presented in Green Deal documents.

Keywords: organic farming, organic farms, agricultural land in organic system of production, organic processors, European Green Deal strategy, EU, Poland

1. Introduction

For several decades, the EU's common agricultural policy has been undergoing significant changes. The EU CAP is undergoing changes that can be attributed to an evolutionary nature (Siekierski 2020), and the beginning of pro-environmental reforms took place in the early 90s. These changes, as a result of successive reforms of the EU agricultural policy, increasingly refer to the need to introduce measures to protect the natural environment and its resources, as well as to stabilize the climate. The first such reform was MacSharry's reform (1992), which stresses the importance of extensification of agriculture and rural development. Then Agenda 2000 (1997), which was supposed to change the paradigm of the CAP. Further, the Fischler reform (2003) pointed to a change in the approach to the design of CAP instruments, highlighting the focus of Pillar II on environmental protection and rural development. Another reform was prepared in 2013 – introduced in 2015 – the aim of which was e.g. sustainable agriculture promotion, through

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the m.in so-called greening practices (Jambor, Harvey 2010; Wrzaszcz, Prandecki 2020). The European Commission issued a strategy paper on a new long-term strategy – in December 2019 – further emphasizing the need to strengthen sustainable practices in agricultural activities (European Commission 2019).

The European Green Deal is the next stage in the greening of human activity, affecting many spheres of activity, including agricultural activities. The main justification for the introduction of the next strategy was the insufficient effectiveness of previously carried out reforms and prepared development strategies. Sustainable transformation of sectors of the european economy should be the aim of community action (Prandecki, Wrzaszcz, Zieliński 2021). The European Green Deal, taking the 2050 perspective, outlined the direction of development of the m.in. agriculture, which should develop with respect for natural resources with the least possible negative impact on the climate. The European Green Deal aimed to strengthen actions, including that of the Member States, which would enable economic objectives to be achieved by applying actions that respect the environment and the climate (European Commission 2019). This Communication updates the commitments of European Union countries to address environmental and climate problems. Those problems were identified as the most important challenge for society in the World. Taking into account the significant agriculture impact on climate and natural environment, the quality of implemented agricultural practices, the farmer's way of proceeding, and including a set of standards and recommendations for agricultural production determines the need to care for the broadly understood environment (Wrzaszcz, Prandecki 2020).

The European Green Deal strategy indicated implementation of the Farm to Fork strategy and Biodiversity Strategy for 2030 (European Commission 2020a, European Commission 2020b). Those two strategies are key documents indicating the way of european agriculture transformation. The strategies are focused on agriculture sustainability, that means the need of equilibrium between nature, biodiversity, climate and food production and systems. Protection of natural resources and human health, as well as well-being is parallel with competitiveness and resilience of the EU's [Timmermans: https://ec.europa.eu/commission/ presscorner/detail/ en/IP_20_884]. Those two strategies indicated the need of reduction of fertilizers loses, antimicrobials and pesticides in agricultural activity. Parallel, organic farming – organic agricultural land – development is recommended. The value of food in the scope of nutritional benefits is the subject of consumer interests in the EU, that is enforcing. Such premise demands reduction of agricultural production intensity, as well as progress in development organic forms of agriculture. Consumers – society – expects food, that is safe, nutritious and of high quality, produced with the respect to nature and climate. To achieve this state, the changes in each food chain stage is needed. The first stage belongs to farmers, that determine the significance of production decisions in strategic european purposes achievement, precised in Farm to Fork strategy and Biodiversity strategy. There is expected, that farmers` decisions will consider production, environmental and climate premises.

Organic farms are one of the interesting and future-oriented forms of environmentally friendly agriculture. Their distinguishing feature is the use of organic methods of agricultural production – in accordance with the requirements of soil, plants and animals. Cultivation in organic system is conducted without agrochemicals, under controlled

production methods, thous this production system contributes to the biodiversity conservation and natural resources protection, simultaneously delivering high-quality food (Kristiansen, Taji, Reganold, 2006). These farms therefore contribute to maintaining soil fertility and protecting the environment from contamination and pollution of agricultural origin. As a rule, organic farms strengthen broadly understood food security, provide jobs and a source of income for agricultural families associated with them and promote the vitality of the countryside. Therefore, they fit into the concept of sustainable development of agriculture and rural areas. Organic farms are, so far, a niche form of agriculture, despite the fact that their number is growing rapidly (Stolze, Lampkin, 2009; Wachter, Reganold, 2014; Wrzaszcz, Zegar 2014; Łuczka, Kalinowski, Shmygol 2021).

According to EU strategic documents, in the perspective 2030, the area under organic farming should cover 20% of agricultural land in the EU (European Commission 2020a, European Commission 2020b). The main explanation of such desire point was the importance of this system of production for the environment and climate, as well as society expectations. In order to assess the real chances of reaching the adopted threshold, it is necessary to recognize the current pace and direction of changes in the organic area of agricultural land, as well as the development of the market environment of organic producers. Statistics to date have shown that the area of organic agricultural land has increased significantly in the world and in Europe over the years (Willer, Lernoud 2017), but the question is whether these are really sufficient changes to achieve the European strategic goal.

