AGRICULTURAL PRODUCTIVITY IN ROMANIA FOLLOWING EUROPEAN UNION ACCESSION: TRENDS AND CHALLENGES AFTER 2007

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Abstract: *This paper analyses the evolution of agricultural productivity in Romania following its accession to the European Union, with a particular focus on the last decade, 2015–2024. The study employs key economic indicators, such as the gross value added generated by agriculture, the utilised agricultural area, and the agricultural labour force, based on official data from the National Institute of Statistics, Eurostat, and the Ministry of Agriculture and Rural Development. By calculating land and labour productivity, the analysis aims to highlight the main trends and structural challenges faced by Romanian agriculture. The findings reveal significant progress in the sector's efficiency, driven by investments, support policies, and technological modernisation, alongside persistent vulnerabilities linked to farm fragmentation and the resilience of small-scale holdings. The paper concludes with a series of recommendations on strengthening agricultural productivity through targeted agricultural and rural development policies that are adapted to emerging economic and climatic realities. Overall, the study seeks to contribute to a deeper understanding of the transformations experienced by Romanian agriculture within a dynamic and competitive European framework.*

Key words: *evolution, agricultural productivity, Romania, European Union, framework*

INTRODUCTION

Romania's accession to the European Union marked a turning point in 2007 in the evolution of national agriculture, opening access to larger markets, structural funds, and common agricultural policies aimed at supporting the competitiveness and modernization of the sector.

Romanian agriculture, characterized by low mechanization, a high share of subsistence farms, and low productivity, entered an extensive transformation process under the influence of national strategies adapted to the European context and the Common Agricultural Policy (CAP) [3,4].

According to Eurostat data, Romania's gross value added in agriculture increased from approximately €6.5 billion in 2007 to over €11 billion in 2023, reflecting significant progress, with annual variations caused by economic, climatic, and structural factors [8].

However, Romania continues to have one of the lowest productivity levels per hectare in the European Union, with an average significantly below that of Western countries, despite having a considerable utilized agricultural area, approximately 12.5 million hectares in 2023 10,16].

According to the National Institute of Statistics, the share of small, subsistence, and semi-subsistence farms (under 5 ha) remains overwhelming, representing around 90% of all farms but using less than 30% of the total agricultural area [17].

This polarization of land structure generates major inefficiencies and limits investments in modern technologies, irrigation, or diversification [6,20].

Moreover, Romanian agriculture is strongly affected by climate change, the lack of irrigation infrastructure, and limited administrative capacity in managing European funds. Despite progress, such as increased cereal exports and integration into European value chains, structural problems persist, requiring coherent agricultural policies, strategic investments, and support for the transition towards sustainable and competitive agriculture [7,10,19].

Nevertheless, despite these shortcomings, there are positive trends in Romanian agricultural productivity, driven by:

1°. Access to European funds

After 2007, Romania benefited from substantial funds through the Common Agricultural Policy (CAP). Programs such as the European Agricultural Fund for Rural Development (EAFRD) have financed the modernization of farms, the purchase of high-performance machinery, and the development of rural infrastructure. This financial support contributed to increased yields per hectare in several agricultural sectors.

2°. Mechanization and technological innovation

The adoption of modern technologies, especially in medium and large farms, led to increased efficiency and reduced losses. Modern tractors, automated irrigation systems, and the digitalization of agriculture have become increasingly widespread, although unevenly distributed.

3°. Growth of exports

Integration into the European market facilitated access to foreign markets. Romania has become an important exporter of cereals, especially wheat and corn, due to favorable natural conditions and competitive prices.

The aim of this study is to analyze the evolution of agricultural productivity in Romania during the post-accession period to the EU (2007–2023), identifying significant trends and the main challenges facing the sector.

MATERIALS AND METHODS

In this paper, official statistical data provided by the National Institute of Statistics, Eurostat, DG AGRI, bibliographic sources from the specialized literature were used as materials, and by interpreting the results, the main trends, persistent structural challenges and possible directions for increasing the competitiveness of Romanian agriculture in the European context were identified.

RESEARCH RESULTS

Historical context of Romanian agriculture. Agriculture has always played a fundamental role in the Romanian economy and society, representing the main means of subsistence for a large part of the population, especially in rural areas. The transition of the Romanian agricultural sector has gone through several important stages, each with profound effects on its structure and productivity [1].

