DYNAMICS OF OPERATORS AND AREAS FROM ORGANIC AGRICULTURE IN ROMANIA

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Abstract

Organic agriculture is the most important source of healthy food for the population, as well as a real solution against environmental pollution. Practicing organic agriculture represents a concrete opportunity and a real chance for rural economies, contributing to sustainable development. The purpose of this paper is to present the dynamics of the operators and surfaces in organic agriculture, in the period 2018-2023 in Romania. The data collected for the studied interval show that the total areas used in organic agriculture in Romania have increased constantly, from 326259.51 ha in 2018 to 693998.31 ha in 2023. Among the cultivated areas, the largest were occupied with cereals, followed by those with industrial and fodder plants. A spectacular increase is observed in the areas of pastures and hays, more than four times in the analyzed interval. Also, the number of operators certified in organic agriculture showed a constant increase during the analyzed period, starting from 9008 operators in 2018 and reaching 14061 operators in 2023. It can be stated that the ecologically cultivated area in Romania has registered a slight revival considering that by the percentage of certified areas is far below the EU average.
Key words: organic agriculture, areas, operators, government policies

INTRODUCTION

The development of organic agriculture is a major concern worldwide, as well as in all countries of the European Union. Organic farming is a modern concept that combines several factors such as tradition, innovation and science with principles of health and ecology. This field uses existing resources for the welfare of humanity without harming the environment (Soare and Micu, 2018).

The area used in organic farming in the EU has been continuously increasing, in 2022 it covered 16.9 million hectares of agricultural land, representing 10.5% of the total agricultural land in the EU in 2022 (https://ec.europa.eu/eurostat/statistics-explained/index.php).

Romania has made significant progress in increasing organically certified areas, both in terms of natural grasslands and in the fields crops and the horticulture crops, especially after its accession to the European Union in 2007. In the year 2020, Romania had approximately 8.26 million hectares under cultivation, marking a 6.25% increase since 2007. The crops structure is dominated by cereals (64.6%), with maize and wheat accounting for 87.9% of the cereal area. The area dedicated to legumes has also seen remarkable growth, with a 115.64% increase from 2014 to 2020 compared to the previous decade (Popescu et al., 2023). Same authors mention that the surfaces cultivated with legumes remains modest, but in growing. In terms of production, legumes accounted for only 1.3% of the total cultivated area, but are crucial for crop rotation and soil health.

Despite these advancements, Romanian agriculture faces several challenges such as: fragmentation of land (many farms are small and fragmented, complicating efficient agricultural practices), obsolete technology (a significant part of agricultural machinery is outdated, which affects

productivity levels) and environmental concerns (while ecological practices are being adopted, there remains a reliance on traditional methods that may not always align with sustainable agricultural practices).

However, the alignment of Romania's agricultural strategies with the Common Agricultural Policy (CAP) has facilitated better access to funding and resources for farmers, encouraging diversification into leguminous crops (Scurtu and Lăcătuș, 2013). They also note that the growing demand for plant-based protein and sustainable food sources has also influenced farmers' decisions to grow more pulses, aligning with global trends towards healthier diets.

Financial support from the EU has been crucial for farmers who seeking to enhance their production capabilities and adopt more sustainable practices.

Also, government policies in Romania have significantly supported the cultivation of legumes through various initiatives and financing mechanisms, primarily aligned with the agricultural frameworks of the European Union (EU). For leguminous crops, these payments can be substantial, stimulating farmers to grow legumes as part of their crop rotation systems.

The Common Agricultural Policy (CAP) provides financial support to farmers - subsidies and payments, including compensatory payments for organic farming practices. National Rural Development Program (PNDR) - Measure 11: Organic farming specifically supports farmers switching to organic farming by providing compensatory payments for both conversion and maintaining organic practices. For example, farmers can receive between 293 and 620 EUR per hectare, depending on the type of crop, which encourages the cultivation of legumes alongside other ecological crops (Dan et al., 2022). The Romanian government has allocated funds for research aimed at improving legume varieties and cultivation techniques. This includes investments in agricultural technology and training programs for farmers, increasing their capacity to grow legumes more efficiently and focus on environmental sustainability (Popescu et al., 2023).