Many different factors can determine the development of organic farming, including market conditions translating into the prices of organic products, the volume of demand for organic products on a given market that is the effect of social awareness, as well as the possibilities and amount of subsidizing organic activities. Particular significance correspond with the support directed towards organic system of production (Watson 2006; Łuczka-Bakuła 2007, Babicz-Zielińska 2010). The factors also include the level of development of the environment of organic agricultural producers, which should include the number and scope of activities of organic operators involved in the preparation of organic products, processors, as well as units involved in the supply of certified seed to organic agricultural producers. The level of development of the environment of the agricultural producer, including the level of development of the institutional environment, significantly determines the development of organic supply (Czyżewski et al. 2008; Wrzaszcz 2022).

The war in Ukraine, which was initiated by Russia in February 2022, forces a need of international discussion on possible realization of European Green Deal goals. Caring for the environment and the climate, thereby promoting organic farming in Europe, may become a secondary issue in the face of the problem of ensuring food security in the world (Coe 2022). Parallel, the scientific community argues for strengthening ecological sustainability, including organic system of production, not abandoning it due to its wide significance (Hassen 2022; Pörtner et al. 2022). This situation also applies to the change in relations on international markets and changes in trade rules, or price conditions for food products (Glauber, Laborde, Mamun 2022). Taking this into account, despite the enormous environmental, climatic and social importance of organic farming, the objectives adopted in the European Green Deal may be delayed in terms of their full

implementation in perspective 2030. Report of CGIAR outlines the most important initiatives, that should be undertaken by policymakers to, on the one hand, minimize shocks of supply and price shocks, on the other hand, improve resilience of food systems in the context of crises, that can occur in the future (CGIAR 2022).
The purpose of the paper is establishing current tendencies, as well as perspectives of organic farming development, including its market environment in the EU. The accent was focused on Poland`s situation and experiences. Determining the current development path of organic farming in Europe is particularly important in the context of creating prospects for the near future for this segment of the agricultural market. A particularly important market element stimulating the development of the organic sector is the development of processing entities buying organic agricultural products.

2. Research method

The study used data resources published by EUROSTAT and Agricultural and Food Quality Inspection in Poland (AFQI). All used data were published on official websites of institutions.
The study took into account the entire population of organic farms, the area of organic agricultural land and the number of processors operating in the market environment of organic producers in individual European countries. The study takes into account 27 countries of the European Union.
The adopted research period covers 2012-2020, which presented the latest data on the organic market[1]. The research period corresponded to EUROSTAT data availability. Data concerning the next years (2021-2022) presently are not available.
The study used indicator analysis, establishing trends for the analyzed variables in analyzed European countries. The paper addresses the following issues that were connected with:

- one of the objectives of the European Green Deal, i.e. the area of organic agricultural land and the number of organic producers in total in the European countries,
- market environment of organic producers – the number of organic processors operating in the environment of an agricultural producers in the European countries.

Additionally, the ratio I_{OM_i} of the number of organic processors (x_1) and the number of organic farmers (x_2) has been established in each country and expressed in percentage (%). This indicator informed about the development of the organic market in agricultural sector in a given country (i) in the European Union country. The higher values of the indicator indicated the higher level of organic market development. It can be stated, that the more processors there were in a country, the greater farmers' interests should be observed in organic production.

Formula 1.
Estimated indicator of market development of organic products in agriculture (I_{OM_i}, %)

$$I_{OM_i} = \frac{x_{1_i}}{x_{2_i}} * 100$$

[1] The research dedicated the Polish market were presented in details in (Wrzaszcz 2022).

3. Research results

Based on the strategy of the European Green Deal, the statistical determinant of the state and development of agriculture is the share of agricultural area used according to the principles of organic farming. The area of organic agricultural land is the basic variable informing about the pro-environmental and pro-climate choices of farmers. Since 2012, the area of organic agricultural area has gradually increased in the EU, from 9.5 million ha to 14.7 million ha (in total: area after conversion and during conversion), i.e. by over 55% during the entire analyzed period (Fig.1, 2; Table 1). Currently, organic land covers 9% of the EU's agricultural area (Fig. 3). Taking into account one of the EU's strategic objectives, which outlines the need to increase the share of organic land to 25% of agricultural land in the perspective 2030, it can be considered very ambitious in the light of the statistics presented on the development of organic farming to date. Moving towards this goal will undoubtedly require the involvement of an institutional factor to encourage farmers to reorganize their farms.

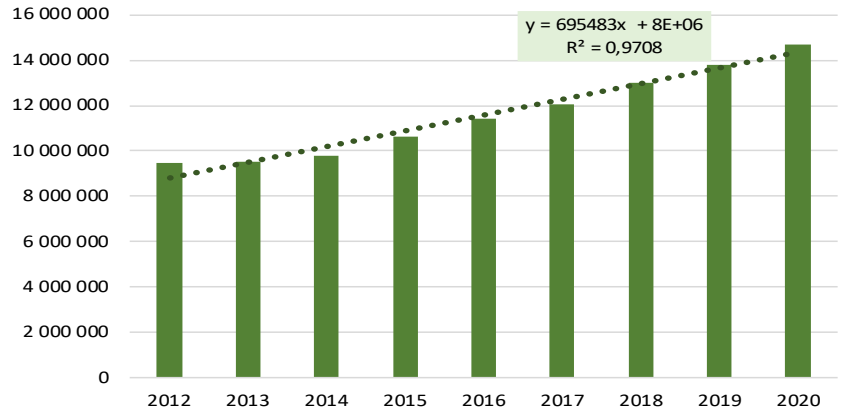

Fig. 1. Utilized agricultural area in organic farming in total (fully converted and under conversion) in the EU-27 (in ha)*
** excluding kitchen gardens*
Source: own calculations based on Eurostat data.