Agriculture during the communist period (1947–1989). After the establishment of the communist regime, Romania went through an extensive process of forced collectivization, which led to the formation of collective agricultural households (G.A.C.) and state agricultural enterprises (I.A.S.) [19]. Although investments were made in mechanization and irrigation in the 1970s and 1980s, productivity was often low, and production decisions were centralized and inefficient. Agriculture was highly politicized, and the economic performance was severely undermined by the lack of competition and incentives [18].

Post-communist transition (1990–2006). The fall of the communist regime brought with it the restitution of agricultural lands and the dismantling of collective structures. However, the reforms of the 1990s were inconsistent and often chaotic, leading to:

- excessive land fragmentation;
- the emergence of a large number of small, subsistence farms;
- lack of capital and infrastructure;
- decline of irrigation systems (destroyed or abandoned).

In this context, Romanian agriculture became vulnerable and highly dependent on climatic conditions, and the modernization of the sector stagnated until the early 2000s [15,18].

Pre-accession period (2000–2006). After starting negotiations for accession to the European Union, Romania had to align its agricultural policies to CAP standards. During this period, progress was made in:

- land registration;
- establishment of the Paying Agency for Rural Development and Payments (APIA);
- preparation of the direct subsidy system;
- initiation of agricultural infrastructure projects through the SAPARD program.

However, the structural imbalances inherited from the previous period remained, and the gaps compared to the agriculture of Western European countries were still very large [4,11].

The evolution of agricultural productivity in Romania (2007–2023). After joining the EU, agricultural production experienced significant fluctuations, influenced by climatic conditions, investments, and agricultural policies.

Table 1.

Evolution of utilized agricultural area in Romania (2007–2023)

Year	Utilized Agricultural Area (million ha)
2007	13.5
2010	13.3
2015	12.9
2020	12.8
2023	12.5

Source: European Commission, National Institute of Statistics [6,15]

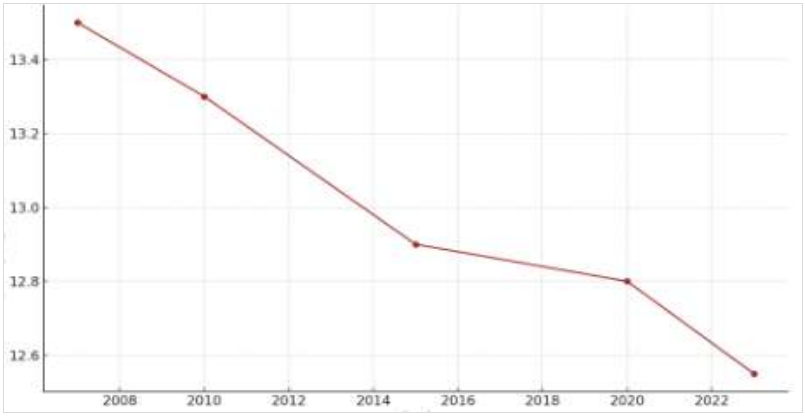

Figure 1. Evolution of Utilized Agricultural Area in Romania (2007–2023, million ha)

Source: European Commission, National Institute of Statistics [6,15]

Table 2.

Production of main agricultural crops in Romania (2007–2023, million tons)

Year	Weat	Maize	Sunflower
2007	3,04	3,14	0,55
2008	7,18	7,50	1,17
2010	5,59	9,00	1,26
2015	7,50	11,00	1,80
2018	10.00	14,50	3,00
2020	6,40	10,00	2,50
2023	9,50	13,00	2,80

Source: European Commission, National Institute of Statistics [6,15]

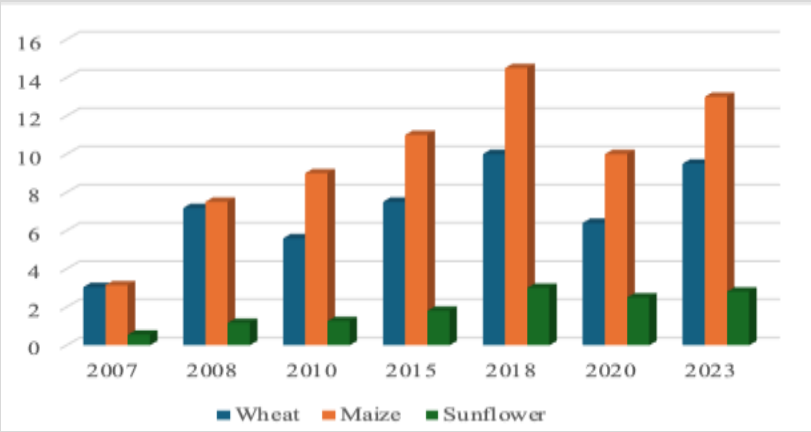

Figure 2. Production of main agricultural crops in Romania (2007–2023, million tons)

The utilized agricultural area decreased from 13.5 million hectares in 2007 to 12.55 million hectares in 2023, reflecting a reduction of approximately 7% over this period. The composition of the utilized agricultural area is as follows:

- Arable land: 67.6%
- Pastures and meadows: 28.8%
- Permanent crops: 2.6%
- Household gardens: 1%.