Through these measures, Romania aims to enhance its organic farming sector by providing financial incentives, establishing a robust legal framework, and promoting sustainable agricultural practices. These initiatives reflect a commitment to increasing organic production while ensuring environmental sustainability and food safety.

Production results are influenced by numerous technological factors. Thus, one of the key factors to increase production is the use of high quality seeds (Panzaru et al., 2023). The increase in the world's population, resulting in the intensive development of agriculture, requires the rational use of soil, highly productive varieties and hybrids, improved cultivation technologies to avoid the degradation of cultivated land (Balan et al., 2024). In recent years, more and more intensive practices have been applied in agriculture that increase the yield of crops, practices with a negative impact on the environment (Soare et al., 2023).

Smart and modern agriculture could contribute to a wide variety of economic, social and environmental objectives. Agricultural productivity can be improved by adopting new technologies and innovation (Leoveanu-Soare et al., 2020).

In Romania, the organic farming sector includes a diverse range of certified crops as organic. Cereals are the dominant crop group in organic farming, of the total organic area cultivated in Romania. Wheat accounts for a significant part of organic cereal production, followed by maize and oat. Legumes represent a smaller segment of organic crops, they are increasingly important in urban areas, where the demand for fresh organic products is higher. Organic legumes cultivation includes crops like: peas and soybeans.

In 2022, 10.5% of the EU's farmland was used for organic agricultural production, a 79% increase since 2012, according to Eurostat. Despite this growth, the EU is not

on track to meet its 2030 target of 25% organic farmland as part of its Farm to Fork strategy(https://www.eea.europa.eu/en/analysis/indicators/agricultural-area-used-for-organic).

MATERIALS AND METHODS

This research explores the dynamics of organic farming operators and total certified areas, as well as the areas cultivated with fields crops, focusing on the main categories of plants in Romania.

We have proceeded to use methods of documentation focused on this subject, analysis and processing of data series from Ministry of Agriculture and Rural Development in Romania for 2018-2023 and comparative analysis along the mentioned period.

These data were analyzed both in terms of value and dynamics, by using methods of comparison over time, using the formula:

Ibm = (yn/yn-1) x 100

- where: y - the level of the indicator for the variable to be compared; y -1 - the level of the indicator for the reference variable.

The research methods used were the bibliographic study, the documentary analysis and the descriptive statistics to show the development of organic agriculture in Romania. The agricultural area, the number of certified operators in organic farming and the types of crops and were used as main results indicators.

RESULTS AND DISCUSSIONS

Table 1 presents information on the number of operators and the total area certified organically in Romania. Thus, the number of operators certified in organic agriculture was between 9008 in 2018 and increased steadily, reaching 14061 operators in 2023, the average for the period being 11431.83 operators. This indicator recorded a constant growth trend as follows: in 2019, 9821 operators were registered, an increase of 9% compared to 2018. Regarding 2020, the number of operators was 10210, and the increase compared to 2019 was 9%. In 2021, the number of operators was 12231, when the highest percentage increase compared to the previous year was recorded, of 19.8%. This growth continued in 2022, reaching 13,260 operators, the growth this year being 8.4% compared to 2021. The trend continues in 2023, when the number of operators was 14,061, and the growth was 6%.

The certified organic area in Romania during the analyzed period has doubled in value, starting from 326259.51 ha in 2018 and reaching 693998.31 ha in 2023, with an average of the analyzed period of 556272.1 ha. In 2019, the area increased to 395227.97 ha, an increase of 21.14% compared to 2018. In 2020, the certified area was 468887.22 ha, an increase of 18.63% compared to the previous year. The increase in the number of operators in 2021 determined a corresponding increase in certified areas, reaching the value of 578727.24 ha, an increase of 23.42% compared to 2020. The increasing trend was maintained in the following years, the values being 644519.69 ha in 2022, with an increase of 11.36% compared to 2021, and 693998.31 ha in 2023, and the percentage increase was 7.67% compared to the previous year (Table 1).

The average growth rate of the organic sector in Romania regarding certified areas is 19.85%.