The European objective outlines the direction of agricultural development, however, the economic specifics of individual countries, including the conditions of agricultural and organic production, are diverse. As indicated by the data presented in the paper (Table 1, 2; Fig. 2), the level of development of organic agriculture varies greatly between countries, as well as the pace of development of this segment of the agricultural market.
Taking into account the absolute area of organic agricultural land, France, Spain, Italy, Germany, Austria and Sweden are at the forefront of EU countries, where this area ranges from over 600,000 ha to 2.5 million (2020, Table 1). In total, these countries have almost 10 million hectares of organic agricultural land, i.e. 2/3 of the total area of this area in the EU. Undoubtedly, the surface and agricultural potential makes it possible to allocate such an area for organic management. At the opposite end there are countries with a

significantly smaller area, including organic area: Malta, Cyprus, Luxembourg, Slovenia, the Netherlands, Ireland and Belgium, with an area of organic agricultural land up to a maximum of 100,000 ha.

The increase in the area of organic agricultural land, in the period 2012-2020, took place in 26 EU countries, except Poland, where there was a decrease of 1/5 of the area at that time. In the case of most countries, relations in terms of organic agricultural area have not changed – countries with a significant area have gradually increased their area, strengthening the position of leaders. It is worth noting that some countries with an average area in the EU, including the area of organic agricultural land, are dynamically increasing the area covered by the organic system. It is worth noting that some countries with an average area, including the area of organic agricultural land, are dynamically increasing the area covered by the organic system. These include Croatia (up 240%), Bulgaria (up almost 200%) and Hungary (up about 130%). Noteworthy is France, which is the most important country in terms of organic agricultural area, and its growth rate reached over 140% in the years 2012-2020 (Fig. 2). These figures indicate that, on the one hand, the leaders are strengthening the system of organic production by increasing the area covered by it, and on the other hand, some countries with an average area are also focused on dynamic development in the area of organic farming.

Table 1. Utilized agricultural in organic farming area in total*
(fully converted and under conversion) in the countries of the EU-27 (in ha)

Specification	2012	2013	2014	2015	2016	2017	2018	2019	2020
European Union	**9 457 886**	**9 511 921**	**9 793 694**	**10 609 926**	**11 445 112**	**12 063 046**	**12 986 694**	**13 793 665**	**14 719 036**
Belgium	59 718	62 471	66 704	68 818	78 452	83 508	89 025	93 119	99 072
Bulgaria	39 138	56 287	47 914	118 552	160 620	136 618	128 839	117 779	116 253
Czechia	468 670	474 231	472 663	478 033	488 591	496 277	519 910	535 185	540 375
Denmark	194 706	169 310	165 773	166 788	204 950	226 307	256 711	291 247	299 998
Germany	959 832	1 008 926	1 033 807	1 060 291	1 135 941	1 138 272	1 221 303	1 290 839	1 590 962
Estonia	142 065	151 164	155 560	155 806	180 852	196 441	206 590	220 737	220 796
Ireland	52 793	53 812	51 871	73 037	76 701	74 336	74 307	73 952	74 666
Greece	462 618	383 606	362 826	407 069	342 584	410 140	492 627	528 752	534 629
Spain	1 756 548	1 610 129	1 710 475	1 968 570	2 018 802	2 082 173	2 246 475	2 354 916	2 437 891
France	1 030 881	1 060 755	1 118 845	1 322 911	1 537 351	1 744 420	2 034 115	2 240 797	2 517 478
Croatia	31 904	40 660	50 054	75 883	93 593	96 618	103 166	108 127	108 610
Italy	1 167 362	1 317 177	1 387 913	1 492 571	1 796 333	1 908 570	1 957 937	1 993 225	2 095 364
Cyprus	3 923	4 315	3 887	4 699	5 550	5 616	6 022	6 240	5 918
Latvia	195 658	185 752	203 443	231 608	259 146	268 870	280 383	289 796	291 150
Lithuania	156 539	165 885	164 390	213 579	221 665	234 134	239 691	242 118	235 471
Luxembourg	4 130	4 447	4 490	4 216	4 528	5 444	5 782	5 814	6 118
Hungary	130 607	130 990	124 841	129 735	186 322	199 683	209 382	303 190	301 430
Malta	37	7	34	30	24	41	47	55	67
Netherlands	48 038	48 936	49 159	49 273	54 350	59 209	63 809	68 068	71 607
Austria	533 230	526 689	525 521	552 141	571 423	620 656	639 097	671 703	:
Poland	**655 499**	**669 863**	**657 902**	**580 731**	**536 579**	**494 978**	**484 676**	**507 637**	**509 286**
Portugal	200 833	197 295	212 346	241 375	245 052	253 786	213 118	293 213	319 540
Romania	288 261	286 896	289 252	245 924	226 309	258 471	326 260	395 228	468 887
Slovenia	35 101	38 664	41 237	42 188	43 579	46 222	47 848	49 638	52 078
Slovakia	164 360	157 848	180 307	181 882	187 024	189 148	188 986	197 565	222 896
Finland	197 751	204 810	210 649	225 235	238 240	259 271	297 442	306 484	316 248
Sweden	477 684	500 996	501 831	518 983	552 695	576 845	608 754	613 964	610 543

* *excluding kitchen gardens*

Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.