Farm size structure:

- Holdings without legal personality: average size of 2.74 ha in 2023.
- Holdings with legal personality: average size of 190.51 ha in 2023.

Distribution of agricultural area:

Only 1% of farms (those larger than 50 ha) cultivate more than half of Romania's agricultural land.

Average yields per hectare have generally increased, reflecting improvements in technology and agricultural practices.

Table 3.

Average yield per hectare in Romania (2007–2023, tons/ha)

Culture	2007	2023
Wheat	2.5	4.5
Maize	3.0	6.5
Sunflower	1.2	2.5

Source: National Institute of Statistics, Eurostat [8,18]

Table 4.

Agriculture's contribution to GDP and employment

Indicator	2007	2023
Agriculture's share in GDP	6.5%	4.3%
Agricultural employment (%)	29,0%	25.8%

Source: National Institute of Statistics, Eurostat [8,18]

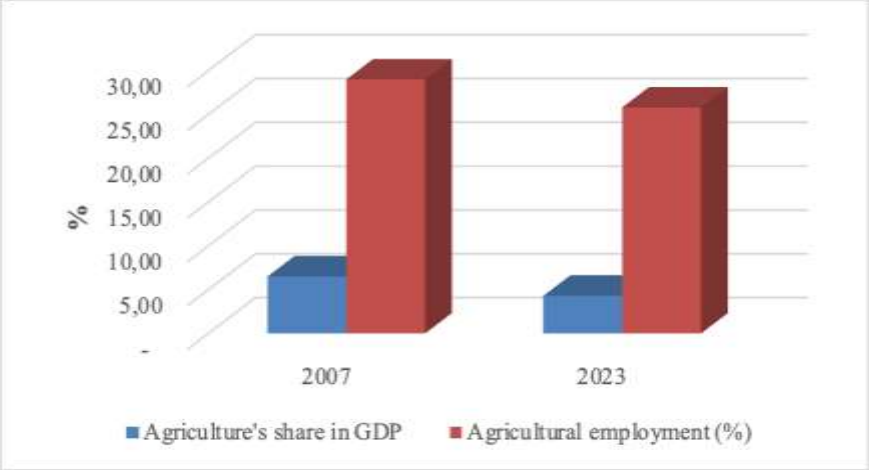

Figure 3. Agriculture's contribution to GDP and employment (%)

Table 5.

Graph of evolution of wheat production in Romania between 2007 and 2023

Year	Total production (million tons)	Cultivated area (million ha)	Main observations
2007	3.1	—	Dry year, low production
2015	7.9	2.11	Average yield of 3,780 kg/ha
2018	10.1	—	Record production, 3rd place in the EU
2019	10.3	—	Continuation of high production
2020	6.4	—	Significant decrease due to drought
2021	10.4	—	Return to high production
2022	8.7	2.17	Slight decrease compared to the previous year
2023	9.6	2.21	11% increase compared to 2022

Source: [20]

Table 5 illustrates the fluctuations in wheat production, highlighting years with low yields due to drought and years with record harvests.

Between 2007 and 2023, Romania's wheat production recorded a significant increase, influenced by factors such as investments in agriculture, technological modernization, and variable climatic conditions.

Between 2007 and 2023, Romania's wheat production more than tripled, from 3.1 million tonnes to 9.63 million tonnes. This evolution reflects the adaptation of the agricultural sector to new economic and climatic conditions, as well as the effectiveness of the modernization measures implemented during this period [20].

Table 6.

Evolution of gross value added in agriculture (2007–2023) Romania

Year	GVA in agriculture (€ billion)
2007	6.5
2010	8.2
2015	9.7
2020	10.5
2023	11.2

Source: Eurostat, National Institute of Statistics [8,18]

After joining the European Union in 2007, Romanian agriculture benefited from European funds and support policies, which had a positive impact on the Gross Value Added (GVA) in the agricultural sector.