Table. 1. Dynamics of operators and organically certified areas in Romania, 2018-2023

Years	Specification	No. of operators	Total certified area (ha)
2018	Effective*	9008	326259.51
2019	Effective*	9821	395227.97
	2019/2018**	109	121.14
2020	Effective*	10210	468887.22
	2020/2019**	103.9	118.63
2021	Effective*	12231	578727.24
	2021/2020**	119.8	123.42
2022	Effective*	13260	644519.69
	2022/2021**	108.4	111.36
2023	Effective*	14061	693998.31
	2023/2022**	106	107.67
Average	Effective*	11431.83	556272.1
	Average/2023**	81.3	80.15

Regarding the evolution of the total number of operators and the total certified area, these two indices have similar evolutions, with constant increases year after year. In fact, the value of the correlation coefficient between these two indices is equal to 0.990 (Fig. 1).

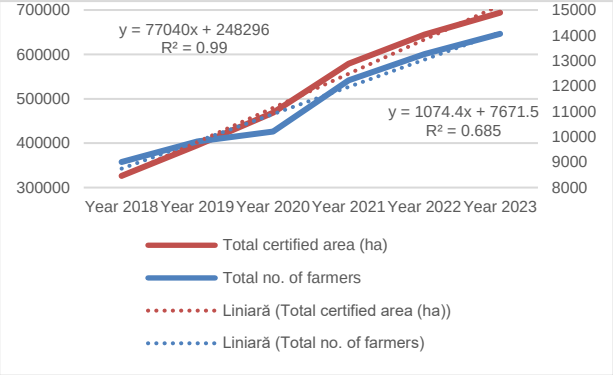

Figure 1. Evolution of the total number of operators and respectively of the total certified area during the period 2018-2023

The certified organic areas cultivated with cereals show an upward trend, the values being between 114427.49 ha and 172283.79 ha, with an average of 141209.6 ha (Table 2).

Thus, we start from an area of 114427.49 ha in 2018, after which the indicator records successive annual increases of: 12.18% in the case of 2019 (126842.95 ha), 5.77% for 2020 (134170.21 ha), 3.88% in 2021 (139378.17 ha), 14.9% for 2022 (160154.70 ha) and 36.22% in the case of 2023 (8671.35 ha). The average annual growth rate of organically cultivated cereal areas is 18.04%.

Regarding the areas organically cultivated with dry legumes and protein crops for grain production, during the dynamic series, a downward evolution of these crops is observed from 8751.13 ha in 2018 to 8671.35 ha for 2023, the average of the series being 7126.99 ha. In 2019, the related area decreased to 7411.05 ha, by -15.32% compared to 2018. In 2020, the lowest value of this period was recorded, of 5709.97 ha, representing 22.96% compared to 2019. Since 2021, the areas have been increasing, registering values of 5852.99 ha, an increase of 2.5% compared to 2020, of 6365.45 in 2022, and an increase of 8.75% compared to 2021, and of 8671.35 ha in 2023, the increase being 33.22% compared to 2022.

Table 2. Dynamics of organically cultivated areas for the main field crops in Romania, 2018-2023

Years	Specification	Cereals (ha)	Dried legumes and protein plants for grains (ha)	Industrial crops (ha)	Green harvested plants (ha)	Pastures and hayfields (ha)
2018	Effective*	114427.49	8751.13	80193.08	28253.75	66890.44
2019	Effective*	126842.95	7411.05	78350.29	37660.85	115420.14
	2019/2018**	87.82	84.68			
2020	Effective*	134170.21	5709.97	91638.97	53718.20	155038.18
	2020/2019**	105.77	77.04			
2021	Effective*	139378.17	5852.99	114407.78	74703.17	214657.22
	2021/2020**	103.88	102.50			
2022	Effective*	160154.70	6365.45	116506.35	78241.68	257062.19
	2022/2021**	114.90	108.75			
2023	Effective*	172283.79	8671.35	110200.73	91545.33	284331.59
	2023/2022**	107.57	136.22			
Average	Effective*	141209.6	7126.99			
	Average/2023**	81.96	82.19			

The areas of industrial crops showed higher values than dry legumes, the trend slightly fluctuating, starting from 80193 ha in 2018, reaching 116506.35 ha in 2022, with a slight decrease in 2023, to 110200.73 ha.