Source: own calculations based on Eurostat data.

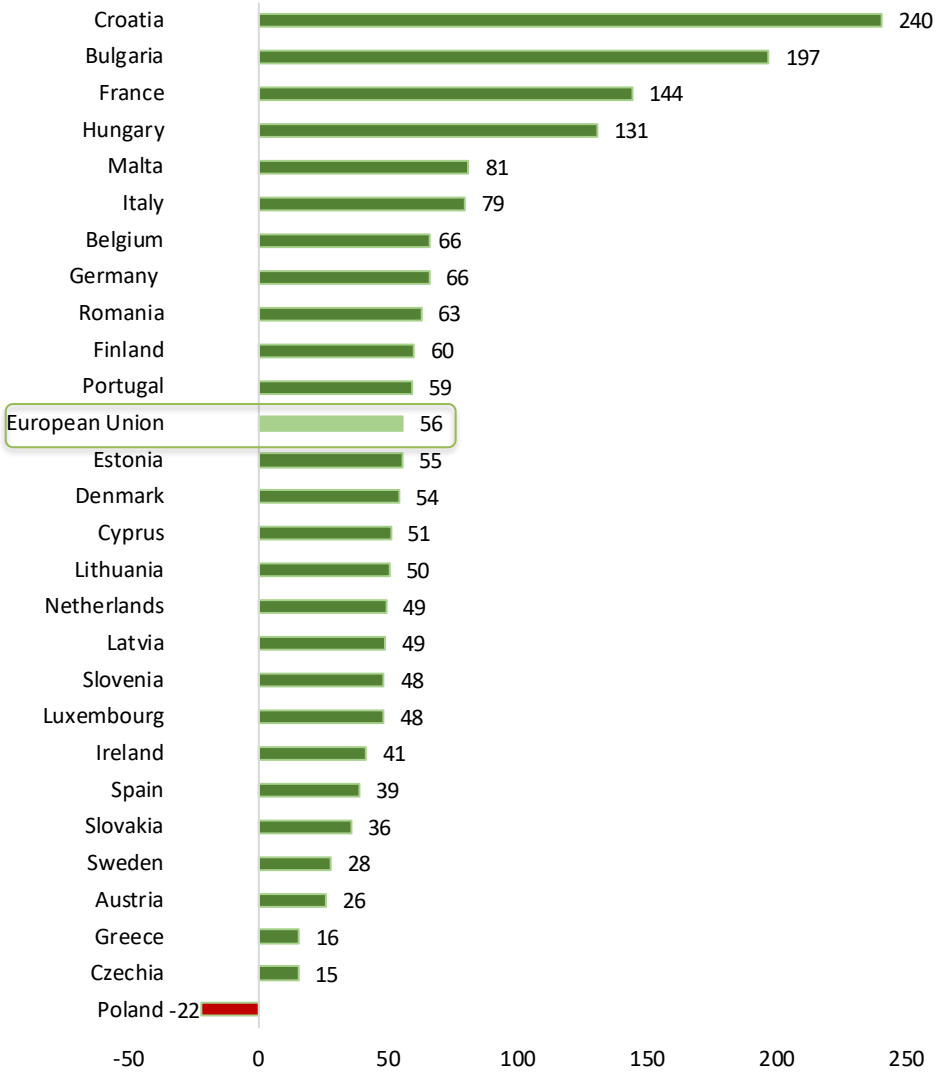

Fig. 2. The change of organic utilized agricultural area in the countries of EU-27 in % between 2012 and 2020 (area: fully converted and under conversion to organic farming)*
Source: own calculations based on Eurostat data.

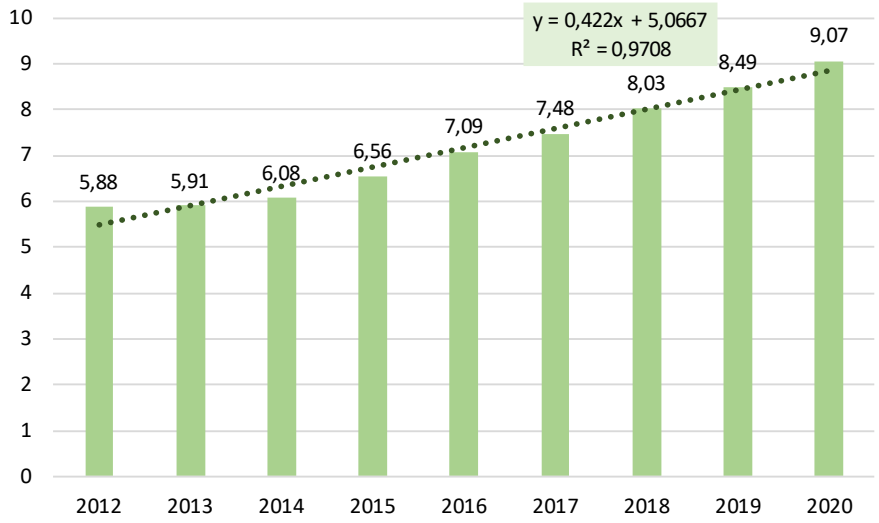

Fig. 3. Percentage of utilized agricultural area in organic farming in total (fully converted and under conversion) in the EU-27 (in %)*
** excluding kitchen gardens*
Source: own calculations based on Eurostat data.