Table 7.

Evolution gross value added in agriculture (2007–2023) European Union

Year	GVA in agriculture (€ billion)
2007	150
2010	160
2015	170
2020	180
2023	190

Source: Eurostat, National Institute of Statistics [8,18]

At the EU level, Gross Value Added (GVA) in agriculture has recorded a general increase, influenced by the diversity of agricultural policies and the varied economic conditions of the member states. Although Romania recorded an increase in GVA in agriculture, it remains below the EU average in terms of productivity. Reports indicate a Gross Value Added of approximately 600 €/ha in Romania, compared to 1,000 €/ha in Western Europe [8,20]. The European Union reached a peak in agricultural GVA in 2022, with 545.4 billion €, followed by a slight decrease in 2023 to 537.1 billion €, influenced by a 2.3% drop in production volume.

Romania's accession to the European Union in 2007 marked a fundamental shift in national agricultural policies, providing access to structural funds and encouraging the modernization of the agricultural sector.

One of the most relevant aspects of efficiency in agriculture is labor productivity, defined as the value added generated by an agricultural worker (AWU – Annual Work Unit). From 2007 to 2023, labor productivity in agriculture in Romania has consistently increased due to progressive mechanization, a reduction in the agricultural workforce, and access to European funding.

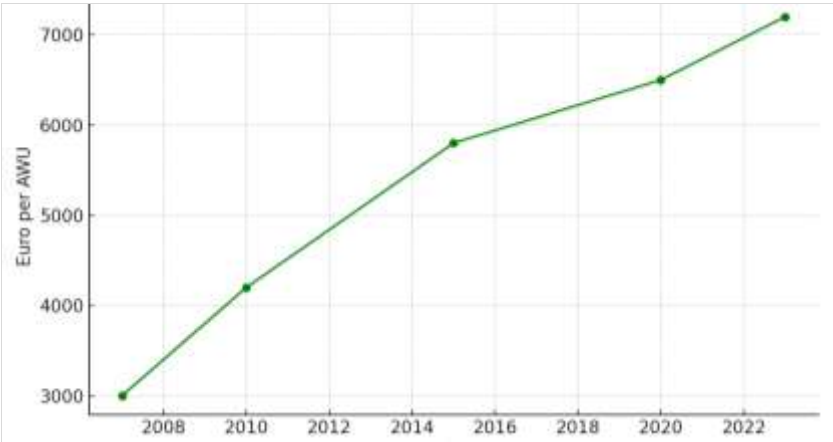

Figure 4. Evolution of labour productivity in agriculture (euro/AWU-2007-2023)
Source: Eurostat, National Institute of Statistics [8,18]

This trend is highlighted in the graphic, which shows an increase from 3,000 €/AWU in 2007 to 7,200 €/AWU in 2023.

Land productivity, expressed as output in euros per hectare, reflects the efficiency of agricultural land use. Although Romania has significant agricultural potential, this productivity has increased at a slower pace than in other EU member states. Major causes include land fragmentation, limited use of modern technologies, and insufficient irrigation.

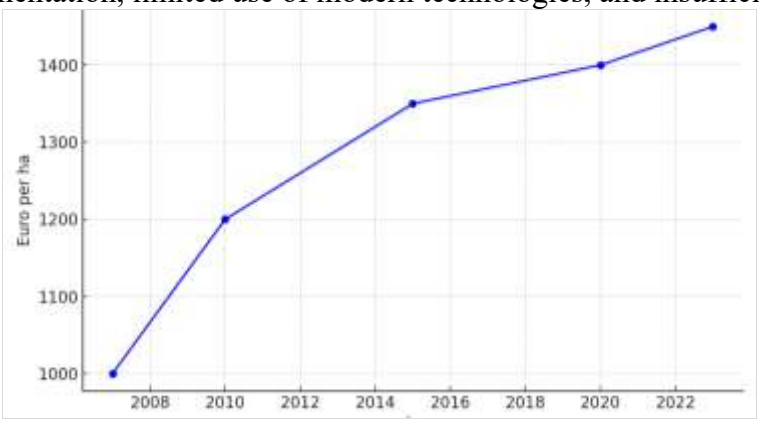

Figure 5. Evolution of agricultural land productivity (2007-2023, euro/ha)
Source: Eurostat, National Institute of Statistics [8,18]

The average value increased from 1,000 €/ha in 2007 to 1,450 €/ha in 2023.

