UNIVERSITY OF LIFE SCIENCES "KING MIHAI I" FROM TIMISOARA
"YOUNG PEOPLE AND MULTIDISCIPLINARY RESEARCH IN APPLIED LIFE SCIENCES"

05-06 November 2026



ASSESSING THE IMPACT OF INNOVATIVE PRACTICES IMPLEMENTED ON FARMS IN ROMANIA AND EUROPE

FOGHIS GIORGIANA MARIA[1*], ADAMOV TABITA[2], RABA DIANA NICOLETA[2], TOADER COSMINA-SIMONA[2], FEHER ANDREA[2,3]

[1]Doctoral School "Engineering of Vegetable and Animal Resources"/University of Life Sciences "King Mihai I" from Timisoara, Romania
[2]University of Life Sciences "King Mihai I" from Timisoara/Faculty of Management and Rural Tourism, Timisoara, Romania
[3]Romanian Academy-Timisoara Branch/Research Centre for Sustainable Rural Development of Romania, Timisoara, Romania

Abstract:This paper assesses the impact of innovative practices implemented on farms in Romania and Europe, examining how these technologies and modern approaches can help address persistent structural imbalances in the agricultural sector.

• Introduction

Over the last decade, the European and national agri-food sectors have undergone an unprecedented transformational shift, driven by the convergence of global climate crises and accelerated technological advancement. The transition from traditional agriculture to "Agriculture 4.0" has become a strategic necessity for ensuring food security and sustainability. This evolution is closely linked to the objectives of the European Green Deal and the Common Agricultural Policy (CAP 2023–2027), both of which place a strong emphasis on farm resilience in the face of climatic and economic volatility (European Commission, 2023). In this context, the European Union has prioritized the digitalization of rural areas as a core pillar of development, aiming for "open strategic autonomy" rooted in innovation and efficiency (Joint Research Centre, 2026).

• Material and method

The methodology of this research is based on a quantitative, descriptive, and comparative approach, utilizing exclusively secondary data of a macroeconomic and structural nature. All data used in this study were extracted directly from the official database of the European Union's statistical office (Eurostat). The timeframe selected for the analysis spans ten years—from 2014 to 2024—thereby providing a relevant temporal perspective to capture the effects of the implementation of successive reforms to the Common Agricultural Policy (CAP).

• Results and discussions

The Efficiency Trap in Eastern Europe: Although the share of intermediate consumption in Romania (61.4%) and Poland (60.8%) is similar to that of Germany (61.2%), the underlying economic reasons are entirely different. In Germany, this high percentage stems from significant logistics costs and the integration of advanced technology, yet it generates a vastly superior level of value added. In the East, this high percentage points to vulnerability regarding price fluctuations for imported synthetic inputs, as well as low resource-use efficiency resulting from only partial technological integration.

Table 1. Comparative Analysis of Agricultural Structures and Economic Performance across Selected EU Member States

Region / Country		Gross Value Added (GVA) (million EUR)	Share of Intermediate Consumption (% of Output)	Average Farm Size (ha / farm)	Labor Productivity (GVA / AWU - EUR)
France		35,800	58.4%	69.0	48,200
Germany		24,150	61.2%	63.0	42,600
Netherlands		12,400	48.2%	33.0	68,500
Poland		13,100	60.8%	11.3	11,200
Romania		8,150	61.4%	4.2	9,400
EU-27 Average		202,100	55.7%	17.4	26,500

• Conclusions

Expanding processing infrastructure through automation and integrated quality management systems is a vital component for Romania's competitiveness in the European market.

Acknowledgement: the autors thanks USV Timisoara and ARDS Lovrin for facilitating this study.