The European Strategy of the Green Deal indicated the need to reach 25% of the organic agricultural area. The presented results on the organic areas of agricultural land in different countries indicated their diverse potential. Taking into account the several Member States that provide the majority of the organic area in the EU, i.e. France, Spain, Italy, Germany, Austria and Sweden, the development of organic farming in these countries will be crucial to achieve the pan-European objectives.

Based on data indicating the relative contribution of individual countries to the development of the organic farming segment, the current leaders are: Austria, Sweden, Estonia, Czechia, Latvia and Italy. In both 2012 and 2020, these countries were among the leading countries in terms of the share of organic agricultural land in total, taking first places in the ranking of EU countries in this respect.

During the period under consideration, the greatest progress, as measured by the increase in the percentage of organic agricultural land, took place both in countries that already had a high value of the index (including in particular Estonia, Austria and Italy), but also in countries with an average share. It is worth emphasizing the progress in this area that took place in Finland, France, Croatia, Hungary and Denmark, which contributed to the improvement of their position in the ranking of EU countries in terms of the development of the organic agricultural production system in the total agricultural production of a given country.

Table 2. Utilized agricultural in organic farming area in total*
(fully converted and under conversion) in the countries of the EU-27 (in % of UAA in total in the country, country's ranking, the change of the value and county's position)

Specification	Ranking 2012	2012	2020	the change of the value in p.p.	Ranking 2020	the change of the ranking position
Austria	1	18,62	25,33	6,71	1	no change
Sweden	2	15,76	20,31	4,55	3	-1
Estonia	3	14,86	22,41	7,55	2	1
Czechia	4	13,29	15,33	2,04	5	-1
Latvia	5	10,63	14,79	4,16	6	-1
Italy	6	9,30	15,97	6,67	4	2
Greece	7	9,01	10,15	1,14	11	-4
Finland	8	8,65	13,93	5,28	7	1
Slovakia	9	8,53	11,67	3,14	8	1
Spain	10	7,49	9,98	2,49	12	-2
Slovenia	11	7,32	10,76	3,44	10	1
Denmark	12	7,31	11,45	4,14	9	3
Germany	13	5,76	9,59	3,83	13	no change
Lithuania	14	5,51	8,00	2,49	16	-2
Portugal	15	5,48	8,05	2,57	15	no change
Poland	16	**4,51**	**3,52**	-0,99	23	-7
Belgium	17	4,48	7,25	2,77	17	no change
France	18	3,55	8,71	5,16	14	4
Cyprus	19	3,38	4,37	0,99	21	-2
Luxembourg	20	3,14	4,63	1,49	20	no change
Netherlands	21	2,61	3,95	1,34	22	-1
Hungary	22	2,45	6,03	3,58	19	3
Croatia	23	2,40	7,21	4,81	18	5
Romania	24	2,10	3,45	1,35	24	no change
Ireland	25	1,16	1,66	0,50	26	-1
Bulgaria	26	0,76	2,30	1,54	25	1
Malta	27	0,32	0,62	0,30	27	no change

Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.
Source: own calculations based on Eurostat data.

Taking 10% of organic agricultural land as a benchmark, in 2012, 22 EU countries had a result below this level, and in 2020 14 countries, which shows the development of organic farming in an increasing number of EU countries. The least favorable situation in terms of the level and development of organic farming is in Malta, Bulgaria, Ireland and Romania. The deterioration in this respect took place in Poland, that position in the ranking of the EU countries has significantly deteriorated as a result of a decrease in the percentage of organic agricultural area.

In addition to organic agricultural land, the key information about the organic market is the number of organic producers (Table 3). The number of organic producers indicates how much interest farmers are in this system of farming. Recent statistics indicate that the number of organic farmers is estimated at over 330,000 and in the period 2012-2020 it increased by about 1/3. Comparing these data with those on changes in the area of organic agricultural land, it can be concluded that the organic area is growing much faster than the number of producers, which indicates an increase in the production potential of organic agricultural producers who started this management system in earlier years.

Italy, France, Spain, Germany and Greece are the leaders in terms of the number of organic farmers, whose numbers have been steadily increasing (from max. 63% in Italy to min. 27% in Greece respectively). These few countries account for 2/3 of all organic farmers in the EU (Table 4). Impressive increases indicating the growing interest of farmers in organic agricultural production took place especially in countries with a relatively smaller number of organic producers, namely Croatia (an increase of 260%), Hungary (almost 230%) and Bulgaria. On the contrary, the situation in Malta, Luxembourg, Cyprus and Ireland was the case in terms of numbers.

