



## THE EVOLUTION OF CEREAL CROPS IN IAȘI COUNTY WITHIN THE REGIONAL AND NATIONAL CONTEXT (2019-2023)

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**Abstract:** This article analyzes the evolution of cereal crops in Iași County during the period 2019–2023, within both regional and national contexts. Using official statistical data provided by the National Institute of Statistics, the research offers a detailed perspective on the dynamics of cultivated areas and the productivity of cereal crops such as rye, wheat, barley, two row barley, oats, corn, and sorghum. The choice of Iași County is justified by its location in the Jijia Plain, a region with high agricultural potential due to favorable soil and climatic conditions. Additionally, Iași County's selection is also based on its significant role within the regional agricultural economy. The agricultural landscape of the county is further shaped by the integration of innovative practices and compliance with European Union standards. Despite these advantages, challenges such as land fragmentation and the low economic performance of many agricultural holdings persist. The study examines key trends in cereal production, focusing on factors such as climatic conditions, agricultural policies, technological advancements, and market demands. The results provide an overview of Iași County's contribution to national agriculture. The conclusions highlight the importance of adapting to the current agricultural context to ensure the sustainability and competitiveness of the cereal sector in Iași County.

### • Introduction

Iași County benefits from favorable conditions for diverse crops and livestock farming, strengthened in some areas by innovation and EU standards. However, challenges like land fragmentation and low farm performance limit its potential. Cereals are vital for human and animal nutrition, offering energy, proteins, essential nutrients, and dietary fiber, while their by-products support livestock production and the agricultural economy.

### • Material and method

This study analyzes the evolution of cereal crops in Iași County between 2019 and 2023, comparing it to the North-East Region and Romania overall. Using data from the National Institute of Statistics, it examines key crops like rye, wheat, barley, oats, corn, and sorghum, focusing on cultivated areas, production, and yield per hectare. The analysis also explores factors such as climate, agricultural policies, technology, and market demand to explain observed trends. Motivated by the county's favorable soil and climate, particularly in the Jijia Plain, the study highlights recent developments in Iași's cereal sector.

### • Results and discussions

#### The evolution of cultivated area

Between 2019 and 2023, the total area cultivated with cereals slightly increased by 1.1%, from 143,469 ha to 144,976 ha. Wheat recorded a 35.8% growth, from 36,018 ha to 48,897 ha, with a peak in 2021 (+20.9%), followed by a decline in 2022 (-13.1%) and a recovery in 2023 (+16.4%).

Nr. crt.	Cereals	2019		2020		2021		2022		2023	
		ha	ha	% 2019-2020	ha	% 2020-2021	ha	% 2021-2022	ha	% 2022-2023	% 2019-2023
1	Rye	97	99	2%	205	107,1	89	-56,6	90	1,1	-7,2
2	Wheat	36018	39990	11%	48361	20,9	42019	-13,1	48897	16,4	35,8
3	Barley and two row barley	4787	4391	-8%	5733	30,6	4298	-25	5458	27	14
4	Oats	4480	1502	-66%	1794	19,4	1303	-27,4	1668	28	-62,8
5	Grain maize	97584	97726	0%	106779	9,3	107075	0,3	88780	-17,1	-9
6	Sorghum	503	307	-39%	170	-44,6	131	-22,9	83	-36,6	-83,5
7	Total	143469	144015	0%	163042	13,2	154915	-5	144976	-6,4	1,1

Maize, the most cultivated cereal in 2019 (97,584 ha), decreased by 9% by 2023. Sorghum experienced the largest percentage drop, shrinking by 83.5%, from 503 ha to 83 ha. Oats saw a massive decrease in 2020 (-66%), maintaining low levels thereafter. Barley showed significant fluctuations but ended the period with an area of 5,458 ha (+14%). Rye lost 7.2% of its initial area.