The group of green harvested plants has had a constantly increasing evolution, which shows the interest of farmers in this category of plants, from an area of 28253.75 ha in 2018, the values tripled and reached 91545.33 ha in 2023. A similar situation is encountered in the case of pastures and hayfields, they have increased more than fourfold, from 66890.44 ha in 2018, to 284331.59 ha in 2023. This is directly related to the increase in interest in organic livestock farming.

The percentage structure of each type of crop is presented in figure 2.

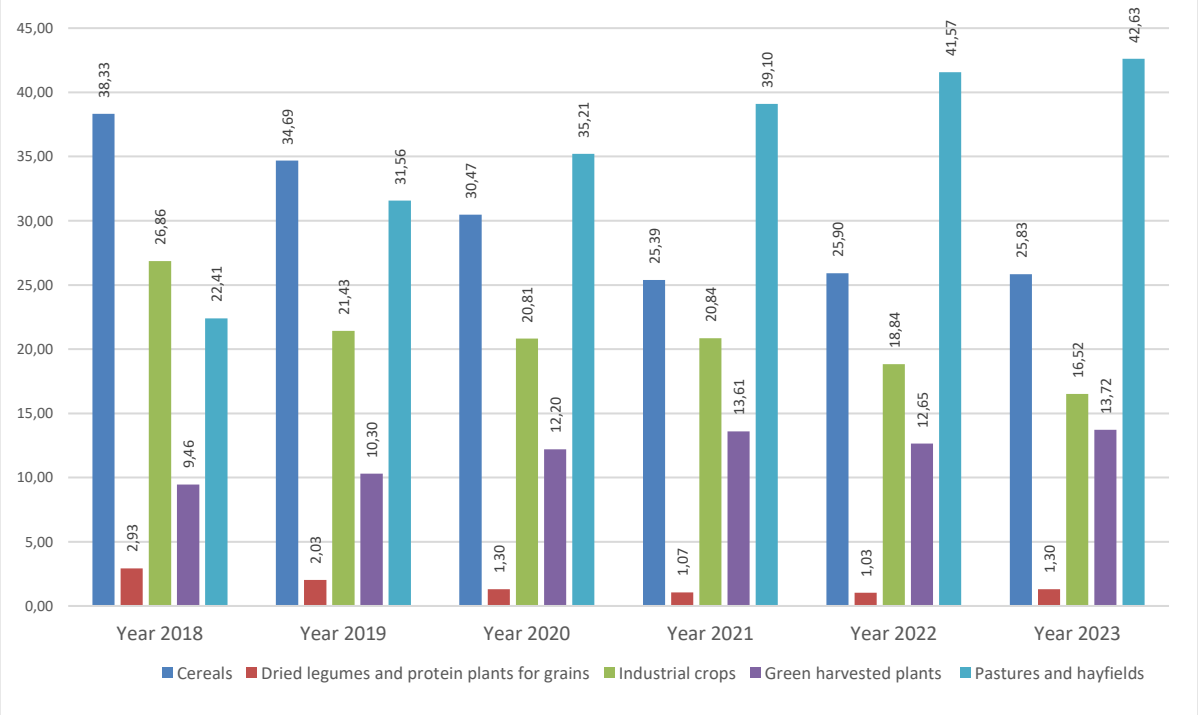

Figure 2. Percentage structure for each type of crop in the period 2018-2023

CONCLUSIONS

Based on the analysis of the data obtained, it can be appreciated that the number of certified operators has experienced a constant increasing trend throughout the analyzed period, which shows the increased interest of farmers in this type of production.

The certified organic areas showed a constant increasing trend, doubling between the limits of the analyzed period, this being closely related to the increasing trend of the number of operators. The organically cultivated areas showed increases in all categories of land use, the highest values were recorded for cereals, industrial crops and green harvested plants but also in the category of permanent crops - meadows and hayfields.

This increase was determined by several factors, the most important being the support granted to the organic sector through the CAP, the technological advances recorded in research and development and the increase in consumer demand for healthier food options. Also, government policies to support the organic sector aim to promote sustainable agricultural practices and raise awareness of the implementation of more environmentally friendly agricultural practices.

With all this progress, Romania will not be able to meet the target proposed at EU level, namely to reach 25% organically certified areas in 2030, but this sector is expected to continue to expand as awareness and demand for organic products increase among Romanian consumers and for export.

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