It is worth noting that out of the analyzed 27 EU countries, in 4 there was a decrease in the number of organic farmers, i.e. in Romania (by 37%), Poland (by 28%), Lithuania (by 11%) and Sweden (2%). Of these, only in Poland there is both a reduction in the area and the number of organic farmers. In other countries, the production potential of organic agricultural land is increasing, as more acreage is concentrated in a smaller number of organic farms.

Table 3. The number* of agricultural organic producers in the countries of the European Union

Specification	2012	2013	2014	2015	2016	2017	2018	2019	2020
European Union	***247 649***	**253 215**	**254 115**	**267 915**	**292 175**	**:**	**:**	**:**	***334 128***
Belgium	1 435	1 656	1 602	1 733	1 946	2 105	:	:	2 394
Bulgaria	2 754	3 854	3 893	5 919	6 964	:	6 213	5 942	*5 942*
Czechia	3 907	3 910	3 866	4 121	4 271	4 426	4 601	4 694	4 669
Denmark	2 651	2 563	2 538	2 984	3 306	3 631	3 941	4 099	4 186
Germany	23 032	23 271	23 717	25 078	27 636	29 764	32 366	34 136	35 262
Estonia	1 478	1 553	1 542	1 629	1 753	1 888	1 948	2 060	2 050
Ireland	:	1 351	1 275	1 710	1 765	1 725	:	:	1 777
Greece	23 448	21 986	20 186	19 604	20 197	27 808	29 594	30 124	29 869
Spain	30 462	30 502	30 602	34 673	36 207	37 712	39 505	41 838	44 493
France	24 425	25 467	26 466	28 884	32 266	36 691	:	:	*36 691*
Croatia	1 413	1 608	2 043	3 061	3 546	4 023	4 374	5 153	*5 153*
Italy	43 831	45 965	48 662	52 609	64 227	66 788	69 335	70 561	71 590
Cyprus	719	746	743	1 032	1 174	1 175	1 249	1 252	1 223
Latvia	3 496	3 490	3 475	3 634	4 145	4 178	:	4 171	*4 171*
Lithuania	2 511	2 570	2 445	2 672	2 539	2 478	36 691	2 417	2 230
Luxembourg	:	83	79	88	93	103	103	105	114
Hungary	1 560	1 682	1 672	1 971	3 414	3 642	3 929	5 136	5 128
Malta	12	9	10	11	14	13	19	24	25
Netherlands	1 658	1 650	1 457	1 475	1 557	1 696	1 787	1 867	1 937
Austria	21 843	21 863	22 184	23 070	24 213	24 998	25 795	26 042	*26 042*
Poland	**25 944**	**26 598**	**24 829**	**22 295**	**22 451**	**20 276**	**19 224**	**18 655**	**18 598**
Portugal	2 833	3 029	3 329	4 103	4 246	4 674	5 213	5 637	5 945
Romania	15 280	14 553	14 151	11 812	10 083	7 908	8 518	9 277	9 647
Slovenia	2 680	3 045	3 293	3 412	3 513	3 627	3 738	3 823	3 685
Slovakia	362	343	403	420	431	439	:	567	716
Finland	4 316	4 284	4 247	4 328	4 493	4 665	:	5 129	5 102
Sweden	5 599	5 584	5 406	5 605	5 741	5 801	5 804	5 730	5 489

* *: - no data, italic values – no data; available data for closer year were adopted for analysis needs. For the EU the values for 2012 and 2020 were the sum of presented data for the counties.*

Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.

Source: own calculations based on Eurostat data.

Table 4. Approximate structure of agricultural organic producers in the European Union (%)

Specification	2012	2013	2014	2015	2016	2017	2018	2019	2020
European Union	***100***	**100**	**100**	**100**	**100**	**100**	***100***	***100***	***100***
Belgium	0,6	0,7	0,6	0,6	0,7	0,7	:	:	0,7
Bulgaria	1,1	1,5	1,5	2,2	2,4	:	2,0	2,1	1,8
Czechia	1,6	1,5	1,5	1,5	1,5	1,5	1,5	1,6	1,4
Denmark	1,1	1,0	1,0	1,1	1,1	1,2	1,3	1,4	1,3
Germany	9,3	9,2	9,3	9,4	9,5	9,8	10,6	11,8	10,6
Estonia	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,7	0,6
Ireland	:	0,5	0,5	0,6	0,6	0,6	:	:	0,5
Greece	9,5	8,7	7,9	7,3	6,9	9,2	9,7	10,4	8,9
Spain	12,3	12,0	12,0	12,9	12,4	12,5	13,0	14,5	13,3
France	9,9	10,1	10,4	10,8	11,0	12,1	:	:	11,0
Croatia	0,6	0,6	0,8	1,1	1,2	1,3	1,4	1,8	1,5
Italy	17,7	18,2	19,1	19,6	22,0	22,1	22,8	24,5	21,4
Cyprus	0,3	0,3	0,3	0,4	0,4	0,4	0,4	0,4	0,4
Latvia	1,4	1,4	1,4	1,4	1,4	1,4	:	1,4	1,2
Lithuania	1,0	1,0	1,0	1,0	0,9	0,8	12,1	0,8	0,7
Luxembourg	:	0,03	0,03	0,03	0,03	0,03	0,03	0,04	0,03
Hungary	0,6	0,7	0,7	0,7	1,2	1,2	1,3	1,8	1,5
Malta	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Netherlands	0,7	0,7	0,6	0,6	0,5	0,6	0,6	0,6	0,6
Austria	8,8	8,6	8,7	8,6	8,3	8,3	8,5	9,0	7,8
Poland	**10,5**	**10,5**	**9,8**	**8,3**	**7,7**	**6,7**	**6,3**	**6,5**	**5,6**
Portugal	1,1	1,2	1,3	1,5	1,5	1,5	1,7	2,0	1,8
Romania	6,2	5,7	5,6	4,4	3,5	2,6	2,8	3,2	2,9
Slovenia	1,1	1,2	1,3	1,3	1,2	1,2	1,2	1,3	1,1
Slovakia	0,1	0,1	0,2	0,2	0,1	0,1	:	0,2	0,2
Finland	1,7	1,7	1,7	1,6	1,5	1,5	:	1,8	1,5
Sweden	2,3	2,2	2,1	2,1	2,0	1,9	1,9	2,0	1,6