#### The evolution of cereal production

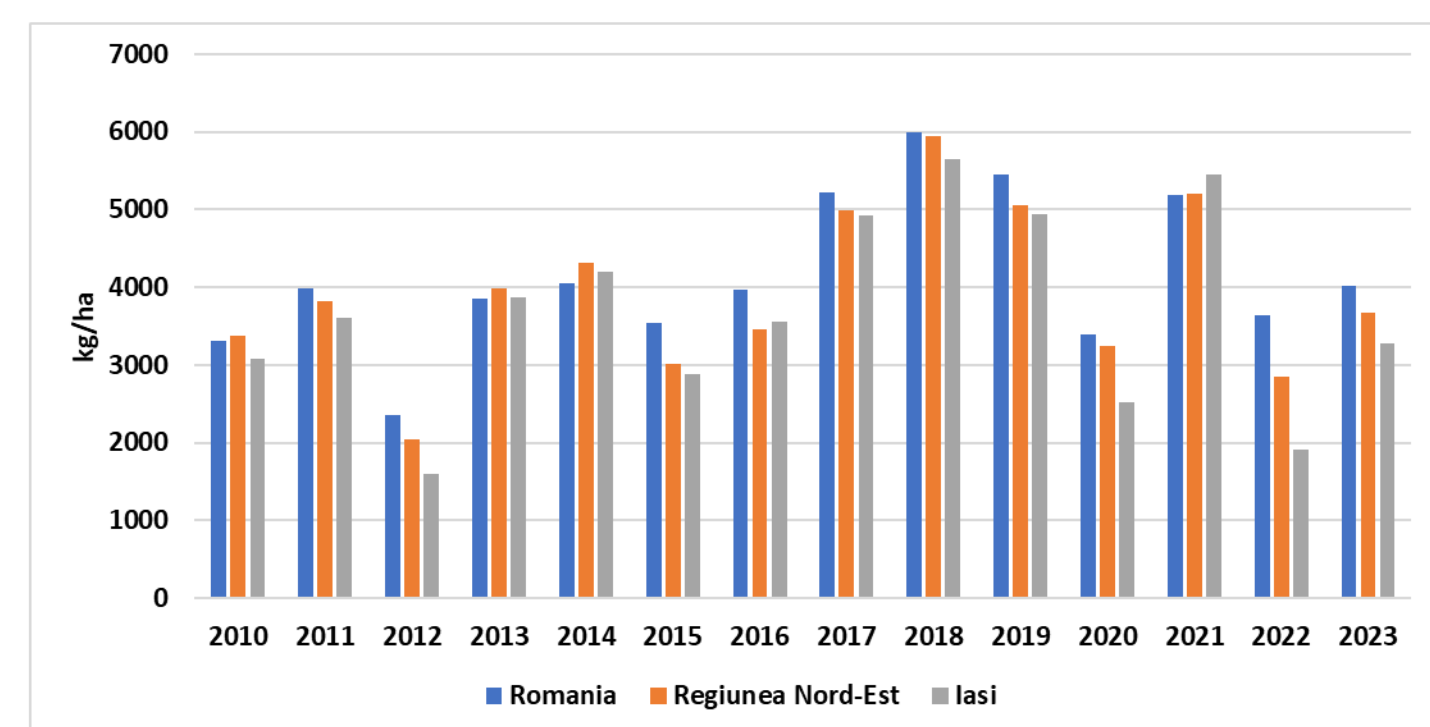
Between 2019 and 2023, cereal production showed an overall downward trend, with total output falling by 33.2%, from 709,939 tons to 474,405 tons. After a sharp drop in 2020 (-48.8%) and a strong rebound in 2021 (+144.4%), production declined again in 2022 (-66.8%) and partially recovered in 2023 (+60.9%). Wheat grew by 29.2% compared to 2019, while barley increased by

Nr. Crt.	Cereals	2019		2020		2021		2022		2023	
		Tons	Tons	% 2019-2020	Tons	% 2020-2021	Tons	% 2021-2022	Tons	% 2022-2023	% 2019-2023
1	Rye	367	221	-39,8	793	258,8	283	-64,3	195	-31,1	-46,9
2	Wheat	146955	121669	-17,2	225452	85,3	107631	-52,3	189866	76,4	29,2
3	Barley and two row barley	16881	11725	-30,5	21828	86,2	11684	-46,5	23228	98,8	37,6
4	Oats	8626	3395	-60,6	5715	68,3	2449	-57,1	4823	96,9	-44,1
5	Grain maize	535020	225986	-57,8	633817	180,5	172735	-72,7	256037	48,2	-52,1
6	Sorghum	2090	638	-69,5	1269	98,9	46	-96,4	256	456,5	-87,8
7	Total	709939	363634	-48,8	888874	144,4	294828	-66,8	474405	60,9	-33,2

However, maize production halved (-52.1%), and oats, rye, and sorghum registered significant declines (-44.1%, -46.9%, and -87.8%, respectively). Droughts, exacerbated by the lack of modern irrigation, were a major cause of the reductions, with Iași County particularly affected. In addition, increased Ukrainian grain imports, sold at lower prices, intensified competition, leading to price drops and discouraging local farmers from investing in production.