In Romania, the most affected types of farms are generally small, subsistence or semi-subsistence farms, for various systemic and economic reasons. Here is a classification of the affected farms and the causes of vulnerability [8,13,15]:

1. **Small and Very Small Farms (<5 ha)**
   Problems:
   - Land fragmentation: Dispersed farms, difficult to mechanize.
   - Limited financial resources: Difficult access to European funds and credits.
   - Lack of modern equipment: Manual work or outdated machinery.
   - Aging farmers: Over 60% are over 55 years old.
   - Limited market access: Dependence on self-consumption or sales in local markets.

2. **Climate-dependent Farms (Non-irrigated)**
   Problems:
   - Exposure to drought, hail, floods: No irrigation or protection systems.
   - Low yields in difficult agricultural years.
   - Lack of agricultural insurance: Few farms have policies covering climate risks.
3. **Non-associated Family Farms**
   Problems:
   - Lack of access to cooperatives: Farmers sell individually at low prices.
   - High input costs (seeds, fertilizers): No negotiating power.
   - Difficulty in accessing non-reimbursable funds: High bureaucratic requirements.
4. **Transitional Farms – Semi-subsistence (5–20 ha)**
   Problems:
   - Caught between two models: Cannot compete with industrial farms but are not sufficiently supported as family farms.
   - Difficulties in professionalization and investment.

5. **Organic and Niche Farms (Lack of a stable market)**
   Problems:
   - Lack of infrastructure for collection and certification.
   - Limited domestic demand.
   - High conversion costs and bureaucratic standards.

The increase in agricultural productivity in Romania requires an integrated approach with multiple measures and action directions:

1. **Technological Modernization**
   - Mechanization: Replacing old machinery with modern tractors and combines.
   - Digitalization: Using GPS technologies, drones, IoT sensors, satellite imagery for precision farming.
   - Agricultural software: IT systems for farm management.
2. **Consolidation of Agricultural Holdings**
   - Land consolidation: Reducing fragmentation, which affects economic efficiency.
   - Support for medium-sized farms: These can support investments and innovations but are often overlooked in current policies.
3. **Irrigation and Adaptation to Climate Change**
   - Investments in modern irrigation systems: Currently, only 10-15% of agricultural land is irrigable.
   - Resilient infrastructure: Hydrotechnical constructions, drainage, water collection.
   - Crops resistant to drought and climate change.
4. **Education and Professional Training**
   - Training programs for farmers: Modern technologies, good practices, agricultural accounting.
   - Collaboration with universities and agricultural research institutes.
5. **Better Access to Finance and EU Funds**
   - Simplifying access to subsidies and grants from the PNDR or the CAP Strategic Plan 2023–2027.

- Rural microfinance: For small farms and young farmers.

6. **Diversification and Integration into the Value Chain**
   - Primary and secondary processing (milk, meat, cereals, etc.) – Increases local added value.
   - Organic and niche farming – With export potential and higher prices.
   - Agricultural cooperatives and associations – Increase negotiating power and efficiency.
7. **Digitalization of Agricultural Administration**
   - Functional online platforms for APIA, AFIR, MADR.
   - Transparency in fund allocation and performance monitoring.

CONCLUSIONS

The historical context of Romanian agriculture explains much of the challenges the sector has faced since 2007. Land fragmentation, lack of capital, poor infrastructure, and the weak organization of farmers are deep-rooted issues that can only be addressed through coherent policies and sustained long-term investments.

Romania has made significant progress in the agricultural sector since joining the EU, but there are still major gaps compared to the European average in terms of productivity. The country's high agricultural potential can only be fully exploited through structural reforms, investments in infrastructure, and supporting farmers within an efficient and predictable administrative framework.

Between 2007 and 2023, both Romania and the European Union recorded significant increases in gross value added (GVA) in agriculture. For Romania, this evolution reflects the benefits of EU accession and the adaptation to European standards. At the EU level, the increase in GVA highlights the efficiency of the Common Agricultural Policy and the commitment to the sustainable development of the agricultural sector.

EU membership provided Romania with significant opportunities for modernizing agriculture. Although there has been progress in terms of productivity and yields, structural challenges persist that require long-term solutions. Investments in infrastructure, agricultural education, and facilitating access to financing are essential for the sustainable development of Romania's agricultural sector.

To increase agricultural productivity in Romania, the following are needed:

- Strategic investments,
- Political will,
- Partnerships between the state, farmers, and the academic environment,
- And a real reform of the agricultural and administrative system.

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