** : - no data, italic values – estimated data; for the EU the values were the sum of presented data for the counties.*
Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.
Source: own calculations based on Eurostat data.

An important factor in the development of the industry, including the development of organic farming, is the development of its immediate environment. One of the elements of this environment are processors. The specificity of organic products related to pro-environmental production technology (use of natural and organic fertilizers, prohibition of the use of chemical means of production) indicates their greater sensitivity to external factors and the need for relatively faster consumption or processing. A significant proportion of organic products can be directly sold to consumers or delivered to supermarkets, but some products need to be processed in order to postpone their consumption over time or change their form. Thus, but for some organic producers, ensuring sufficient development of processors on the market is crucial.

Like the area of organic agricultural land and organic farmers, the number of organic processors is also increasing in EU countries, which indicates the development of this market segment (Table 5). Recent data indicate that the number of processors oscillates around 55,000 (2020) and has increased by about 60% since 2012 (some countries have not provided these data to Eurostat). Among the countries with the largest number of processors are currently Italy, Germany and Spain, significantly ahead of other

EU countries in this respect. In these three countries, the population of processors has been growing dynamically in recent years (by almost 290%, 88% and 100% respectively). Such a market creates development opportunities for organic farmers, as evidenced by the previously presented figures. In the case of most countries, the number of processed products is gradually increasing, but in absolute numbers these are small quantities.

Table 5. Organic processors number in the countries of the European Union

Specification	2012	2013	2014	2015	2016	2017	2018	2019	2020
European Union	***34 437***	**42 773**	**49 664**	**55 358**	**59 697**	***64 946***	***52 202***	***56 364***	***55 105***
Belgium	767	861	891	1 014	1 116	1 227	1 403	1 585	:
Bulgaria	81	92	132	161	175	:	234	249	:
Czechia	448	471	506	558	616	655	724	802	852
Denmark	703	760	787	908	972	1 018	963	1 092	1 162
Germany	9 183	9 146	11 609	14 280	14 494	15 019	15 670	16 162	17 254
Estonia	72	84	109	118	135	169	171	173	176
Ireland	:	193	243	255	275	307	:	:	180
Greece	1 564	1 555	1 635	1 526	1 495	1 586	1 542	1 642	1 653
Spain	2 790	2 842	3 082	3 492	3 810	4 297	4 627	5 230	5 561
France	8 957	8 957	11 198	11 842	12 826	14 859	:	:	:
Croatia	154	181	237	320	312	357	368	395	:
Italy	5 873	10 860	12 641	14 658	16 578	18 497	20 087	21 940	22 689
Cyprus	53	66	51	60	57	64	57	61	70
Latvia	86	59	50	75	48	51	:	65	:
Lithuania	91	108	67	61	65	86	81	124	148
Luxembourg	:	64	72	79	82	88	94	101	104
Hungary	414	371	254	410	442	492	515	523	521
Malta	4	10	9	8	7	5	5	7	8
Netherlands	1 035	1 088	999	994	990	995	1 031	1 021	993
Austria	:	2 393	2 118	1 617	1 683	1 650	1 651	1 691	:
Poland	**312**	**407**	**484**	**336**	**436**	**455**	**533**	**636**	**668**
Portugal	376	437	540	558	639	760	788	933	1 036
Romania	105	100	124	142	150	161	175	191	201
Slovenia	177	193	236	279	310	375	133	142	139
Slovakia	57	48	56	48	36	85	:	142	119
Finland	455	665	679	453	535	360	:	430	523
Sweden	680	762	855	880	1 144	1 328	1 350	1 027	1 048

: - no data, italic values – estimated data; for the EU the values were the sum of presented data for the counties.
Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.
Source: own calculations based on Eurostat data.

In most European countries, the number of processors is negligible in relation to the number of organic farmers (Table 6). This indicator takes the lowest values in countries that are not distinguished by a significant development of organic farming measured by its area or the number of producers. These countries include Romania, Poland and Bulgaria. The high values of the index distinguish the two edges of the group of countries. On the one hand, these are countries focused on the development of broadly understood agriculture and its environment, i.e. Germany or France, on the other hand, there are countries where processing is relatively more developed in relation to the number of farmers, i.e. Luxembourg, the Netherlands and Belgium. In the latter countries, the area of organic agricultural area is also negligible in terms of the entire European Union.