#### Average production per hectare

Over the past five years, the average cereal yield in Iași County has shown significant fluctuations compared to regional and national averages. After reaching 4,942 kg/ha in 2019, yields dropped sharply to 2,525 kg/ha in 2020, then rebounded to 5,448 kg/ha in 2021. In 2022, production fell to a low of 1,910 kg/ha, with a partial recovery to 3,272 kg/ha in 2023. Overall, between 2019 and 2023, yields declined by 33.9%.

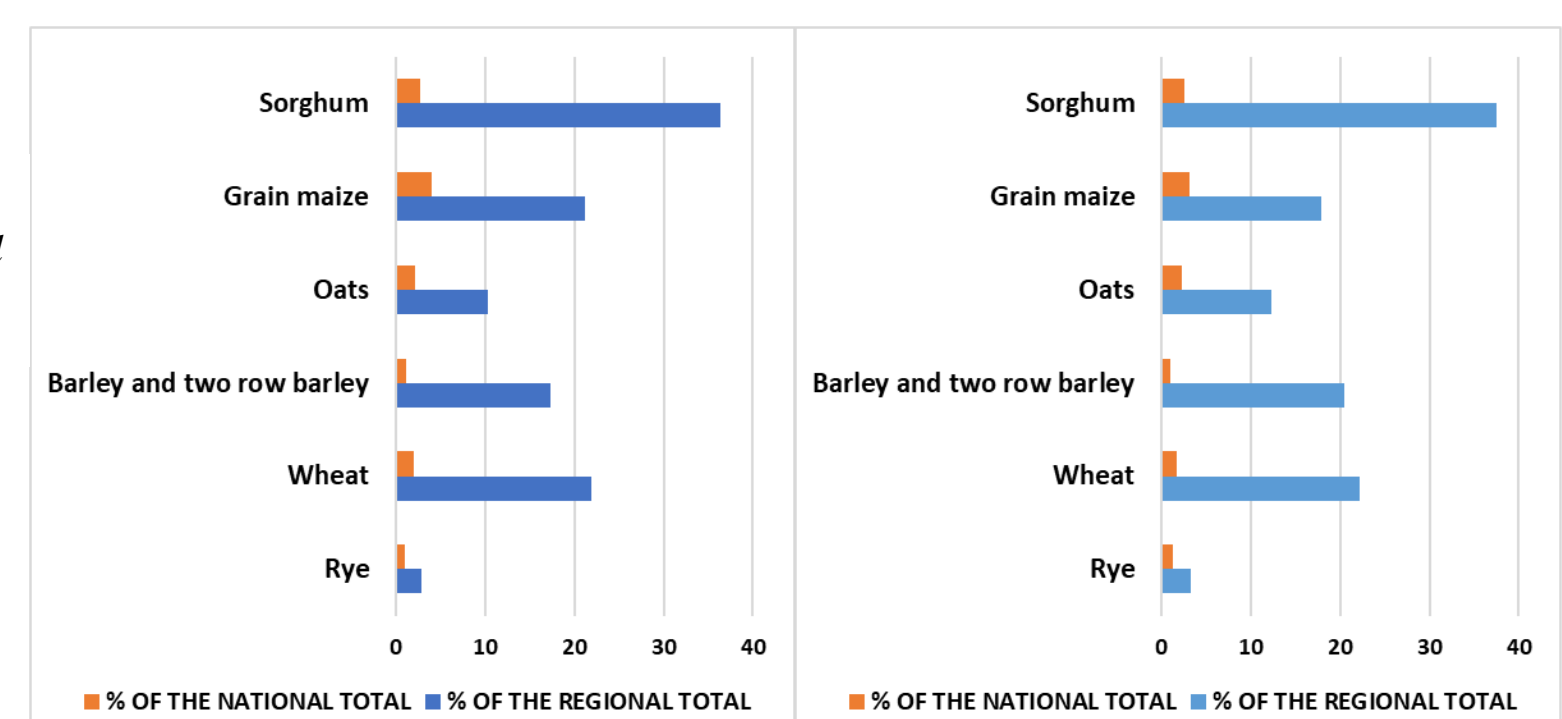


The yield per hectare (Iași, North-East Region, Romania)  
Source: elaborated by the author

Oats, barley, and two-row barley showed the best performance, while corn and rye suffered the greatest losses. These trends highlight the need for investments in sustainable and adaptive agricultural technologies.