Table 7. Estimated indicator* of organic market development in the countries of EU-27 (in %, country's ranking, the change of the value and position)

Specification	Ranking 2012	2012	2020	the change of the value in p.p.	Ranking 2020	the change of the ranking position
Luxembourg	1	77,1	91,2	14,12	1	0
Netherlands	2	62,4	51,3	-11,16	3	-1
Belgium	3	53,4	66,2	12,76	2	1
Germany	4	39,9	48,9	9,06	4	0
France	5	36,7	40,5	3,83	5	0
Malta	6	33,3	32,0	-1,33	6	0
Hungary	7	26,5	10,2	-16,38	15	-8
Denmark	8	26,5	27,8	1,24	8	0
Slovakia	9	15,7	16,6	0,87	12	-3
Ireland	10	14,3	10,1	-4,16	16	-6
Italy	11	13,4	31,7	18,29	7	4
Portugal	12	13,3	17,4	4,15	11	1
Sweden	13	12,1	19,1	6,95	9	4
Czechia	14	11,5	18,2	6,78	10	4
Austria	15	11,0	6,5	-4,46	20	-5
Croatia	16	10,9	7,7	-3,23	18	-2
Finland	17	10,5	10,3	-0,29	14	3
Spain	18	9,2	12,5	3,34	13	5
Cyprus	19	7,4	5,7	-1,65	21	-2
Greece	20	6,7	5,5	-1,14	22	-2
Slovenia	21	6,6	3,8	-2,83	24	-3
Estonia	22	4,9	8,6	3,71	17	5
Lithuania	23	3,6	6,6	3,01	19	4
Bulgaria	24	2,9	4,2	1,25	23	1
Latvia	25	2,5	1,6	-0,90	27	-2
Poland	26	**1,2**	**3,6**	2,39	25	1
Romania	27	0,7	2,1	1,40	26	1

** in the case of the lack of the data for the precise year in the tab. 3 and 5, available data for closer year were adopted for indicator calculation (presented in tab. 7).*

Legend: Red shade indicated countries with relatively lower significance based on the presented values; green shade indicated countries with relatively greater significance based on the presented values.

Source: own calculations based on Eurostat data.

4. Conclusions

Taking into account the substantive premises (importance for the natural environment, climate stabilization, growing public awareness, including in the field of food value with high nutritional values), as well as political (pro-environmental and pro-climate agricultural policy of the European Union implemented for decades), organic farming is a particularly important area of agricultural activity in Europe. Organic farming, as was mention above, is one of the most important form of sustainable agriculture, which is

particularly vital for society, including future generations and the environmental and climate environment. The literature review indicated the significance of organic production in agriculture in the scope of agriculture sustainability and wide scope of benefits for farmers and society (Biernbaum 2006; Kristiansen, Taji, Reganold, 2006; Stolze, Lampkin, 2009; Wachter, Reganold, 2014; Wrzaszcz, Zegar 2014; FiBL 2021; Łuczka, Kalinowski, Shmygol 2021). The presented deliberations and results in the paper were based on new international data, that were analyzed in the scope of organic farms environment as well. Earlier analysis put attention to the changes of organic farms production potential, while in this paper wider context were underlined, in the context of European Green Deal aims. The change in European agricultural policy towards an increasingly stronger orientation towards the organic management system in agriculture encourages agricultural producers to consider this economic activity. However, Europe is internally diversified in terms of agricultural development, including organic farming, hence its further development in individual countries may take place at a different pace and result in a different scale of organic production volume and area of organic agricultural land.

Taking into account the strategic European objectives set out in the European Green Deal, Europe aims to allocate 20% of its agricultural land to an organic production system. Taking into account the specificity of agriculture in individual countries of the community, it is difficult to expect a proportional contribution from these countries in the common strategic target.

The conducted research was aimed at determining the trends taking place in the area of organic farming and its immediate surroundings in European countries. These studies, based on Eurostat data, allowed the following conclusions to be drawn:

- Taking into account the strategic objectives for Europe and the development of the organic farming sector to date, it can be concluded that reaching the level of 20% of agricultural land under the organic system will be a very big challenge in the perspective of 2030, that is indicated by both the distribution of the number of farms in terms of organic area, in individual countries, and the average result for Europe.
- Only a few European countries – Austria, Sweden and Estonia – reached the level of 20% of the organic agricultural area in 2020. Promising perspectives for organic system development are for: Czechia, Latvia, Italy and Finland.
- Taking into account the physical area of organic agricultural land, the EU's leader is France with 2.5 mln ha in organic system of agricultural production.
- The current trends in individual European countries in the field of development of the organic management system indicate that this segment of the agricultural market has different significance in individual countries, which may also result from local economic and market conditions.
- Analysis of the development of the environment of organic producers on the basis of the results on the expansion of the processing segment indicated that countries in which there were a significant number of processors dealing with organic assortment also stimulated basic organic production in agriculture.
- In the case of Poland, the segment of the organic market is of relatively low economic importance, as evidenced by the small agricultural area allocated to this

management system. It should be noted, however, that in the adopted perspective of the analysis there were unfavorable changes in this respect.

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