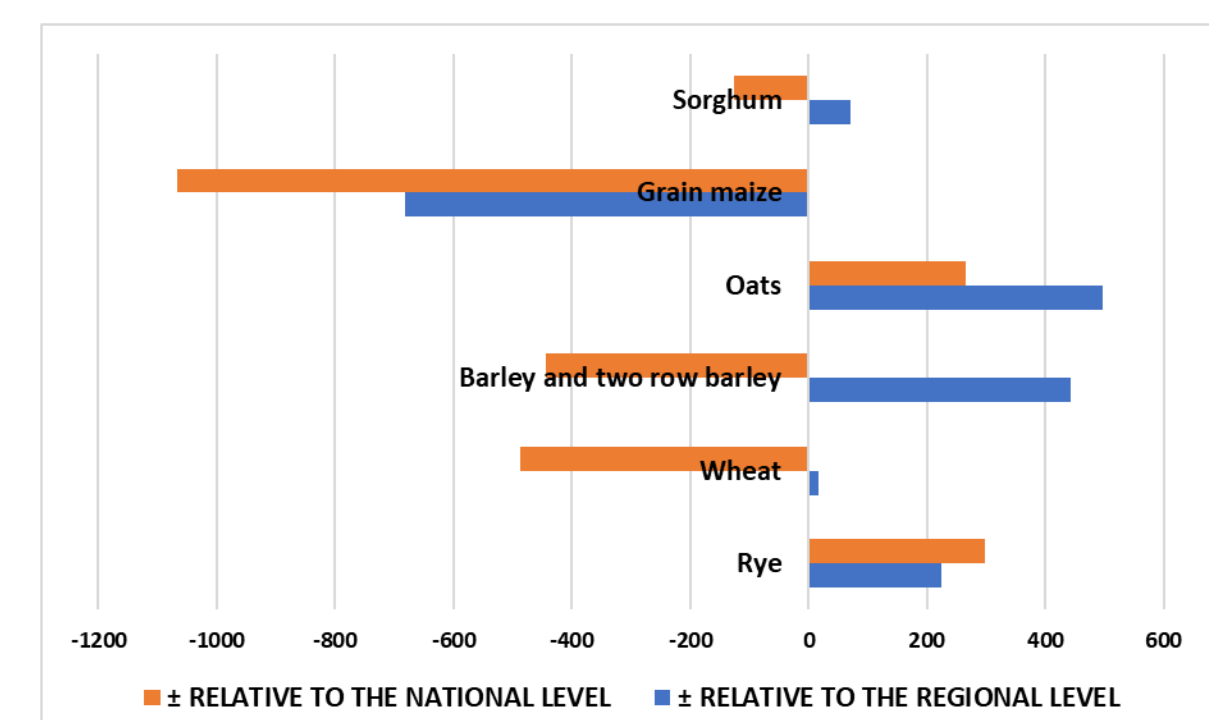
Between 2019 and 2023, the analysis of cultivated areas and average cereal yields in Iași County shows a strong correlation between land use and production. Sorghum leads, covering 36.4% of the regional and 2.6% of the national cultivated area, with good local efficiency but limited national impact. Given its drought resistance, sorghum is a promising crop for farmers in eastern Romania.

Cultivated area, county contribution at national and regional level - percentage average of the analyzed period  
Source: elaborated by the author



The production obtained, the contribution of the county at national and regional level - percentage average of the analyzed period  
Source: elaborated by the author

Wheat and corn are also key crops, though their yields could improve to boost national contributions. Rye, barley, and oats have a modest presence. Overall, Iași County demonstrates strong regional agricultural specialization, but its national influence remains limited.



Average production per hectare, the county's contribution at the national and regional levels - percentage average of the analyzed period  
Source: elaborated by the author

Between 2019 and 2023, rye and oats in Iași County outperformed both regional and national averages. Wheat yields matched the regional average but lagged nationally, while barley and two-row barley exceeded regional levels but remained below national ones. Corn showed the weakest performance. To sustain progress, rye and oats need continued support, while wheat and corn require targeted improvement strategies.

### •Conclusions

Between 2019 and 2023, the cereal cultivation area in Iași County remained stable, but total production dropped by 33.2% due to drought, lack of irrigation, and external competition. Wheat saw significant growth (+35.8%), while sorghum sharply declined (-83.5%). Major challenges include land fragmentation, lack of investment, and market uncertainty. Proposed solutions focus on crop diversification, technological modernization, and supporting small farmers for a more competitive and sustainable agriculture.